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Nature, Drivers, and Consequences of Convergence and Overlap in Performance Management Systems

**A thesis
submitted in partial fulfilment of the requirements
for the Degree of Doctor of Philosophy**

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**by
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Abstract of a thesis submitted in partial fulfilment of the requirements for the
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Performance management (PMgmt) is a relatively nascent field that is still evolving to provide managers with tools, intelligence, and perspectives needed to meet challenges arising from rising competition and accelerating change. Most of the work in this field has been reactive and (over the last decade) subject to rapid obsolescence. This thesis seeks to provide PMgmt academics and professionals with the encouragement and means to shift to a more proactive and, thus, enduring stance. Long-term trends in the development and use of PMgmt systems are investigated by using relevant literature as proxies of experience. The rationale is that tracing and analysing patterns, shifts and trends in how PMgmt concepts and practices endlessly adapt to meet the evolving needs of organizations will provide important insight as to how they develop and change over time. The research operational flow is as follows:

- 1) The literature review gathered common perspectives on how PMgmt changed from the 1980s until now,
- 2) Qualitative content analysis, incorporating grounded theory, was used to identify patterns in the changes to PMgmt systems from 1998 to 2007, to reveal desired attributes of PMgmt systems which have evolved to fit current managerial needs,
- 3) Speculative thought was used to highlight the emerging phenomenon of functional overlap of PMgmt systems as a consequence of the forces of convergent evolution (an influence/force revealed via the content analysis).
- 4) A framework for creating utilities from the functional overlap is proposed.

A number of key findings are deduced from this thesis:

- 1) Management needs, derived from a highly competitive and changing evolving business environment and focused on creating and sustaining competitive

advantage, drive the development and use of PMgmt systems into an evolutionary progression. The evolutionary change occurs via four major paths: from operations to strategic, economic-profit to stakeholder, measurement to management, and static to dynamic focus.

- 2) PMgmt systems have evolved from differing origins toward what can be visualised as archetypical forms—including, measurement-embedded, horizontally and vertically integrated, strategic-oriented, and fact-based information systems. These systems have the common intent to perform strategic functions—including, creating and maintaining strategic alignment, supporting decision making, assisting formulation and execution of strategy, influencing organizational behaviors, and facilitating organizational learning. This is a convergent evolution of PMgmt systems.
- 3) Functional overlap emerges as a consequence of convergent evolution. An analysis revealed that a substantial functional overlap occurs across a broad array of extant PMgmt systems—a few, or even many, of which may operate concurrently in a given organization.
- 4) A framework for understanding the benefits and costs of allowing functional overlap consists of three dimensions: perspectives, processes and applications. The first dimension seeks to make sense of the positive and negative aspects of the functional overlap that occurs in rapidly changing environments; the second seeks to understand the transformation of functional overlap from a new concept toward being a tool in organizational innovation while the third focuses on how functional overlap fits into the strategy-management capability of an organisation.

This thesis draws from accounting, management and other disciplines to provide an interdisciplinary perspective that seeks to reframe the mindsets of scholars and managers who deal with PMgmt systems. Ongoing research will be needed to refine and expand the notions of convergent evolution and functional overlap and to keep them current—they are dynamic and evolving concepts that risk becoming dated and irrelevant if allowed to degenerate into static/fixed forms. If established as common dynamic concepts, the notions will increase the awareness of senior managers and, by shifting organisations from reactive to proactive perspectives, should greatly enrich the flexibility and cost-effectiveness of PMgmt-systems and accelerate and their rate-of-response.

Keywords: Performance management; Performance measurement; Convergent evolution; Functional overlap; Strategy-management capability; Dynamic capability; Management tools and techniques; Qualitative content analysis.

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Abbreviations

BEM	Business Excellence Model
BRP	Business Process Reengineering
BSC	Balanced Scorecard
CBS	Comparative Business Scorecard
CPMS	Consistent Performance Measurement System
DMP	Dynamic Multi-dimensional Performance framework
DPMS	Dynamic Performance Measurement System
EVA	Economic Value Added
IDPMS	Integrated Dynamic Performance Measurement System
IPMF	Integrated Performance Measurement Framework
IPMS	Integrated Performance Measurement Systems
IC	Intellectual Capital
IT	Information Technology
JIT	Just In Time
JQM	Journal of Quality Management
KBM	Knowledge-based Measurement Model
KM	Knowledge Management
LOC	Levers of Control
MBNQA	Malcolm Baldrige National Quality Award
MC	Management Control
PMF	Performance Management Framework
PMgmt	Performance Management
PMsrmt	Performance Measurement
PP	Performance Prism
QM	Quality Management
QMPMS	Quantitative Models for Performance Measurement System
RDM	Results and Determinants Matrix
SBN	Skandia Business Navigator

SBU	Strategic Business Unit
SMART	The Strategic Measurement Analysis and Reporting Technique System
SPMS	Strategic Performance Measurement System
STS	Socio-Technical Systems
S&T	Sink and Tuttle Performance Measurement model
TdB	Tableau de Bord
TPM	Transforming Performance Measurement
TQM	Total Quality Management
US	United States of America
VBM	Value-based Management
WCM	World Class Manufacturing
WCMPM	World Class Manufacturing Performance Measurement System
WWII	World War II

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Chapter 1

Introduction

1.1 Research Background

Management concepts and tools have been, and are being, constantly updated and modernised to meet the evolving needs of organizations. Escalating complexity and less-than-predictable markets starting from the mid-20th century have caused conventional management concepts and practices to be increasingly less relevant to the current needs of organizations (see Johnson and Kaplan, 1987; Mintzberg, 1993; Mintzberg, 1994; Nixon and Burns, 2005; Drucker and Maciariello, 2008). Business organizations need to adopt, devise, or evolve new concepts and practices to enhance their relative competitive fitness, as part of dominating and/or excluding others from micro- and macro-niches within their environment.

Management of strategy is a key input to an organisation's competitive advantage and it must continually evolve in order to meet changing circumstances and other threats in its environment. A concept of strategic management used to be synonymous with strategic planning in the mid-1960s (Mintzberg, 1994). However, as accelerating rates of change have decreased the relevance of long-range-planning in the latter part of the 20th Century, understanding and integrating emergent strategies have become an ever more vital part of sustaining competitive advantage (Mintzberg, 1973). In the current era of increasing uncertainty and ambiguity, competitive advantage is more likely to be sustained by those organizations which devote significant resources, capabilities, and thought to the creation of the ability to adapt to continuous change (Fiol, 2001). A resource-based view of strategic management and its associated notions has emerged to allow an organization's potential key resources

and capabilities to be conceptualised as sources of competitive advantage¹ (Rumelt, 1984; Prahalad and Hamel, 1990; Barney, 1991; Hamel and Prahalad, 1996; Teece et al., 1997; Eisenhardt and Martin, 2000; José Acedo et al., 2006; Newbert, 2007; Døving and Gooderham, 2008). In this new perspective, the entire suite of strategic and management systems making up a performance management (PMgmt) system are re-characterised as a way to facilitate management of strategic response to change. This new understanding suggests that, as emerging new-form strategies become embedded in the managing of strategy, the PMgmt-system perspective needs to be reviewed, reformed, and reintegrated with the emerging reality.

PMgmt systems, like other management ideas and tools, evolve along with business and corporate contexts and, as a result, may evolve far beyond the original vision and intent of their creators. Thus, an understanding of the evolutionary flow of management concepts and systems is a prerequisite to understanding the present reality and possible futures of such concepts and systems. Development in the absence of such understanding is likely to instigate a costly, painful, drawn-out, trial-and-error process. All change involves risk and opportunity. If senior management fails to shift their perspectives to match those driving change in their organization's tools and systems, the relative capabilities of their organization must diminish over time (Drucker, 1982; Nixon and Burns, 2005). Moreover, this process may involve a slow degradation that, eventually, leads to a tipping point to extinction.

Like any biology-driven system, PMgmt systems evolve to better fit their *niche* (i.e. to better sustain their organizations' competitive advantage). The history of PMgmt evolved from management accounting and meanders through operations

¹ There is no consensus for the labels of research works based on resources or capability. However, their core or the key issues documented are similar as *a firm's resources indicate the firm's competitive position*.

management during the 1980s and 1990s via notions of performance measurement (PMsrmt) (Neely *et al.*, 1995). As a result of continually-evolving competitive stresses, PMgmt systems arose from divergent sources, growing beyond their creators' intent by embracing a strategy-management capacity, to create and deliver strategy in expected and unexpected ways, means, and forms. This evolution, driven by the needs of organizations, may force management protocols from differing origins to evolve to serve organizations in the same ways for the same purposes—this parallel development of similar attributes is analogous to the biological-science notion of convergent evolution.

Evolution in PMgmt systems/practises can be conceptualised and organized, via a biological analogy, into those occurring due to random events/fluctuations or to responses driven by systematic change in the business environment (Nelson 1995, p. 64). There are three response strategies for self-aware actors competing in an environment that is undergoing an extended period of aggressive change: 1) Do nothing, but hope for the best; 2) Passively react/ adapt to change as and/or after it occurs; and 3) Proactively identify trends so as to formulate and develop adaptive strategies ahead of the change—or, at least, anticipate challenges driven directly by the change and/or indirectly by responses to the change by competitors (Jamieson, 1998).

It is widely accepted that biological evolution-related concepts can provide useful analogies for economic, business, and technology issues (see Nelson 1995; Jamieson, 1998; Devezas, 2005) and the concept of evolution applied to this PMgmt research has several important consequences. Given that an evolutionary perspective neither contradicts nor conflicts with most theories of management, it allows researchers to gather and synthesise a host of theories, concepts and practices (Barnett

and Burgelman, 1996; Pierce and White, 1999) currently circulating in the field of PMgmt. Moreover, applying a concept of evolution to this research warns researchers to allow for dynamic processes (Barnett and Burgelman, 1996).

It should, however, be noted that there are differences between the application of evolution in biological sciences and its application in social sciences (Hayward, 1997). In a biological sense, the ability of an organism to evolve is mostly limited by its genetic structure, with only a small opportunity for behavioural changes. Thus, biological evolution is often slow and tends to be reactive. Evolutionary change in an organizations is more behavioural and tool oriented, so change can be radical and driven by both external and internal factors (Burns and Scapens, 2000). Further, an evolutionary path of society and humanity can be triggered by identification and anticipation of long-term trends (Hayward, 1997); accelerated processes rarely, if ever, observed in the biological sciences. Moreover, the importance of sexuality, mating, and procreation is usually assumed to be less significant in the evolution of technologies, organizations, or other human institutions (Nelson 1995).

1.2 Research Objective

The author's interest in the topic of PMgmt evolution was initially developed from personal involvement in the development of PMgmt systems for private and public organizations in Thailand. In particular, the author found that the knowledge and know-how from his MBA program seemed to never be quite adequate to resolve practical issues emerging during projects. This situation can be expected when the business environment is constantly changing and evolving beyond what is being taught and researched. Furthermore, PMgmt is a relatively nascent discipline, especially if compared to other the business disciplines of accounting, operations, and

strategy (Neely *et al.*, 1995; Smith and Goddard, 2002; Neely, 2005). Current PMgmt concepts are seen in terms of a collage of diverse scholastic works that discuss proposals, experiences, and notions of scholars from a diversity of management and applied disciplines (Neely, 2005; Pun and White, 2005). There are practical suggestions that the development of PMgmt systems requires a unity of concepts and practices that transcend the knowledge of any given academic discipline (Smith and Goddard, 2002; Ferreira and Otley, 2009; Franco-Santos *et al.*, 2012). More importantly, practices may evolve in a direction that makes the long established concepts and tools obsolete (Otley *et al.*, 1995; Manzoni, 2002). The research question (*What PMgmt concepts will form a basis for future practices?*) that emerged during the preliminary literature review, was combined with earlier thoughts to form the motivation for this study.

The main objective of this thesis is to provide a significantly useful concept of PMgmt that meets the need of today's and future organizations. This concept will be used to develop current and future practices in the relatively new and not well established field of PMgmt (Smith and Goddard, 2002; Neely, 2005) and enrich management perceptions, choices, and outcomes. On the flip-side, if decision makers conceive poorly (e.g. by choosing from obsolete or incomplete concepts) their choices tend to either value deducting or fall far short of adding the full potential value.

A key postulate in this thesis is that: *PMgmt concepts and practices continuously adapt to meet the evolving needs of organizations*. Specifically, managements' need to create and sustain competitive advantage drives PMgmt systems' development. In addition, management need to recognise that the rate of change and adaptation in the business environment from the late 20th century till

present is continuing to accelerate (Jarrar, 2004; Nixon and Burns, 2005; Wright *et al.*, 2008).

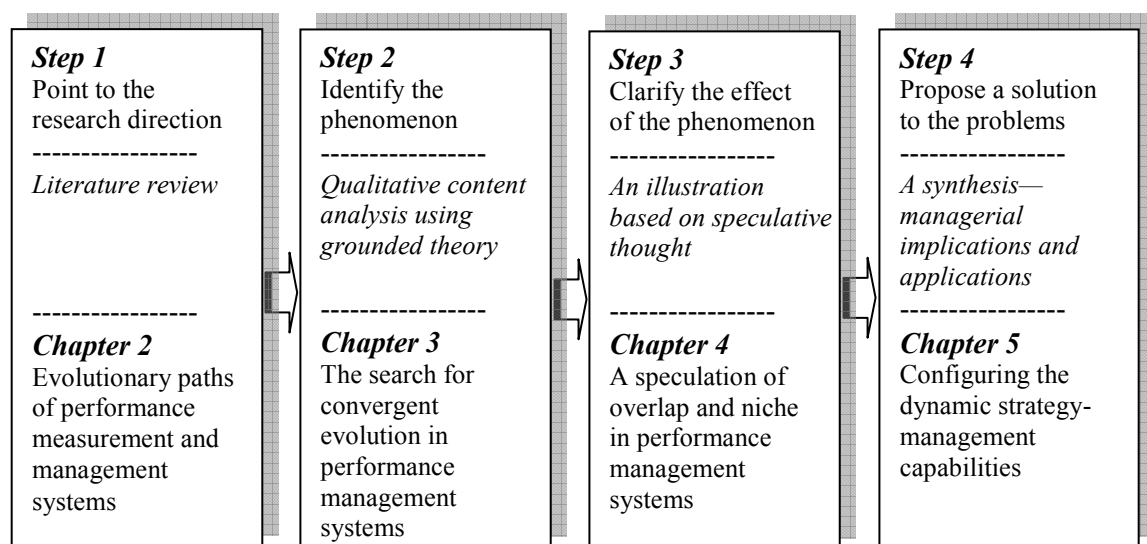
Concepts arising from this research provide alternative modes for the development and use of PMgmt systems, and notes that changes in PMgmt concepts and practices follow trends that can be understood via a biological analogy (i.e. evolution). Convergent evolution and its consequence of functional overlap in PMgmt systems are revealed as key concepts which will suggest that the relevance of earlier and current PMgmt perspectives is becoming increasingly less. The evolving course of PMgmt systems will be appraised by a review of their progression from past to current configurations and that understanding will be used to consider how current PMgmt systems might be optimally reconfigured. This research will be of interest to both scholars and practitioners in the fields of management accounting, operations and strategy.

1.3 Operationalisation of this Thesis

This thesis seeks to understand the contemporary history of PMgmt from the 1980s to the present, in an interdisciplinary perspective, so as to gain insight into the trajectory of PMgmt to future practice. This understanding pilots an historical approach to the research by deriving insight from data embedded in transformative contexts and providing a basis for understand the development and use of PMgmt systems over the last 30 years (Previts *et al.*, 1990). This study provides a multi-stage investigation that draws from diverse academic disciplines, using scholarly literature (as qualitative data) to act as proxies of experience(s)—Figure 1.1 shows the operational flow of this process.

A key assumption in this study is that the texts are a form of knowledge produced by academics and practitioners that relate to the actual setting of business and management. Research in management and its associated fields of studies is applied research (Zikmund *et al.*, 2000); a form of research concerning the practical application of science. A key objective of business and management research is to supply knowledge to the practices of management (van de Ven, 1989; van Aken, 2005). It is argued that, directly or indirectly, a linkage with the business and management world gives the *raison d'être* for that kind of research. Hence relationships between the research and practice can be expected, to a certain extent. However, it should be noted that the issue that the gap between research/researchers and end users in the field of business and management is not significantly bridged is occasionally proposed (Starkey and Madan, 2001; Fincham and Clark, 2009). An assumption in this research is that there is a substantial degree of relationship between the research and practice.

Figure 1.1: Research Operational Flow



This study starts with an initial review and analysis of relevant literature in management accounting, operations and production management, organizational

behaviour, human resource management, and strategic management. The outcomes and direction generated by this review are presented in Chapter 2. Reviewing relevant literature helps identify and focus on key parameters and creates information/perspectives for further investigation (Sekaran, 2003). The contribution of this literature review does not provide a predefined theme, category or even coding, it merely provides an appropriate starting point and gives initial direction to the research.

A qualitative content analysis applying a grounded theory approach, with an aim to develop a concept explaining the evolution of PMgmt, was undertaken in stage two (see Chapter 3). While qualitative content analysis and grounded theory approaches share similar attributes in analysing written content (a form of qualitative data), the latter goes beyond describing and explaining to the stage of constructing new concepts to explain the subject studied. A concept of convergent evolution in PMgmt systems, including its form and function—a description of a pattern (Auerbach and Silverstein, 2003)—was gradually drawn from raw data during multi-phases of analysis.

Holsti's (1969, p.14) definition of content analysis: *“any technique for making inferences by objectively and systematically identifying specified characteristics of messages”* allows researchers (dealing with text) to adapt this methodology to their research needs. Qualitative methods, as well as providing a means to collect, collate, and analyse qualitative data, can discover and develop new understandings of poorly understood phenomena (Strauss and Corbin, 1990). This attribute is of great value in the still developing field of PMsrmt and PMgmt (Neely, 2005) where research should be

less focused on testing hypotheses and more on generating hypotheses²—i.e. it is still at more of a theory-development stage.

Grounded theory is widely suggested as an approach utilizing research data for constructing theory (Glaser and Strauss, 1968; Strauss, 1987; Layder, 1993; Goulding, 2002; Corbin and Holt, 2005).³ It uses a systematic set of procedures to discover, develop and provisionally verify qualitative data that are combined to generate a concept to explain a phenomenon (Strauss and Corbin, 1990). This method lets a researcher begin a study without having to first acquire a profound understanding of incidents (Auerbach and Silverstein, 2003) as the concept will be gradually developed and explained, based on the data gathered through a qualitative analysis approach (Goulding, 2002; Corbin and Holt, 2005).

In the third stage of this research (see Chapter 4), an illustration based on a *speculative thought* is implemented by *disciplined imagination* (see Golightly, 1951; Weick, 1989) to demonstrate a consequence of convergent evolution in PMgmt systems. Convergence of PMgmt systems incorporated the idea of management tool mania (Rigby, 2001a; Rigby and Bilodeau, 2007) and leads to the tentative assumption that: “*Organizations, at large, are adapting multiple management systems which potentially perform similarly to serve the same purposes of PMgmt systems (i.e. functional overlap).*” A set of PMgmt functions as predefined codes (proposed in Chapter 3), was applied to review selected PM-systems literature to validate the

² In order to set a hypothesis, sufficient knowledge to state meaningful hypotheses and to select significant independent and dependent variables is essential (Auerbach and Silverstein, 2003).

³ It is noted that this thesis uses Grounded Theory following the Strauss (1987) method. While Grounded Theory was founded by Glaser and Strauss (1968) in the mid-1960s, significant differences in approach evolved between the two founders, over the following decades. While Glaser retained a purely inductive approach where Grounded Theory was primarily used only to winkle out concepts that would otherwise not be apparent (Glaser, 1998), Strauss and Corbin (1998) extended this inductive approach to perform qualitative data analysis via rigorous approaches that are more associated with deductive approach (Heath and Cowley, 2004). After Strauss’s death in 1994, Corbin continued to update and expand this work (e.g. Corbin and Holt, 2005; Corbin and Strauss, 2008).

assumption. The results of the illustration can yield new insights without data from actual settings (McAllister, 1996; Bishop, 1999; Lennox, 2005).

The last stage of the research (presented in Chapter 5) is a synthesis of the academic literature and the current study so as to develop perspectives, processes and applications to utilize the potential of functional overlap as a new-form strategy-management capability.

1.4 Organization of this Thesis

Chapter 1 – Introduction: Informs readers about the main issues that are covered in detail in Chapters two through five.

Chapter 2 – Evolutionary paths of performance measurement and management systems: Aims to understand the evolution of PMsrmt and PMgmt (cc 1980 to the present). The transition in PMsrmt and PMgmt is tracked over 25 years by using a number of PMsrmt and PMgmt systems as exemplars. This review initially opens scope of the research to the convergent evolution of PMgmt systems.

Chapter 3 – Convergent evolution in performance management systems: First develops a brief history of contemporary PMgmt systems, and then looks for and confirms the presence of convergent evolution in those systems. The conclusions in this chapter flow from a content analysis of 10 years of the development and use of four management approaches to clarify essential issues of PMgmt and points to a key consequence of the PMgmt convergence—i.e. functional overlap.

Chapter 4 – A speculation of overlap and niche in performance management systems: Considers whether functional overlap exists in PMgmt systems. It is a speculative thought exhibiting the outcomes of organizations using multiple coexisting PMgmt systems. It provides insights into post-convergent evolution in PMgmt systems and identifies functional overlap as an issue not previously explicitly addressed in the scholarly literature.

Chapter 5 – Configuring dynamic strategy-management capabilities to utilize the performance-management functional overlap: Provides perspectives, processes and applications to create utility from the functional overlap of PMgmt systems that arises as a consequence of convergent evolution in PMgmt systems.

Chapter 6 – Conclusions: Discusses this thesis, in general, assesses its relevance to academia and practitioners, and suggests extensions into future research.

Chapter 2

Evolutionary Paths of Performance Measurement and Management Systems

2.1 Introduction

The past has affected and continues to affect the present and even the future, to extend knowledge about measurement and management of (corporate) performance.^{4,5} This chapter to illuminate the evolutionary paths of PMsrmt systems followed from the 1980s (Nixon and Burns, 2005) to the present, by using uses a number of PMsrmt and PMgmt systems to illustrate key transitions and change paths in PMsrmt.⁶

Patterns and trends in the PMsrmt changes, over two-and-a-half decades, used to lend support to the notion that the initiation, development, and renewal of PMsrmt over the last few decades have been driven mostly by changes and trends in business environment. The idea, that a management tool/practice should be designed with a concern for the environment and organizational contexts in which they serve, has long been established (see Johnson, 1981; Macintosh, 1981; Johnson and Kaplan, 1987; Johnson, 1992; Chenhall, 2003; Otley, 2003; Drucker and Maciariello, 2008). However, the absence of an explicit acknowledgement in the extant literature that the recent PMsrmt evolution is linked to its changing contexts, is the *raison d'être* of this study. This study arises from a belief that societal and organizational contexts provide clues as to the appropriateness in design and use of managerial concepts and practices. A further sustaining belief in this study is that management needs are the major driving force and context, in a given period, for the development and use of PMsrmt

⁴ Although the main theme of this thesis is about PMgmt, this chapter is of value in picturing the evolution of PMsrmt which is the core of PMgmt system. More importantly, this review gives a point where the next-step investigation should begin.

⁵ The terms: *Performance measure*, *Performance measurement*, and *Performance measurement system* used in this chapter follow the definitions provided by Neely *et al.* (1995).

⁶ It is noted that the PMsrmt *systems*, *frameworks*, *techniques* or *models* are also used widely and sometimes interchangeably in PMsrmt and management control literature.

concepts and practices (Johnson, 1981; Ittner and Larcker, 2001; Bourne *et al.*, 2003; Otley, 2003).

An understanding of the evolutionary flow of PMsrmt is a prerequisite for developing a sound understanding and command of its future. Development in the absence of such comprehension is likely to involve a costly process of trial and error. The evolving course of PMsrmt will be appraised through a review of the progression from its past to current configurations and notions. The evolutionary paths of the PMsrmt will be drawn from this chapter.

The US PMsrmt and PMgmt literature initially set the direction of this review. Indeed, some PMsrmt introduced in the US business spheres in the late 20th century—e.g. the Malcolm Baldrige National Quality Award (MBNQA), Benchmarking and Balanced Scorecard (BSC) have been recognised by individuals, organizations and governments around the world (see Rigby, 2001a; Miguel, 2005; Rigby and Bilodeau, 2005). It is argued that, development of US PMsrmt drove much of the development of PMsrmt practices around the world. Thus, understanding the nature and drivers of the development of US PMsrmt considerably enriches any understanding of PMsrmt in the world. However, given the rising intensity and globalisation organizations and markets (Delmas, 2002; Guler *et al.*, 2002; Franceschini *et al.*, 2010), this review includes important non-US developments that influenced the development of PMsrmt concepts and practices in beginning of the 21st century. It should also be noted that, even in this inter-connected world, different evolution patterns can dominate other countries.

The illustrative and selective in this chapter does not provide a comprehensive coverage of literature—rather it describes the transition in PMsrmt by reviewing key

parts of the literature and by incorporating a number of PMsrmt and PMgmt systems as illustrative exemplars.^{7,8} The rest of this chapter is organized as follows:

- The main paths/directions of PMsrmt transformation are outlined in section 2.2.
- Four paths of PMsrmt transitions are illustrated in details in section 2.3 through 2.6.
- Section 2.7 provides the conclusions and links to the next chapter.

2.2 Directions of Performance Measurement Evolution

The transition of PMsrmt from the early 1980s followed four major paths, from: Operational-to-strategy; Economic/profit-to-stakeholder; Static-to-dynamic; and Measurement-to-management focus. The next few sections illustrate the evolutionary paths of PMsrmt in detail. Conditions and driving forces, that give hints to, and frame a basis for, PMsrmt evolution (over the last two decades) are revealed. The intent is to affirm that ongoing development of PMsrmt concepts and practices is driven by change in the business environment.

Like other management concepts/tools, PMsrmt developed (from the early 1980s) within external environment and corporate contexts. Also, some PMsrmt systems have progressed far beyond their creators' original intent, in part, because a system's destiny tends to be determined more by its users than its creator.⁹ A happenstance of PMsrmt systems, at any point in time, is shaped by the relationships between the needs for, and the forms of, management tools in use (Drucker, 1982; Neely, 1999; Nixon and Burns, 2005). As a result of these continually progressing

⁷ The fact that the real needs and satisfactions of managers are neither constant nor linear is a reason why academicians and practitioners are constantly attempting to bridge the gap. This chapter uses PMsrmt systems as exemplars that are the results of constant attempts to improve the existing PMsrmt systems to satisfy the ongoing needs of companies.

⁸ A number of PMsrmt and PMgmt systems are also illustrated in Appendix 1 in detail.

⁹ This review emphasizes PMsrmt evolution and change within organizations where agency theory is often used to discuss people's behaviours, derived from their values, motives and interests relating to the change (see Waggoner *et al.*, 1999; Jazayeri and Scapens, 2008). Further, agency theory has been criticized for its presumptions about human behaviour (see Mills, 1993; Kunz and Pfaff, 2002). Thus, by means of people in this sense, it can be anyone who is involved in and influences the process of evolution and change of PMsrmt.

competitive forces, many ideas about PMSrmt and PMgmt arose from divergent sources, to create and deliver strategy in expected and unexpected ways, means, and forms.

2.3 Transition from Operations to Strategic Orientations

The destruction of the capacity of European and Japanese industries in WWII, allowed the US industries to enjoy unprecedented excess demand (Ghemawat, 2002). This fact, combined with a greater degree of access to financial markets and abundant resources, made production capacity the dominant determinant of the profits of organizations. In those circumstances, production management tended to be the dominant operating concern of most firms. During this period, only financial measures (e.g. profit, return on investment and productivity) were major concerns (Johnson, 1992; Ghalayini and Noble, 1996). However, in the decades following the post-WWII period, global competition increased with the recovery of European and Japanese industries and forced the US companies to manage their businesses better, so as to regain competitive advantage (Ittner and Larcker, 2001; Ghemawat, 2002). It became apparent, from the 1970s on that, a large portion of the US market shares, including the US domestic market, gradually shifted to German and Japanese industries (Petersen, 1999).

In the early 1980s, competitive advantage was located in operations spheres, existing PMSrmt systems sought to incorporate *management of operations* to improve manufacturing processes. The search for a dominant solution to compete with the new rivals led US industry to adopt several management philosophies—e.g. Total Quality Management (TQM), Just-In-Time (JIT), Benchmarking, Business Process Reengineering (BPR), and World Class Manufacturing (WCM) to improve the quality

of manufactured products (Ishikure, 1988; Maskell, 1991; Cole, 1999). Directly and indirectly, in the 1980s, a progression of US management techniques/ initiatives encouraged the development of PMsrmt systems (Maskell, 1989a; Johnson, 1992; Watson, 1993) and PMsrmt creators, especially industrial practitioners, became more interested in enhancing the quality of performance measures (Johnson and Kaplan, 1987; Maskell, 1989a; Kaplan and Norton, 1996a; Ittner and Larcker, 1998). A number of new accounting techniques (e.g. cost of quality measurement, activity-based costing, process value analysis, and strategic cost management) were also introduced and used (Ittner and Larcker, 2001).

The development of the early 1980s PMsrmt systems sought to serve the needs of manufacturing corporations. For example, World Class Manufacturing Performance Measurement system (WCMPM) incorporated the concept of WCM (Maskell, 1989d) to improve quality, reduce *lead times and costs*, and enhance production flexibility. While, industry standards were not established at that time, an emerging consensus among progressive companies around the world tended to use performance measures that were flexible, directly related to the manufacturing strategy, non-financial, easily understood, and highly responsive to the daily production situation (Maskell, 1989c). It is obvious that WCMPM seeks to improve internal operations more than it focuses on competition and other external environment.

The evolution of benchmarking is significantly associated to PMsrmt evolution (Anderson and McAdam, 2004). Indeed, traditionally, a benchmark refers to a metric unit on a scale for measurement (Sarkis, 2001). Benchmarking was originated in the early 1950s, when Deming and Juran trained Japanese industries to improve quality of products (Kolesar, 2008). However, the birth of modern benchmarking, in the field of industrial engineering, occurred when the Xerox Corporation in the USA adopted a

similar approach in 1979 (Bendell *et al.*, 1993). It was applied as a processes of continuously measuring and comparing an organization's business process against business leaders to gain information which will facilitate learning in order to take action for achieving competitive advantage (Watson, 1993; Holloway *et al.*, 1999). Benchmarking evolved through several phases (Maire *et al.*, 2005) toward *strategic benchmarking*—evolving from an operational level to a strategic level—to create a management system, to attain a competitive advantage. A PMsrmt system, incorporating benchmarking, derived from strategic priorities has become apparent to be leading, forward looking, and predictive (Anderson and McAdam, 2004).

The introduction of, and change in, the quality-management techniques resulted in the re-characterization of management concepts and practices including PMsrmt (Johnson, 1992; Spicer, 1992; Lind, 2001). Several scholars have claimed that the development and use of such organization-wide management techniques radically influenced the development of management accounting techniques (e.g. Dixon *et al.*, 1990; Maskell, 1991; Johnson, 1992; Otley, 1994). Turney and Anderson's (1989) case study, supported by Lind's (2001) follow-up longitudinal case studies show that awareness of non-financial measures increases in firms that adopt organization-wide management techniques (e.g. TQM, JIT, and WCM). During that period, managers realized that traditional performance measures were no longer sufficient to facilitate management's need to enhance the ability of their organization to compete in what was then perceived as a rapidly changing global business environment (Johnson and Kaplan, 1987; Johnson, 1992). In response to these criticisms, some PMsrmt systems generated after 1980 sought to provide a more-strategic set of measures, that were a better fit for the then emerging post-industrial era. Not only were non-performance

measures considered, but the quality of financial measures were considered as well (Ittner and Larcker, 1998).

This new notion of PMsrmt suggested that PMsrmt and strategy were closely linked (Anthony and Govindarajan, 2003; Said *et al.*, 2003; Melnyk *et al.*, 2005). PMsrmt, as a tool that translates strategy into a set of performance measures of a chosen strategy, is often called strategic-PMsrmt (Atkinson *et al.*, 1997; Ittner *et al.*, 2003; Chenhall, 2005). From the early 1980s till now, many researchers in a variety of disciplines have sought a better means to link PMsrmt and strategy (Langfield-Smith, 1997; Neely, 2005). At the moment, the notion that the strategy-measurement fit affects organizational performance has been both raised and validated (Ittner *et al.*, 2003; Chenhall, 2005; van der Stede *et al.*, 2006). Accordingly, a common contemporary question for academic communities is how to ensure that PMsrmt relates to, as well as reflects, an organization's strategy (Neely, 2005).

As the competitive advantage shift from shop floor to marketing and strategy, PMsrmt designed after 1980 shifted from an operations/functional level to a focus on strategically sustaining a firm's competitive advantage. Particular PMsrmt systems evolved through diverse concepts; even though (in retrospect) they may appear to have emerged from the operations arena with an explicit aim of continuous improvement (i.e. PMsrmt is used as a means to drive a continuous cycle of performance improvement). Their proponents thought that developing and selecting the *right measures* and measuring variables in the *right manner* would result in a PMsrmt system that could give the information needed to manage an organization in an effective manner.

The *Tableau de Bord* (TdB) was among the first PMsrmt systems to evolve a strategic focus. The record on TdB can be traced back to 1932, when it was developed by French engineers to improve production processes (Malo, 1995; cited in

Bourguignon *et al.*, 2004). The original purpose of the TdB was as a tool for senior management to identify key parameters to facilitate good decision making (Epstein and Manzoni, 1997). Until the late 1980s, the TdB was basically used as a reporting device and a system to facilitate diagnosis and interact in a hierarchical dialogue (Bourguignon *et al.*, 2004). It is a dashboard that assists senior managers by providing a set of performance measures that allow them to monitor, learn and take corrective actions while sustaining the progress of a business (Epstein and Manzoni, 1997; Bourguignon *et al.*, 2004).

More recently, a number of PMsrmt systems were designed (initially) to be incorporated with quality management techniques. The MBNQA was first launched by the US Government in 1987 to encourage US firms to use TQM to gain competitive advantage (Gadd, 1995). It is a form of Business Excellence Model (BEM). It offers a set of causal links between performance drivers and an organization's results as a good predictor of organizational performance (Wilson and Collier, 2000). The MBNQA's *Criteria* (i.e. self-assessment framework) give a system perspective to maintain organization-wide goal alignment (NIST, 2003). Although it was initiated within a quality management focus, since 1999 it has evolved beyond the boundary of quality management, to provide a more holistic view as an organizational-performance-excellence framework—i.e. a strategic management system (Natarajan *et al.*, 2000; Vokurka, 2001). The MBNQA uses the *Criteria* as a strategic framework to assess the readiness of the key processes, systems and structures of organizations (NIST, 2007). TQM and its associated concept of BEM is widespread over 76 countries (Miguel, 2005). Under the umbrella of TQM, the BEM models slightly vary among nations (Chuan and Soon, 2000). However, each offers a

significantly similar set of strategic performance measures linking between performance drivers and organization's results.

While managements' need to sustain competitive advantage created a tension that shifted PMsrmt in the 1980s from an operations-focus to a strategic-focus, an ever-rising intensity of competition has forced senior management to seek new sources of competitive advantage and left them ever-less able to rely on extant knowledge and know-how. As a consequence, new business foundations are needed to identify, measure, analyse, and steer organizations to more innovative paths (Teece, 2000; Low and Kalafut, 2002). Recognition of this rising need for innovative perspectives of competitive advantage—e.g. knowledge workers, intangible assets, hidden value and human capital—caused an emergence of new notions of intellectual capital as a key competitive-advantage fount¹⁰ (Sveiby, 1997; Roos *et al.*, 1998; Bontis, 2001). PMsrmt for intellectual capital (IC) suggests new approaches to provide insight, measure, and manage new strategic factors. However, a consensus on the best way to measure and visualize intellectual capital is not well established. For example, *Skandia Business Navigator* (SBN; Edvinsson and Malone, 1997) relies on a conventional (financial) accounting focus, reflecting only the monetary value of a company and neglecting many aspects of intellectual capital which can play a vital role in creating value (e.g. a company's culture, organizational learning and employee creativity; (Chen *et al.*, 2004). In contrast, Sveiby (1997) recommends a new lens to see each organization as a *knowledge nexus* and to modify the traditional accounting approach with a new framework of a knowledge perspective.

¹⁰ Even though a notion of intangible resources has been introduced at least a half century ago (see Polanyi, 1958), the intense competition and hyper-rapid change in industry structure and business practices in the late 1980s to mid-1990s forced managers to shift their paradigmatic perspectives with the notion to sustain their organizations' competitive positions (see Petty and Guthrie, 2000; Low and Kalafut, 2002; Mouritsen and Larsen, 2005).

Table 2.1: Dimensions of Performance Measures

PMsrmt systems	Started	Dimensions of performance measures
Sink and Tuttle Performance Measurement model (S&T) (Sink and Tuttle, 1989, 1990)	1985	Effectiveness, efficiency, quality, productivity, quality of work life, innovation, and profitability/budgetability
The Malcolm Baldrige National Quality Award (MBNQA) (NIST, 2003, 2007)	1987	Leadership, strategic planning, customer focus, measurement, analysis, and knowledge management, workforce focus, operations focus, and results
The Strategic Measurement Analysis and Reporting Technique system (SMART) (Cross and Lynch, 1988)	1988	Market, financial, customer selection, flexibility, productivity, quality, delivery, process time, and cost
World Class Manufacturing Performance Measurement system (WCMPM) (Maskell, 1989a, 1991)	1989	Quality, delivery, production process times, flexibility, and costs
Results and Determinants Matrix (RDM) (Fitzgerald <i>et al.</i> , 1991)	1991	Two set of measures: end results (competitiveness and financial performance) and means or determinants (flexibility, resource utilization, innovation, and quality of service)
Skandia Business Navigator (SBN) (Edvinsson and Malone, 1997)	1991	Financial, customer, human, process, and renewal and development focus
Balanced Scorecard (BSC) (Kaplan and Norton, 1992)	1992	Financial, customer, internal processes, and learning and growth perspectives
Knowledge-based Measurement Model (KBM) (Sveiby, 1997)	1997	Three sets of measures: growth and renewal, efficiency, and stability, for three intangible asset categories: employee's competences, internal structure, and external structure
Comparative Business Scorecard (CBS) (Kanji, 1998)	1998	Stakeholder values, process excellence, organizational learning, and delighting stakeholders
Performance Prism (PP) (Neely <i>et al.</i> , 2002)	2001	Stakeholder satisfaction, strategies, processes, capabilities, and stakeholder contribution
Dynamic Multi-dimensional Performance framework (DMP) (Maltz <i>et al.</i> , 2003)	2003	Financial, market, process, people, and future

Note: Some PMsrmt systems do not fit within this framework—instead, they focus on specific issues related to PMsrmt (e.g. providing guidelines to select and design a performance measure and/or how to manage and utilize the performance measure).

The evolution of PMsrmt from operations to strategic orientation can be seen via the change in dimensions of performance measures (see Table 2.1). In general, some PMsrmt systems highlight inputs and provide predefined groupings of performance measures. While performance measures developed in the 1980s were better related to operations and production, a greater focus on strategy and customers gradually became a trend after the 1990s. It is seen in the Table 2.1, that some PMsrmt

systems (S&T, SMART, WCMPM, RDM, etc.) were developed under an operations-oriented focus where cost, quality, and productivity are emphasized. On the other hand, after the 1990s the scope of many PMsrmt systems (BSC, CBS, PP, DMP, etc.) was broadened to become more strategy oriented, by covering: future prognosis, innovation, customer/market and intellectual capital.

2.4 Transition from Shareholder to Stakeholder Values

The debate between the relative merits of shareholder economic-profit and stakeholder social-benefit has a long history of *to-and-fro* (Business_Week, 1973, p. 393). The original perspective of PMsrmt is often seen as being *out-of-balance*, because wider social and environmental responsibility and the integrity of business enterprises are not considered in extant measuring and reporting systems—in part, because short-termism in financially-focused performance measures tends to narrow the perspective of these systems and those who use them.

Although financial-oriented performance measures have long been recognised for their limitations, (Johnson and Kaplan, 1987; Wisner and Fawcett, 1991; Neely *et al.*, 1997), the limitations tended to be essentially addressed and solved only behalf of controlling shareholders and key creditors. In the 1980s and somewhat earlier, the traditional PMsrmt systems were devalued by managers as being irrelevant, overly complex, too costly to maintain and, far too often, misleading (Johnson and Kaplan, 1987; Neely, 1999). These criticisms arose in an era where competitive advantage was at the operations level because financial measures are not meaningful for controlling a production or distribution plant. However, the nature and dimensions of performance measures, as understood in 1980s (see Table 2.1) were focused mostly at shareholder interests and reflected the mindset of businessmen in the 1980s.

However, in the late 1980s, a stakeholder approach to PMsrmt emerged in response to criticisms of over-representing key shareholders at the expense of other shareholders and stakeholders (Clarke, 1998, pp. 182-3; Garengo *et al.*, 2005). This trend, combined with long-established social-and-environment accounting, encourages a management agenda, that drives PMsrmt systems (especially since the 1990s) to broaden their focus on stakeholder requirements—rather than reflect only shareholder economic-profits (Garengo *et al.*, 2005).

Concerns over the social environment have significantly increased as the 20th Century closed into the 21st Century (Jones, 2010). External demands, including customers, governments, and international agencies, constantly play a major role in forcing organizations to pay greater attention to social and environmental imperatives (Milne, 1996). This trend has been reinforced through regulations and laws in many Western countries (Milne, 1996)—e.g., to obtain an environmental certificate from an *International Standard Organization*, environmental and social issues must be included in the core business processes and be translated to performance measures. More recently, a number of organizations have integrated social and environmental dimensions to their existing PMsrmt systems (see Figge *et al.*, 2002; Chenhall and Langfield-Smith, 2007; Lämsiluoto and Järvenpää, 2008). As mentioned by Lämsiluoto and Järvenpää (2008), improvement of social and environmental performance (in order to enhance profitability) may cause senior management to direct more attention to a stakeholder approach to PMsrmt. Integrating environmental and social measures into its PMsrmt system, can help an organisation to more precisely monitor, learn, and report-on its environmental and social performance (Lämsiluoto and Järvenpää, 2008). Indeed, information about stakeholder contributions and expectations are critical to managing a business (Clarke, 1998). Crockett (1992, p. 41) asserted that “...only

when [an executive information] system is designed around performance measurements that give expectations of stakeholders the same weight and value as critical success factors and their benchmarks does the system help improve strategic decision making”. Adoption and implementation of a stakeholder approach (as opposed to a shareholder approach), caused senior managements to broaden their views to the social purposes of firms, which lead to the change of managers’ mindsets in running businesses (Perrini and Tencati, 2006). While the issues of *what is measured* and *how is it measured* have been long discussed (Estes, 1973), a consensus has not been achieved.

Atkinson *et al.* (1997) propose a stakeholder approach, so as to develop PMsrmt systems with an intent to assist all within a firm to understand and evaluate their contributions and expectations. This proposal is based on the notion that an organization is a complex relationship between environmental stakeholders (i.e. customers, stockholders, regulators, and community) and process stakeholders (i.e. managers, employees, and suppliers). A stakeholder approach to PMsrmt is also applied in the CBS where the expectations and needs of all stakeholders are taken into account (Kanji and Sa, 2002). All four dimensions of CBS (i.e. stakeholder value, delight stakeholders, process excellence, and organizational learning) are attended simultaneously—they fuel each other with intent to drive continuous improvement, to achieve intended stakeholder values.

Performance Prism (PP) is a PMsrmt system that was developed by paying attention to the need of all stakeholders (i.e. employees, suppliers, intermediaries, regulators and communities (Neely et al., 2002). Like BSC, PP bores down from strategies to processes and capabilities, using a broad perspective and comprehensiveness that tends to be lacking in other PMsrmt systems (Neely *et al.*,

2001; Neely *et al.*, 2002). There are five interrelated aspects of the PP and each of the facets represents a key determinant of success in most strategic situations. In the model, stakeholder relationships centre on a combination of stakeholder satisfaction and their contributions (Powell, 2004). Per Neely *et al.* (2001) pointed out the fundamental questions asked in each facet of the PP:

- 1) **Stakeholder satisfaction** – Who are the stakeholders (investors, employees, customers, suppliers, and regulators) and what do they want and need?
- 2) **Strategies** – What strategies are we pursuing to satisfy these wants and needs?
- 3) **Processes** – What (cross functional) processes do we need to put in place to achieve these strategies?
- 4) **Capabilities** – What capabilities (people, practice, technology, and infrastructure) are necessary to operate and enhance these processes?
- 5) **Stakeholder contribution** – What do we want and need from stakeholders to maintain and develop those capabilities?

All performance measures in each facet will be linked into a success map in order to outline the firm's business philosophy and how it works.

Indeed, the values of each stakeholder group are not equivalent (Argenti, (1997) and there is a need to trade-off shareholder interests with those of other stakeholders. In general, the idea of the shareholders' priority was widely accepted by PMsrmt creators. Companies tend to choose a group of shareholders as their intended beneficiary, as they are, by definition, profit-making organizations. Clarke (1998, p. 182) supports the notion of shareholder having transcendence over the other stakeholders. Atkinson *et al.*, (1997) suggest that while performance measures should be balanced between shareholder objectives and other stakeholder values, shareholder interests claim priority, nonetheless. Similarly, Neely (per Powell, 2004) suggests that the shareholder values/needs are communised, so as to prioritize the competing needs of differing stakeholders. However, this approach is criticized by Campbell (1997), who argues that setting shareholder values as the sole purpose of the company is both oversimplified and misinterpreted. He illustrates a '*both...and*' condition; that while

companies intend to deliver the primary purpose of making profit, the secondary purposes of the companies can be also fulfilled simultaneously (e.g. the Body Shop is making profit from its cosmetics without hurting animals is a good example of how secondary objectives can contribute to the primary objective).

Although the PMsrmt literature does not directly mention the stakeholder approach as a means to enhance good governance, Kochan (2002, p. 139) suggests that a potential cause of recent US corporate scandals lies in “...*the overemphasis American corporations have been forced to give in recent years to maximizing shareholder value without regard for the effects of their actions on other stakeholders*”. Therefore, the notion that a stakeholder approach to PMsrmt (intended or not) reinforces a shift and change in the theory of business and the practice of good governance and it has become a major concern of both management academics and professionals.

2.5 Transition from Measurement to Management Domains

PMsrmt literature has long recognized that there are fundamental differences between PMsrmt and PMgmt. However, early in the 21st century, that distinction appears to have been lost and these distinct concepts/terms are blurring toward interchangeability. PMgmt is an approach used to manage strategy, and incorporates PMsrmt—as a subsystem designed to either manage PMsrmt or to create a context for measurement. Thus, PMgmt appears to be an outcome of PMsrmt. On the other hand, an integrated, holistic, and strategic PMsrmt system that performs all the functions for managing strategy, is in effect a subsystem of a PMgmt system (Kloot and Martin, 2000; Kaplan and Norton, 2001a; Wade and Recardo, 2001).

In the 1980s scholars and practitioners were heavily focused on developing PMsrmt systems. However, since late 1990s that development and pioneering focus has shifted to: *how to use and manage extant PMsrmt systems more effectively*. This shift was caused by an awareness of the rising profusion of PMsrmt systems and by a realization that an organization's performance relies on more than '*what is measured*', it also relies on '*how to manage what is measured*' (Kaplan and Norton, 2001a; Neely, 2005). Further, after the late 1990s, scholars and practitioners called for empirical validation of the existing PMsrmt systems (Ittner and Larcker, 1998; Neely, 2005) as well as proof of their practicality, especially the BSC (see Atkinson *et al.*, 1997; Norreklit, 2000; Maltz *et al.*, 2003; Nørreklit, 2003).

The change from measurement to management domain followed two paths, where existing PMsrmt systems:

- 1) Broadened their scopes into management (e.g. TdB, BSC, and MBNQA), and
- 2) Incorporated other management concepts to become management systems (e.g. CBS and KBM).

However, it should be noted that the measurement-to-management evolutionary paths may not be obvious in some aspects when illustrated by using PMsrmt systems as exemplars, since scholars and practitioners in 21st century do not tend to produce such PMsrmt systems. Instead, they tend to produce PMgmt incorporated PMsrmt systems (see, Wade and Recardo, 2001; Verweire and Berghe, 2004; Otley, 2007; Spitzer, 2007).

The evolution of BSC is often called a cornerstone of the measurement-to-management transformation, via the broadening scope toward management. Starting as a set of cause-and-effect performance measures (reflecting the distinct perspectives of: financial, customers, internal business processes, and learning and growth), BSC was used to translate strategy into actions (Kaplan and Norton, 1992). Specifically, a

constantly evolving progression pushed BSC from its introduction in 1992 to being a framework for implementing strategy (Kaplan and Norton, 1996a) and now to being a strategic management system (Kaplan and Norton, 2001a). Thus, the evolutionary progression of BSC is constantly driven by the intent to expand and fully utilize the advantage and power of the BSC (see Kaplan and Norton, 2001a, p. 23).

There are a number of critical issues associated with the BSC in practice and with the underlying assumptions. While the emergence of strategy maps distinguishes BSC from other frameworks, it may be less useful, if the assumptions behind it are uncertain (Norreklit, 2000; 2003). The rules of causal theories (cause-and-effect relationships) which originated in natural sciences are relatively limited in the social sciences (e.g. management and accounting) so as to analyse a phenomenon involving the interaction among a variety of factors (Ghoshal, 2005). Indeed, in practice strategy maps are commonly created through logic (reasoning ideas) and, consequently, do not represent the actual relationships as perceived in natural science theory (Abernethy *et al.*, 2005). In particular, management-review circles, the use of strategy maps—as a means of reporting and visualizing the causes (strategic drivers), and effects (strategic outputs)—also create problems because the expected outputs do not immediately result from the drivers (i.e. there is a considerable lag time the effects are displayed).

While the BSC allows for multiple measures (overcoming the limitations of single measures), there is no provision for very-long-term measures. The distinction between *means and ends* is ill-defined, and the model likely needs more empirical validation (Norreklit, 2000; Maltz *et al.*, 2003). The learning and growth perspective proposes human resources as a pillar for the long-term growth of organizations. Maltz *et al.* (2003) and Atkinson *et al.* (1997) suggest that, as human resources play

important roles in achieving organizations' objectives, the BSC should pay greater attention to them.

The second path of evolution from measurement to management started in the early 1990s when PMSrmt creators adapted and modified existing PMSrmt systems to incorporate other management concepts. Several PMSrmt creators have expanded the perspective and capacity of existing PMSrmt systems (Kanji and Sa, 2002; Neely *et al.*, 2002; Kaplan and Norton, 2004; Marr, 2006). At this stage, bundled systems and integration approaches called for a re-combination of the *package* of measurement and management systems to enhance the capability of each individual measurement and management system, with regards to the creation of a more comprehensive measurement and/or management system (De Toni and Tonchia, 2001; Taticchi and Balachandran, 2008). Attractive promises and attributes, tend to make the acceptance of a management tool easier (Benders and van Veen, 2001). Thus, PMSrmt creators (consultants and scholars) pay a lot of attention to creating attractive attributes for PMSrmt systems (Bjørnenak and Olson, 1999; Ax and Bjørnenak, 2005).

On the other hand, demand for systems bundling and integration can arise internally in an organization, through organizational learning (Modell, 2009). In an organization, the integration of independent PMSrmt systems and other management systems are expected to create synergistic effects (i.e. preferred functions of individual systems are retained to create a more robust and comprehensive system) (Karapetrovic and Willborn, 1998a, 1998b). For example, Ghalayini *et al.* (1997) proposed an integrated system as an *Integrated Dynamic Performance Measurement System* (IDPMS) to link and align performance measures across all levels of management. It integrated three functional areas: senior management, process improvement teams, and the factory-shop floor and synthesises three management

tools—the *Performance Measurement Questionnaires* (see Dixon et al., 1990), the *Half-life* concept (see Noble and LaHay, 1994), and a *Modified Value-Focused Cycle Time* diagram (see Schneiderman, 1988). The IDPMS makes it clear that organizational behaviour and actions will contribute to the firms' overall performance, by creating a hierarchical approach of performance measures. It uses the key success areas of a firm as archetypes and then drills the performance measures and performance targets down into all action areas.

Kanji (1998) and Maltz *et al.* (2003) modified the four perspectives of the BSC for incorporation with other frameworks. CBS was developed compatible with the principles of TQM and in the direction of the BEM (Kanji and Sa, 2002). The new model consists of: stakeholder values, process excellence, organizational learning, and delighting the stakeholder (Kanji, 1998). Similarly, the DMP framework proposed by Maltz *et al.* (2003) is founded on the concept of the BSC and the *Success Dimensions* (see Shenhar and Dvir, 1996) which include the key dimension of: finance, the market, processes, people, and the future. An extension of the DMP highlights the lack of focus on human resource in the BSC. The model was built using an integrative approach to provide a dynamic progression and cover a range of dimensions from financial to the future. Maltz *et al.* (2003) suggest that the proposed dimensions of DMP's framework are wide enough to enable organizations in different industries to select specific measures, for each dimension, based on their own contingencies. Furthermore, incumbent IC measurement and management systems (e.g. Chen *et al.*, (2004), were also founded as an integration of the priori ideas—human-resource accounting, economic-value added, the BSC, and especially the SBN).

As noted earlier, most scholars and practitioners in 21st century tend to not produce a new PMsrmt system but, instead, provide concepts of PMgmt incorporated

into PMSrmt systems. In 2007, Spitzer introduced an approach to utilize PMSrmt systems to highlight the importance of organizational contexts in PMSrmt—it emphasized encouragement, via positive results, with a perspective of maximizing the potential of a PMSrmt system. Four interrelated constituents (i.e. *context*, *focus*, *integration*, and *interactivity*) are essential to transform an organization’s philosophy into a visionary concept (Spitzer, 2007):

- The context of PMSrmt in an organization setting influences the PMSrmt in use.
- A PMSrmt system’s focus which symbolizes ‘what senior managements are paying attention to’ is a basis for PMgmt—managing inappropriate performance measures is not only meaningless but also risky.
- PMSrmt should be integrated with all systems, processes, and structures of the organization.
- Managing PMSrmt interactively is considered the most important aspect for running a successful measurement system in the long-run.

Management issues are not apparent in early IC measurement systems, which are more concerned with providing better information, especially about hidden sources of organizations’ values for management purposes (Mouritsen and Larsen, 2005). However, some extended IC measurement systems (especially systems developed in last decade) have extended their scope into becoming management systems (Chen *et al.*, 2004; Diakoulakis *et al.*, 2004; Johannessen *et al.*, 2005). Kloot and Martin (2000, p. 236) state: “We believe that an integrated, holistic performance measurement system that did all of these things would, in fact, be a performance **management** system.” Accordingly, IC measurement systems pay considerable attention to the measurement and reporting of IC, in an integrated manner, as a means to better facilitate the management of strategy—these enhanced systems should be perceived as PMgmt systems.

2.6 Transition from Static to Dynamic Perspectives

The broadening of the PMSrmt domain (from measurement to management) is a result of senior managements' requests for ever more complete and current views. Specifically, individually, neither measurement nor management gives a full story. The ongoing shift from static to dynamic modes indicates that static modes are increasingly viewed as being insufficient to meet the challenges posed to management by the accelerating rates of change in the business environment. Many organizations now seek actively to out-compete their competitors via a flexible and rapid response to customization, service, and innovation.

It is now agreed that the external and internal environments of firms undergo constant change (Neely, 1999; Burns and Scapens, 2000; Nixon and Burns, 2005). After the late 1980s, management practitioners and scholars became increasingly concerned about how a competitive advantage might be sustained in rapidly changing environments (Chilton, 1995; Werther and Kerr, 1995; Ghemawat, 2002). According to Ittner and Larcker (1998), the intense pressure to sustain competitive programs forced firms to determine and measure the non-financial *value-drivers* of success, in an ever changing competitive environments. Accelerating rates of change influenced the design, implementation, and operation of PMSrmt systems (Neely, 1999) to meet challenges in value-driven markets and refocused traditional cost-focused mindsets. Competing on the basis of non-financial factors requires expanded information across a broad spectrum of dimensions gathered in a dynamic cycle of measurement and management of information.

Awareness that *beyond-control factors* facilitate rising intensity of competition has been a key concern of PMSrmt and PMgmt creators since the 1990s. Although the earlier PMSrmt systems emphasized creating strategic coherence, via a variety of

techniques, many companies could not align their management processes to their strategy. As a result, they were unable to achieve their intended goals (Kaplan and Norton, 2005). Increasingly, after the 1990s, dynamic and rapid change caused many PMsrmt and PMgmt propositions to focus on building and encouraging adaptability to help organizations achieve the dynamic capabilities needed to stay competitive. Thus, PMsrmt concepts and practices have evolved in response to the challenges of changing conditions and the existing management theory, practices, and notions being produced by academics are also under constant challenge to be relevant to dynamic, rapidly-evolving contexts (Davidson, 1996; Naisbitt, 2006).

Bititci *et al.* (2000) assert that PMsrmt systems need to be dynamic, so as to sense, warn of, and respond to changes in an organization's external and internal environments. They also assert that, to be able to reprioritise, guide, and review internal objectives and to ensure internal alignment and congruence, *dynamic performance measurement systems* should have an:

- 1) **External monitoring system** – continuous monitoring and signalling of changes in the external environment
- 2) **Internal monitoring system** – continuous monitoring and signalling of changes within the organization
- 3) **Review system** – for providing significant information for decision making
- 4) **Internal deployment system** – deploying the revised strategic objectives and priorities to critical elements of the system.

While little is known about the attributes of PMsrmt and management as a means to manage uncertainty, Chenhall (2003) suggests that firms should generally redesign their PMsrmt and PMgmt systems to include open, interactive, externally focused, and non-financial measures. Kennerley and Neely (2003b), also, offer a dynamic framework for managing PMsrmt systems in changing environments and assert that PMsrmt must be managed dynamically, if it is to retain effectiveness and

relevance. Hence, the process of managing the evolution of a PMsrmt system should be triggered by reflection on the relevance of organizations' elements (i.e. processes, people, infrastructures, and culture) in the changing context and strategies of the organizations.

It is argued that computers and information technology facilitate the dynamics of PMsrmt. Those dynamics are subject to an ongoing cycle of imitation, development and renewal of information as they support management decision-making and day-to-day work (Clancy and Collins, 1979; Bititci *et al.*, 2002). The lack of an effective information system is a barrier for successfully implementing PMsrmt (Eccles, 1991; Kaplan and Norton, 1996a; Kennerley and Neely, 2003a). Digital-data management and its associated technology arose during the 1970s quest for dynamic-PMsrmt (Fleischman and Tyson, 2006). However, the computer techniques that allowed PMsrmt to continually capture, store, measure, interpret and visualize data and information were not invented and developed until the 1980s (Wilkinson, 1986). Currently, information is required to apply minute adjustments to strategies and to instantly respond to customers and competitors (Friedman, 2005; Vasarhelyi and Alles, 2008).

Generating and retaining strategic alignment is a key aim of PMsrmt. Effective PMsrmt brings an entire organization into alignment with the purpose of creating and sustaining business value (Wade and Recardo, 2001; Aguilar, 2003; Kaplan and Norton, 2006). Further, an integrated PMsrmt links strategy with all aspects of an organization's activities (Labovitz and Rosansky, 1997; Kaplan and Norton, 2001a). However, continually-evolving competitive conditions cause a one-off alignments and/or a periodic-snapshot approach inappropriate. Given the rapid and accelerating rates of change in the current and future competitive environments, alignment requires

either an accelerating series of re-alignments or a continuous alignment process. Thus, modern organizations are riding *the tiger of change* and cannot stop or even slow their response to change—to remain relevant, they must continually adapt to, rather than oppose, change (Bate, 1994).

A number of PMsrmt systems, especially those developed in the last decade, offer more than a proposition for achieving strategic alignment—they are formulated as a framework to reconfigure aspects of an organization, for it to retain alignment. The DMP (Maltz et al., 2003) was developed for creating and maintaining dynamic systems by providing a future-oriented approach to facilitate dynamic learning—that allows an organization to align its strategy with the confronting changes. *Qualitative Models for Performance Measurement Systems* (QMPMS) explicates the dynamic behaviour of the strategic factors affecting organizational performance in the rapidly changing environment in quantitative approach (Bititci *et al.*, 2001). Further, the IDPMS was proposed by Ghalayini *et al.* (1997) as a means to create alignment of performance measures across all levels of management and enhance the dynamic adaptability.

PMsrmt also creates dynamic alignment via organizational learning—which is, in itself, a major source of competitive advantage (Senge, 1990; Slater and Narver, 1995; Edvinsson and Malone, 1997). In the command-and-control paradigm, PMsrmt is used as a fair and transparent means to assess and judge employee performance. In an effective learning environment, it is also a tool that furthers learning, challenges, and encourages the continuous improvement of an organization's performance (Marr, 2006). A systematic acquisition of knowledge can reinforce a self-correcting system by driving continuous improvement and encouraging continual re-alignment with the desired status/goals.

2.7 Conclusions

This part of this thesis sought to understand the nature and drivers of the process that transformed PMsrmt, especially from the 1980s to the present. It was shown how PMsrmt systems evolve to serve the senior management need to dynamically and strategically manage their organizations. The main arrows of evolution appear to flow from: 1) Operations to strategic orientation; 2) Shareholder (economic-profits) to stakeholder values; 3) Measurement to management processes; and 4) Static to dynamic focuses. These flows reflect the ongoing and accelerating change and shift in competitive, social, environmental, organizational and managerial factors.

The first path reflects the change in competitive advantage in the early 1980s (i.e. a shift from product-quality to a marketing-and-strategy view that encouraged organizations to swing their focus from production to strategic thinking). Although PMsrmt was initially developed in the early 1980s as operations-oriented, it continued evolving to become a strategic tool by the late '80s. This trend became more obvious in the 1990s, when PMsrmt systems were increasingly introduced into the strategic arena. The second path arose from an increased understanding and realization of the importance of stakeholders in running the business. It provides an alternative perspective to the design of PMsrmt systems, by paying attention to all stakeholders rather than using a general model of shareholder values. A third path became apparent as new PMsrmt systems saturated the markets in the late 1990s, leading to efforts to gain strategic advantage by redirecting measurement to management processes. The last path was created as unpredictable accelerating change in the 1990s forced senior management to consider and manage the *beyond-control* factors that had previously been considered outside of their purview. As a result, they needed a new approach to PMsrmt that could be executed in a dynamic mode and was capable of dynamic (on-

the-fly) adaptability. It is important, however, to note that this evolution is an ongoing process—it is not now, nor will it ever be, over—the constantly changing competitive environment demands that managers continue to continually seek new approaches, perspectives, and (even) philosophies to gain or sustain competitive advantage.

Tracking the long-term trends in PMsrmt development provides important clues as to how the knowledge and know-how relating to PMsrmt will continue to develop and evolve. It is conjectured that continuous evolution in PMsrmt systems reflects the ongoing needs of senior management to gain and sustain a competitive advantage in a business ecology that is rapidly shifting and evolving. It is suggested that, though the extant PMsrmt systems are many and rising, they seem (based on past experience) to be incapable of satisfying the long-run needs of senior management. It is argued that, as conditions change ever more rapidly, the previous experiences and approaches are ever less applicable to the new contexts and that the new-system-relevance half-life will decline at an ever-more rapid rate.

Concepts about work, people, and organization are embedded in management contexts and differ from time to time (Johnson, 1981; Ittner and Larcker, 2001; Otley, 2003)—thus, senior managers must develop an understanding and appreciation of changing management contexts, if they are to design and/or operate PMsrmt systems to better serve their organisation's rapidly evolving needs. As Drucker (1982: 344-346) noted: "*Work, its structure, organization, and concepts, must in turn powerfully affect tools and techniques and their development.*[If those tools are developed within a paradigm, thus without]....*study and understanding of work, how can we hope to arrive at an understanding of technology?*" It can further be suggested that change in the context of management may cause/impose unsuitability in extant PMsrmt. Since the modification of the tools is a consequence of the change in the given contexts in a

particular period in time, senior management, in trying to adapt a PMsrmt system, must consider their external environment and organization's contexts.

The conclusions of this chapter are drawn from the review of relevant literature to depict the change and shift of PMsrmt from 1980s to the present, with a number of PMsrmt systems used as exemplars. The PMsrmt systems presented in this chapter were selected purposefully, in agreement with the reviewed literature (e.g. Yeniyurt, 2003; Garengo *et al.*, 2005; Pun and White, 2005; Taticchi and Balachandran, 2008). While that sample may not be sufficiently broad, in numbers and time, to exhaustively support general conclusions, it is, nevertheless, of value in framing a brief history of contemporary PMsrmt.¹¹ As such, it suggests ways and means to frame studies on how future PMsrmt will develop and evolve.

This chapter explores and delineates the convergence aspects of PMgmt systems evolution. This notion will provide a new direction and scope for PMsrmt and PMgmt research. Specifically, PMsrmt and PMgmt systems from differing origins have been evolving to serve the common needs of today's organizations and that process creates interesting effects and outcomes. Chapter 3 further explores this notion by exploring it at a conceptual level. A new plateau for future PMgmt design and use will be established once understanding of the phenomenon is gained.

¹¹ It is generally accepted that the sampling and sample size should represent the whole population—the small number of PMsrmt systems shown in this review may not be sufficiently broad (i.e. in numbers and time frame) to exhaustively support general conclusions about PMsrmt systems. However, because of the sheer number of PMsrmt systems initiated and developed over the past century, it is difficult to determine an appropriate sampling process and size. Instead, a judgment about sampling is suggested (GAO, 1996) so as to select PMsrmt systems which yield particularly rich information to enhance the power of the explanation of the phenomenon being studied (Sandelowski, 2000). More importantly, by nature and purpose of a narrative literature review, even though greater extents of proxies are preferred, a small sample is not a crucial failing, because the PMsrmt systems as proxies are intentionally used for explanatory and illustrative purposes (Glaser and Strauss, 1968; Strauss, 1987; Sandelowski, 2000; Finlayson and Dixon, 2008).

Chapter 3

Convergent Evolution in Performance Management Systems

3.1 Introduction

This chapter explores the concept of convergent evolution in PMgmt. The initial interest in this notion arose from a review of contemporary PMsrmt and PMgmt that is presented in the preceding chapter. Convergent evolution was examined as a cross-disciplinary phenomenon, using the written documents produced by scholars as proxies of experiences. As noted in Chapter 1, the approach in this thesis is based on the premise that knowledge generated by academics relates to organizational practices (i.e. a key objective of business and management research, as a form of applied research, is to supply knowledge to the practices of management (van de Ven, 1989; van Aken, 2005; Prior, 2008)).

Convergent evolution, a notion widely used in biology, is adapted to explain how and why certain behaviours or practices have emerged, and continue to emerge, in PMgmt. This study uses the biology concept of convergent evolution to explain, structure, and interpret the change in PMgmt because it fit better with an understanding of how PMgmt developed (i.e. it occurs less frequently as planned process and more often as environmental adaptation). In a biological sense, the tendency of differing entities/systems/communities to develop similar attributes when competitively adapting to similar environments is a convergent evolution (see Kaster and Berger, 1977).

In biology, convergent evolution explains how and why unrelated species can have a common morphology (Kemp and Tenenbaum, 2003)—via the design dictum that “form follows function” (Louis Henry Sullivan, per Duncan, 1989)—thus, if two

unrelated species occupy a similar niche, the functions they perform will tend to shape them into similar forms, even if they are unrelated species (e.g. dolphins, sharks, and *ichthyosaurs*). In bio-chemistry “...convergent evolution of enzymes, non-homologous enzymes evolve in separate biological contexts to catalyse the same or similar biochemical transformation” (Gherardini *et al.*, 2007, p. 817). As discussed in Chapter 1, evolution and change in civilization and other human constructs (e.g. societies, organisations, ideas, rules, and routines) should be ‘*consistent with and not contradictory to*’ the basic forces in biological evolution (Hodgson, 2002; Knudsen, 2002; Dickson, 2003; Johansson and Siverbo, 2009). Thus, when biological evolution-related concepts are adapted for application to business and management processes, convergence becomes an expected outcome when management protocols from differing origins are used, in a competitive environment, to achieve the same purpose (see Nelson 1995; Jamieson, 1998; Devezas, 2005).

This chapter draws on the notion of convergent evolution to identify what attributes are needed to make PMgmt systems more robust, in the face of the ongoing rapid evolution of managerial needs (Wright *et al.*, 2008)—and two modes of convergent evolution are identified:

- 1) **Related transformational characteristics** are presented by the evolving management practices. *Parallel adaptations* associated with convergent evolution are also observed at functional levels of their evolution.
- 2) **Similar functions and mechanisms** which the management approaches use to perform related were revealed.

The broad definition of convergence used in this chapter, infers and highlights similarities of form and function. A qualitative content analysis, applying grounded theory, was used to analyse the content of the received management systems literature—giving an opportunity to view various types of data from the different

perspectives of the original authors and highlighting new and emerging conceptual interpretations (Goulding, 2002).

The rest of the chapter is organised as follows:

- Section 3.2 outlines past and contemporary development of management practices—to give a brief overview of relevant management concepts and practices,
- Section 3.3 illustrates research strategy and its operations employed in this chapter,
- Section 3.4 depicts the development of four management themes (PMsrmt, quality management, management control, and intellectual capital) which are converging toward PMgmt
- Section 3.5 offers critical analysis of convergent evolutions of the management themes to PMgmt,
- Section 3.6 discusses the related form and function of the PMgmt, and
- Section 3.7 provides the conclusions and a segway into to the next chapter.

3.2 Management Practices in Evolving Contexts

Tools are typically developed to serve specific purposes, often for specialized conditions. If conditions, context or purposes change or otherwise become irrelevant, a previously useful tool may be made irrelevant or even harmful. Profit maximisation, in demand-led markets and abundant resource conditions after the WWII, led decision-makers to expand and/or run their manufacturing plants at capacity (Ghemawat, 2002). A focus on efficiency made budgetary control and operations management essential management instruments (Johnson and Kaplan, 1987; Johnson, 1992; Otley, 2001). However, in the decades following on from the 1970s, rising capacity around the globe brought a competitive intensity that increased executive concern over decision-making risks—this made long-range-planning critically important (Ittner and Larcker, 2001).

In the early 1980s, rising intensity in competition caused senior management to realize that the solutions from their traditional management approaches were becoming ever less competitive (Johnson and Kaplan, 1987; Johnson, 1992)—in response, they sought a *one-off (silver bullet)* transformation of the management

process (Davidson, 1996). This movement developed rapidly, via the growing of the adoption of quality management (QM) programs (i.e. TQM and other related QM systems, such as BEM, WCM, JIT), as well as the introduction of accounting techniques such as cost-of-quality measurement, activity-based costing, process-value analysis and strategic-cost management (Ittner and Larcker, 2001). At that time, TQM and other related tools (such as Benchmarking and Six Sigma) were developed in the US and Europe, in response to the momentum to drive quality improvement to compete with rising global competitors (e.g. Japanese firms; (Ishikure, 1988; Maskell, 1991; Cole, 1999).

In the 1990s era of accelerating change, using long-established management concepts and practices as critical success-drivers may be less than appropriate. Also, conventional management approaches (e.g. TQM, BSC, and WCM), with their focus on tactical and operational improvement, or traditional PMsrmt-and-control systems (which rely excessively on financial or operations aspects) are also likely to be less than sufficient. Recognising these inadequacies, senior management continually seeks to supplement or supplant traditional management tools and techniques with new management practices—with hopes of achieving a *once-and-for-all (silver bullet)* effective solution. Identifying new business foundations as a source of competitive advantage, is a key motive in the change-of-management functions (Teece, 2000; Low and Kalafut, 2002). A new competitive paradigm is needed to manage the accelerating innovation in the ways by which organisations identify, measure, analyse, and steer themselves.

After the early 1990s, executives increasingly become aware of, and sought to come to grips with, the ever-changing amorphous mass of *beyond-control* factors, in the effort to accommodate accelerating change in market demand and in the technical

revolution (Davidson, 1996; Chenhall, 2003; Naisbitt, 2006). The spotlight on cost-control was refocused to wealth creation, as senior management (especially in high-tech and Internet firms) recognized and realized the importance of new perspectives of competitive advantage—knowledge workers, intangible assets, hidden value and human capital, etc. (Sveiby, 1997; Roos *et al.*, 1998; Bontis, 2001).

This Study's literature review (see Chapter 2) shows that management needs, arrived at in an effort to meet challenges from accelerating change in the business environment and focused on creating and sustaining competitive advantage, drive the development and use of PMgmt systems during their evolutionary progression. PMgmt systems have evolved from various perspectives. The evolution took place in four major paths, from operations to strategic, measurement to management, static to dynamic and economic-profit to stakeholder focus. It is obvious that PMgmt systems have evolved from differing origins of PMSrmt, IC, QM, and management control (MC) to serve the common needs of current organizations. This occurrence led the researcher to realize the importance of the notion of convergence.

As noted in Chapter 1, the initial interest in the concept of convergent evolution was gained from the literature review of evolutionary paths of PMSrmt and PMgmt systems from 1980s to the present (see Chapter 2) when the PMSrmt and PMgmt systems from differing origins have been evolving to serve the common needs of present senior management. This chapter used qualitative content analysis, incorporated into a grounded theory approach to review 10 years of relevant literature to identify the presence of convergent evolution of PMgmt systems. Attributes, in terms of the form and function, of PMgmt systems that serve the common needs of current organizations will be revealed in the analysis.

In biological science, the study of convergent evolution involves two steps (Zhang and Kumar, 1997, p. 527) that can be applied to study convergent evolution in the field of social sciences (see Nelson 1995; Jamieson, 1998; Devezas, 2005). Although the evolutionary paths of PMsrmt and PMgmt systems were well explained in Chapter 2, the validity of applying convergent evolution to management processes is not proved. Thus, a systematic assessment to confirm the presence of convergence is provided in the following steps:

- 1) The first step identifies locations/arenas from which convergent evolution starts and flows to common ground. If this step is not completed and/or the original attributes are unspecified or unknown and/or the evolutionary paths is not clearly specified, the convergent evolution becomes more subjective and or subject to explicit or implicit assumptions (Zhang and Kumar, 1997). Thus, this study needs to identify the original locations of management systems/practices so as to identify the original attributes, start-point, and evolutionary path to the current conditions/locations. As suggested by Chapter 2, this study allocates an array of relevant arenas of knowledge (i.e. PMsrmt, MC, QM, and IC) as starting locations, from which to examine the convergence of PMgmt systems.
- 2) The second step evaluates the attributes of particular objects studied to ensure that the convergence is a result of evolutionary processes. This evaluation is necessary, given the differing original locations and attributes of objects studied. It can be concluded that there is a convergence, through particular evolutionary paths, if the final attributes of the objects converge, over time, to become similar in a particular respect (see Zhang and Kumar, 1997).

3.3 Research Design

“...methodology is not a value in itself. The purpose of methodology is to enable researchers to plan and examine critically the logic, composition, and protocols of research methods; to evaluate the performance of individual techniques; and to estimate the likelihood of particular research designs to contribute to knowledge” (Krippendorff, 2004, p. xxi).

This chapter seeks to clarify, synthesise, and organise a contemporary history of PMgmt to provide a perspective of social experience, as expressed in management systems literature. Historical approach to this research encourages the researcher to engage in an interdisciplinary view of the subject studied (Previts et al., 1990). Historical evidence represents what survives the transition from past to present (Fleischman et al., 2000, p. 7). A historian’s duty is to investigate systematically and

provide a *truth* about a given concern. “*All histories are inevitably partial, and crucially dependent on the assumptions and theories of the author*” (Loft, 2000, p. 183)—thus, as a formulated concept of convergent evolution in PMgmt, this chapter invites readers to see the world from the author’s experiences.

There are a variety of research methods for dealing with text—written data, narrative review, systematic review, meta-analysis, and content analysis (quantitative and qualitative). While a narrative review is widely used to explore and summarize literature descriptively, it has been widely criticized as being haphazard and biased (Mulrow, 1994; Hart, 1998; Harden and Thomas, 2005), a systematic comprehensive review on a given subject, is often used to enhance the quality of the literature reviews (Tranfield *et al.*, 2003; Petticrew and Roberts, 2006). Similarly, meta-analysis is a way to systematically, but quantitatively, review a given substantive question of interest (Schulze, 2004, p. v). Similar to a systematic review, meta-analysis should be applied to the synthesis of only empirical research studies, not to theoretical papers and literature reviews (Lipsey and Wilson, 2001; Tranfield *et al.*, 2003; Harden and Thomas, 2005). Given that scholars incorporate their ideas and experiences in different kinds of works (e.g. empirical research papers, viewpoint, conceptual papers, and literature reviews), a systematic review and meta-analysis seemed a less appropriate way to meeting the needs of this study than a quantitative and qualitative content analysis of sampled text. An essential difference between qualitative and quantitative content analysis lies in their respective use of codes and counts:

- 1) Quantitative analysis involves “...counts and tabulations of the codes summarize what is known about the data, and the analytic effort typically stops with the presentation of these numerical results” (Morgan, 1993, p. 115);
- 2) Qualitative analysis is a subjective interpretation of text-data content “...through the systematic classification process of coding and identifying themes or patterns” (Hsieh and Shannon, 2005, p. 1278).

Content analysis, a powerful research methodology applied in this study may (in its lowest form) be considered as little more than reading a pile of books and/or newspapers. And, if this view is combined with the *not worthy* syndrome academia communities often apply to qualitative research (Humphrey and Lee, 2004), the result is a lack of confidence that demeans the potential competence of the approach. Specifically, the methodology of content analysis enables researchers to systematically plan, critically examine logic, and provide understandable procedures to extend knowledge by extracting fresh overviews from great volumes of extant literature. Krippendorff (2004) asserts, it is a *good* and useful research methodology. Given that text is research data and theory is an expected output, the qualitative content analysis incorporated in grounded theory is an appropriate research method. In combination with its cost-effectiveness, content analysis is, also, able to make sense of (i.e. analyse) written documents and other media across many research approaches and over a potentially near-infinite timeframe, allowing researchers to continually collect, update, and analyse data, until their research is saturated by research data.

In summary, the phenomenon researched in this chapter was examined by collecting and analysing text (a variant of qualitative data, per Glaser and Strauss, 1968). Thus, a qualitative content analysis of literature is a better descriptor of this research, than the other methods discussed.

In this chapter, text is treated and decoded as an experience proxy (Ryan and Bernard, 2003). Concept of convergent evolution in PMgmt systems is inductively developed and grounded from data. Because qualitative content analysis alone tends to be of limited use in theory development (Ryan and Bernard, 2003; Hsieh and Shannon, 2005), a grounded theory approach was incorporated in interpreting the

data. Although grounded theory does normally involve an intensive literature review in early stage (Glaser and Strauss, 1968), an initial exploratory review of the relevant literature was actively used to set the direction and scope of this chapter.

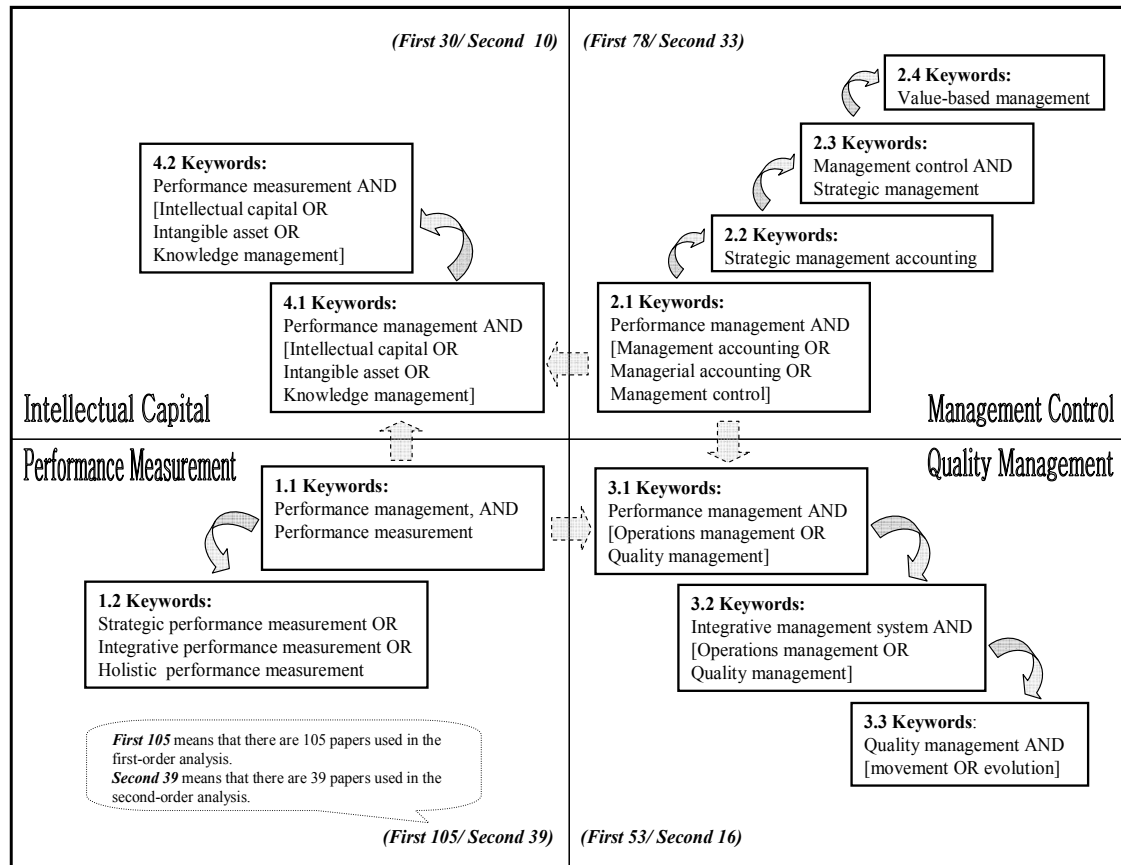
3.3.1 Data Collection

The analysis in the chapter engages the dynamic mode of collecting and analysing data, where the choice of what is the *next data* is driven by ongoing analysis (Glaser and Strauss, 1968). Envisioning sample size is difficult—because its ideal size is affected by emerging and evolving concept (Glaser and Strauss, 1968; Goulding, 2002; Auerbach and Silverstein, 2003). This theoretical sampling approach, with the data collection and analysis being jointly evolved, allows researchers to continue collecting data while formulating new contexts and conclusions (Glaser and Strauss, 1968; Auerbach and Silverstein, 2003). This approach allows researchers to logically transcend the quantitative research ideal/limitation of having to first establish the desired scope of a given enquiry and limits of the available data (Silverman, 2003).

This chapter analyses literature in the areas of PMsrmt, MC, QM, and IC—and was drawn from peer-reviewed scholarly articles published during 1998 to 2007 in ProQuest/ABI Inform and ScienceDirect databases. ProQuest/ABI Inform was selected because it is large in its coverage, especially when compared to other social sciences databases. It covers more than 3,000 journals (Nienaber, 2010). ScienceDirect database was added—it brings to the mix, accounting journals which influence scholars in the field of management accounting (including: *Journal of Accounting and Economics*, *Accounting, Organization & Society*, *Management Accounting Research*, and *British Accounting Review* (see Bonner *et al.*, 2006). This choice covers a large selection of relevant articles and reduces the potential of important papers being overlooked in the first step of selection process.

Multi-round-data collections, per the theoretically-evolved-coding process, was based on keyword strings and/or themes that relate to PMgmt (see Figure 3.1) and were limited to document titles, abstracts, and keywords.

Figure 3.1: Structure of Data Collection



All papers from the ScienceDirect database are available in full-texts, however, databases such ProQuest/ABI Inform give access to a mix of the full-texts and abstracts of a vast number of articles in fields of management and business (including non-English written journals, e.g. *Nase Gospodarstvo*, which was not included in the review). As only full-text papers were required for the analysis, a number of articles collected from ProQuest/ABI Inform (which were given only as abstracts) were also accessed in their full-text forms via original databases/publishing houses. As scholars reflect their ideas and experiences in different kinds of articles (e.g. research papers, viewpoint, conceptual papers, or literature reviews), only documents such news and

advertisement were eliminated from the analysis. All papers retrieved from the searches were sorted manually to eliminate duplicates.

The *first-order analysis* used 266 full-text papers, retrieved from multi-round data collection, to search for clues of the evolution of the management systems. Some papers which did not provide evidence about the evolution were not re-examined in the *second-order analysis* (see section 3.3.2 for detail). As a result, only 98 of 266 papers (36.84%) which signal evolution to PMgmt were kept for *second-order analysis*. Although, per Glaser and Strauss (1968), theoretical sampling does not need large sample sizes (e.g. theory can arise from only single piece of information), researchers still voluntarily collect data, until *little or no* new data can be added into the coding to confirm, refine and/or refute the concept. For example, while a small number of papers seem adequate to report the evolutionary progression of PMgmt systems (see, Otley, (1999, 2001; and 2003) for management control and Smith and Goddard, (2002) for quality management), more credibility is gained if the concept is systematically confirmed by a larger number of documents (the number of articles retrieved and analysed is given in Appendix 2).

Figure 3.1 shows the path the sampling process followed to the stage of theoretical saturation. At the first round of data collection (round 1.1 and 2.1), *maybe-relevant* literature from the area of PMsmt and management control were collected respectively by employing a few relevant keywords. This initial sampling was designed to maximise the opportunity to gain potentially relevant information and to allow a preliminary concept to be developed (Slagmulder, 1997). The coding process gradually shifted from exploratory to explanatory, the initially sampling was also modified to capture data and to optimize the opportunities to confirm and/or refine the emerging concept. Additional rounds of data collection used more-specific keywords

that pointed more directly from ongoing analysis, as a means to obtain more specifically relevant information (this approach is more obvious where more additional rounds of collection are needed).

The in-progress data review provided suggestions as to what next information might be useful for elaborating the concept. Ongoing data analysis points, from the data gathered in round 2.1, to where further relevant materials might be garnered, in each academic arena, in round 2.2 (e.g. Otley, 2001; Roslender and Hart, 2003; Brignall and Ballantine, 2004) and data collected in the third round 2.3, gave hints as to where to find the fourth collection of papers in round 2.4. Even though the researcher's initial perspective was limited to PMsmt and MC, some of the literature pointed to a wider set of materials that might be gathered by including new academic arenas in the analysis (e.g. Mouritsen and Larsen, (2005), which was collected as part of a review of the MC arena, pointed to IC; and Smith and Goddard (2002), which was collected as part of a review of the PMsmt arena, pointed on to QM)—thus, half-way through the analysis, two different academic arenas (intellectual capital and quality management) are added to the mix.

While this chapter's conclusion can be derived via information gathered by systematic data collection, from scholarly articles only, a small selective number of relevant scholarly books are also considered—these scholarly works cross-reference and support each another, in terms of the concept emerging in the analysis.

3.3.2 Data Analysis

A Two-step analysis was employed:

- 1) The first-order analysis searched for clues of the evolution of the management systems. As the aim of the first-order analysis is to explore the evolutionary direction to determine an opportunity of particular management practices converging to become PMgmt systems. As noted, if the original attributes of

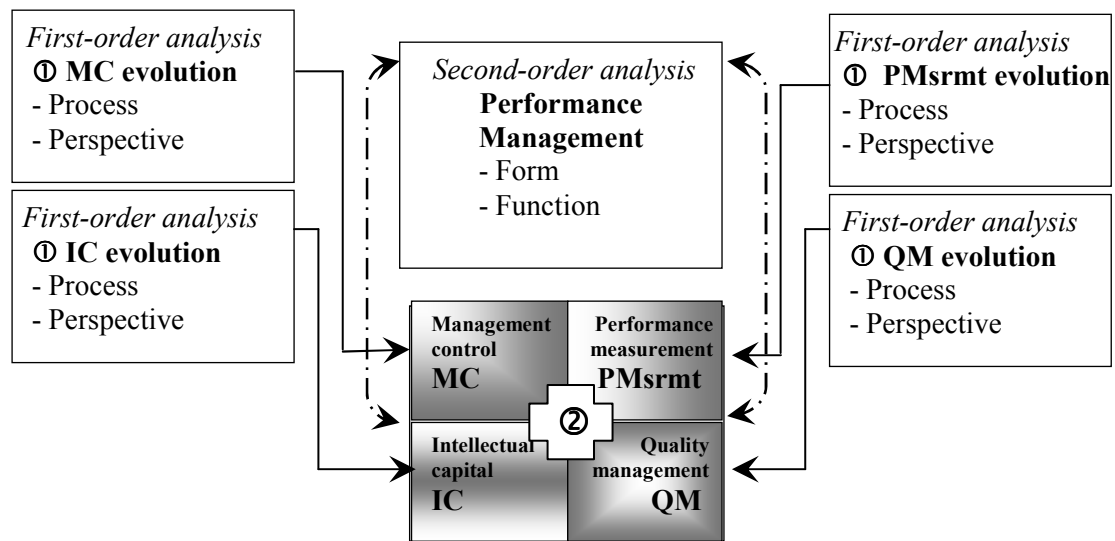
objects studied are unspecified or unknown, or the evolutionary paths are not clearly specified, the conclusion about convergent evolution becomes more subjective. Thus, the number of items collected that did not signal evolutionary directions was sorted out from the analysis (i.e. they were not re-examined in the second-order analysis).

- 2) The second-order analysis focused on identifying/describing the form, function, and interaction of the PMgmt systems. The intended outcome of the second-order analysis is to confirm the presence of convergent evolution in PMgmt systems and to describe its effects.

The research process involved reading the text, line-by-line, to ensure that all *relevant text* was gathered. Initially, in the first-order analysis, the documents deemed relevant were sorted to be read by management themes (PMsrmt, MC, QM, and IC). Then, text (that was deemed relevant) was organized to highlight *repeating motifs*—i.e. the same or similar words and/or phrases expressing a common or congruent idea. These repeating motifs were then further organised into more general repeating *themes* that might be described as archetypes. The first order analysis was completed as the evolution of each management concept/ archetype emerged. The *second-order analysis* compares and contrasts themes (per Ryan and Bernard, 2003) to identify collective attributes and give them shape, by analysing the processes and perspectives of the theme evolutions (from the first-order analysis).

Figure 3.2, below, illustrates the flow through the first-order analysis into the second-order analysis. The form and function of PMgmt systems were analysed inductively to confirm that they have identical, or at least similar, attributes. The collective themes/archetypes arising from the second-order analysis are linked into conceptual models to give a succinct synopsis of convergent evolution in PMgmt systems. In this process, collective themes were grouped by form and function into *conceptual constructs*.

Figure 3.2: Structure of Data Analysis



In the analysis process, an assessment has to be made about the manner of the text being relevant to the themes or concepts. This analysis categorized the text into two *tones*—explicit and implicit. With explicit expressions other readers would likely draw the same result. However, several of the implicit cases need an interpretation to be made from the contexts embedded in the papers. This basic assessment helps the researchers to think *twice* about the interpretation being made in the coding process in order to make an accurate conclusion about the text.

The text is unequivocal (*explicit* expression) when interpretation is not needed—i.e. low-inference. In these cases, it may be implied that the author realize and/or agrees that the management practices investigating are evolving toward providing PMgmt functions. For example, the following sentence explicitly shows that the author realizes that the PMsrmt system and PMgmt system are becoming comparable: “*We believe that an integrated, holistic performance measurement system that did all of these things would, in fact, be a performance management system*” (Kloot and Martin, 2000, p. 236). The following phrase is another example, clearly states that alignment is a function of SPMS (strategic PMsrmt systems): “*That*

is, integrative SPMS can assist alignment by explicitly identifying, measuring and communicating to managers...” (Chenhall, 2005, p. 402).

The text and its expressions can have many implications (*implicit* expression) that are open to interpretation. Authors might give clues or signals that help in the interpretation. Researchers can give interpretation to such expressions via a context that is embedded in the papers. For example, the idea of strategic alignment as a function of PMgmt can be drawn from the sentence: “...*the purpose of PM [performance management] is to ensure that the organization is ‘steered’ in some sense optimally within that context*” (Smith and Goddard, 2002, p. 248). Another example: “*The fourth in the move toward quality is strategic quality management...*” (Lau *et al.*, 2004, p. 701), a clue about the new definition of strategic quality management can be found in the paper when the authors mentioned about the attributes of the systems and the people who use them.

In the final stage, the conceptual constructs from the second-order analysis were used to develop a *conceptual narrative* about convergence (Auerbach and Silverstein, 2003). The *integrative diagram*—Figure 3.3 (see section 3.5)—is a useful way to integrate the conceptual constructs into a concept of convergent evolution, as the final result of the analysis (Strauss, 1987). As can be seen in section 3.5 and 3.6, only a few exemplar citations are selected from the analysed literature, to provide a link between the formulated concepts and the supporting evidence (Ryan and Bernard, 2003). However, it is very difficult to report the direction of the analysis—other than by using constant a comparison method (Strauss and Corbin, 1990) with the research of the reviewed documents continually passing *to-and-fro* throughout the review process, so as to compare and contrast new patterns emerging from new material, with previously identified codes.

Three qualitative research dimensions (i.e. data, process, and empirical grounding of the research findings; Strauss and Corbin, 1990) of output of this analysis were evaluated, using transparency, communicability, and coherence of theoretical constructs to justify the data and process dimensions (Auerbach and Silverstein, 2003). The process of crafting concept from relevant text to conceptual construct was used to enhance transparency. The summary of coding frequency (see, Appendix 2), where records are assessed quantitatively, provided validating evidence to support the concept in this analysis. A typical approach to resolve transparency is to use relevant ‘raw’ text as evidence of the relevance between concept and text (Glaser and Strauss, 1968). Auerbach and Silverstein (2003, p. 85) suggest: *“If they understand what you are saying, then the construct is communicable.”* An integrative diagram was used to integrate the conceptual constructs (Strauss, 1987)—in a coherent, logical and consistent narrative.

Qualitative content analysis is a method used to discover underlying meaning embedded in narrative. It goes beyond analysing the surface of documents (i.e. it is more than a mere counting of occurrence frequency), to link evidence, develop conceptual constructs, show the accuracy of inference and allow readers to touch a sense of initial intent of the cited authors.

In summary, analysis by grounded theory can (at an abstract level) extend beyond specific samples and examples to generate a general theory, that is applicable to general social settings (Strauss and Corbin, 1990). If such a conceptual construct is transferable, it can form a guide for researching in new settings and can aid in the understanding of subjective experiences in new and unfamiliar settings (Auerbach and Silverstein, 2003).

3.3.3 Limitations of the Research Methods Employed

A major limitation of a literature-content analysis is that its quality depends on the quality and accuracy of its references. However, references and citations can be perilous, if naively presented without due and fair scepticism (Arnold and McCartney, 2003). There are numerous examples of both major and minor reference errors in research studies (e.g. Oermann and Ziolkowski, 2002; Arnold and McCartney, 2003; Jiao *et al.*, 2008). The content analysis in this chapter, preserves the grounding evidence by referring each citations back to the original cited script—Appendix 3 gives a number of illustrative quotations.

Although qualitative-content-analysis-incorporated grounded theory helps researchers to continually collect, update, and analyse data until the analysis is saturated (i.e. no new findings), based on the researcher's experience, this approach is very time consuming (e.g. a paper contains a mass of data that has to be analysed to identify the information relevant to the research topic). While data collection by interview can direct and limit data to what is most considered useful for analysis, an analysis of literature content is needed to read and analyse all data retrieved in the hope that *something unexpected* will relate to the topic studied. On the other hand, while other qualitative researchers can return to the field to collect more data (if suggested by analysis), literature-content analysis tends to be limited to what is accessible by the researcher.

The generalisability of grounded theory findings is often questioned, especially if the analysis is conducted on a small number of selected sources (Rennie *et al.*, 1988). However, grounded theory does not require a large sample (Glaser and Strauss, 1968). Indeed, many experienced grounded theorists argue that theoretical constructs can emerge from only a few transcripts. This research increased the generalisability of the findings by using multiple rounds to extend the examples of convergent evolution to a

saturation level. For example, while confirmation of the existence of convergent evolution to PMgmt requires its presence in only one or a few cases, its extent and importance requires the systematic analysis of its presence via the search of a large number of documents.

3.4 The Transformation of Management Practices

3.4.1 Performance Measurement

Over the last decade, many scholars and practitioners have suggested that managers rethink and redesign their PMSrmt systems as well as their solutions for managing them. Traditional PMSrmt systems are often criticized for being too financially driven, having too historical a focus, failing to highlighting customer and market needs and over-loading senior management with data. However, the most urgent issue associated with traditional PMSrmt systems is their failure to provide sufficient guidance to management. As a result of these criticisms, many PMSrmt frameworks and models¹² (generated during and after the 1980s) strive to provide systems that are better matched to the expressed needs of management.

Ideally, managing PMSrmt leads to the systematic provision of the information needed to manage effectively. This innovative proposition extends the platform and outlet for managing PMSrmt to PMgmt. Currently, where PMSrmt systems are holistic, strategic and integrated, that type of PMSrmt is used interchangeably with PMgmt. The need to better serve senior management has greatly extended the functionality of PMSrmt frameworks and models into more of a PMgmt role. Thus, from a variety of differing origins, PMSrmt systems are evolving to form integrative frameworks that manage the performance of an entire organisation—all are

¹² For example: SMART (Cross and Lynch, 1988), S&T model (Sink and Tuttle, 1990), BSC (Kaplan and Norton, 1992), IPMS (Bititci *et al.*, 1997), IPMF (Medori and Steeple, 2000), QMPMS (Suwignjo *et al.*, 2000), PP (Neely *et al.*, 2001), and DMP (Maltz *et al.*, 2003).

transforming from functional- and/or financial-focuses to become more holistic and strategic systems that provide dynamic capacity to work in aggressively changing environments. Such adaptive systems, frameworks, and models are referred to as integrated, holistic, and strategic frameworks.

The evolution of BSC from strategic PMsrmt to a strategic management system is regularly referred as a keystone of the evolution of PMsrmt. A constantly evolving progression of BSC started from being a set of cause-and-effect performance measures (reflecting four distinct perspectives: financial, customer, internal business process, and learning & growth were used to translate strategy into actions (Kaplan and Norton, 1992) to become a framework for implementing strategy (Kaplan and Norton, 1996a) and more recently strategic management systems (Kaplan and Norton, 2001a). Kaplan and Norton (2001a, p. 23) note:

“We quickly learned that *measurement* has consequences beyond just reporting on the past. Measurement creates focus for the future because the measures chosen by managers communicate to the organisation what is important. To take full advantage of this power, measurement should be integrated into a *management system*. Thus we refined the Balanced Scorecard concept and showed how it could move beyond a performance measurement system to become the organising framework for a strategic management system.”

However, although BSC altered its initial attributes to manage strategy, it is still (at its core) a measurement system.

To conclude, Innovative PMsrmt and PMgmt systems create a means to plan, implement, and steer strategy, so as to provide and sustain long-term competitive advantage by attaining and maintaining strategic alignment. New innovative frameworks and models are being developed with a goal of gaining superior performance by using PMsrmt to align all components of an organisation toward its goals.

3.4.2 Quality Management

Management for quality was developed by Japanese industrial organisations during the 1950s through to the 1980s (Cole, 1999). QM in the US gained momentum in the 1980s as the TQM approach (Watson, 1993). About 30 years from the initial attempt, TQM and its derivatives have gone beyond QM—to maintain competitiveness by providing a philosophy to manage entire organisations. As Wu *et al.*, (1997, p. 25) note:

The fourth and present stage [of quality management evolution] uses a quality system that embraces the entire organization including its management systems, suppliers, and customers.

As the rules of the game changed, the role of QM shifted. While the quality of manufacturing goods was crucial for the 1980s and 90s, the focus on competitiveness in the 21st Century has shifted, from the shop-floor, to marketing and customers.

Typically, management tools and techniques are developed within a given paradigm, as that paradigm shifts, the management tools change function and evolve their form to match the new function. A revision of MBNQA reflects the paradigm shift in the role of QM. Even though the MBNQA was initiated as a part of the foundation of QM, after 1999 it shifted to a more holistic view of organisational performance excellence to become more of a strategic management system. The widely-known and extensively adopted tools of Benchmarking and Six Sigma initially emphasised breakthrough in quality improvement, but in recent decades have evolved to serve management at strategic level.

The closing of the *Journal of Quality Management (JQM)*, founded to provide a specific outlet for scholars in field of QM, is a good example of the change and shift within the quality movement—Cardy (2001, p. 113), a chief editor of *JQM*, states in *From the Editor*, in the final issue of that journal:

The ending of *JQM* [...] is a reflection of how the landscape of quality has changed over the past six years. The quality movement was provocative and had strong and compelling implications for management. ... However, the quality movement had a faddish character. Further, it has been integrated into various functions and programs and is now less viable as a distinct stand-alone function.... Further, the quality movement has, to some extent, metamorphosed into a focus on customer related issues. The field of quality was, at its heart, a customer centric approach.

Management concepts and tools are typically developed to serve specific purposes, often for idealized and specialized conditions—the suitability of QM systems is determined by the relationships between the needs for, and the forms of, the tools in use. In this case, its change might be influenced by the people involved, especially managers, who recognize and address their suitability in use. On the other hand, to stay relevant, quality management concepts and tools must adapt and extend themselves beyond the original intent of their creator(s) to meet current wants and needs. QM initiatives, to perform strategically, have to be closely linked to the planning and implementing strategy of the entire organisation. Strategic QM is a lot more than production quality—it treats the quality of all process and roles, from a product's *cradle to its grave*.

QM is enabled by measurement. PMsrmt frameworks, especially those of the 1980s, have become the heart of QM initiatives. Several scholars have claimed that the development and use of such QM techniques and philosophies radically influenced the development of PMsrmt systems (e.g. Dixon *et al.*, 1990; Maskell, 1991; Johnson, 1992)—a number of PMsrmt systems (see Cross and Lynch, 1988; Sink and Tuttle, 1990; Kanji, 1998; Kanji and Sa, 2002) were initially designed to be incorporated with QM techniques and philosophies. A number of studies (Turney and Anderson, 1989; e.g. Johnson, 1992; Lind, 2001) suggest that adopting new QM techniques and philosophies, such as TQM, WCM, and JIT, strongly affected existing PMsrmt

systems and caused them to be modified to better suit the new techniques and philosophies.

3.4.3 Management Control

Cost and management accounting can trace its origin to the European Renaissance (i.e. the Venetian Republic, 1580-1679; Carmona, 2006). Related early developments in cost and management accounting occurred in Britain in the 18th Century (Boyns and Edwards, 2006). However, this study's review starts when cost and management accounting settled in the industries of Europe and America, early 19th Century into the 20th Century. Management accounting precepts have been the basis of manufacturing PMsmt, inventory valuation, product pricing and capital investment analysis (Johnson and Kaplan, 1987; Maskell, 1989a). After WWII, management accounting gradually changed from an initial focus on cost and budgets to a broader organisational view of MC (Johnson and Kaplan, 1987; Ryan *et al.*, 1992). Traditional budgeting and control systems initially performed well in, what was then, a relatively stable and less-competitive environment (Bunce *et al.*, 1995; Wallander, 1999), but were seen as being ever less responsive, flexible and able to serve management needs in the current hyper-changing knowledge-based economy with its rising customer demands (Hope and Fraser, 1997; Ekholm and Wallin, 2000; Hope and Fraser, 2000; Otley, 2003). A quick response to rapidly changing environments involved shifting the MC approach from a top-down cost control to a more bottom-up approach, so as to empower and enable frontline employees to use the information to solve problems, satisfy customers, and beat competitors (Johnson, 1992).

Simon *et al.* (1954; cited in Otley, 2003, p. 135) described the three functions of management accounting information as “*decision-making, attention-directing, [and]*

scorecard". MC models feed intelligence back to managers for fine-tuning organisational strategy and re-aligning people and resources to achieve desired outcomes—specifically, information from strategic PMsrmt systems are constructed at the core of the control system to provide: 1) a cybernetic control to track, review, and adjust the system for achieving predictable goals; 2) interactive use in an organic control-system that supports the emergence of communication processes; and 3) the mutual adjustment of organisational behaviours.

Although cost accounting evolved into strategic management accounting/strategic cost management with PMgmt aspects, the central issues are unchanged. However, this evolution came at the cost of resistance and confusion from management accountants, as to their role and relevance:

The inertia from 60 years of concentration on financial performance measures will not be easy to overcome. ...Management accountants may feel that their own area of comparative advantage is to measure, collect, aggregate, and communicate *financial* information. ...The option to include nonfinancial measures in the firm's planning and control system will be more unfamiliar, more uncertain, and, consequently, less comfortable for managerial accountants (Kaplan, 1984, p. 414).

Kaplan's views were supported, almost 20 years later by Otley (2001, p. 243):

It will be my contention today that much management accounting research has lost its way. In particular, I will argue that it has concentrated too much on accounting and not enough on management. For management accounting research to regain its relevance, I will propose that it should widen its boundaries and become concerned once again with the issue involved in designing and operating systems of managing performance.

Management accounting, in response to the pressure of organisational changes in form and perspective, is evolving. Based on his involvement with MC research and practices over the past 35 years, Otley (2003, p. 319) advocated "Performance management, as I now prefer to call the area of management control....". Similarly, Ittner and Larcher (2001, p. 352) reflect the extension of management accounting research and practices over 40 years by calling the new approach "*Value-based*

management (VBM)” and draw attention to it as an “...integrative managerial accounting framework for measuring and managing business”.

Otley and Berry (1980, p. 232) note that an “...organization without some form of control is impossible”. Thus, management control and budgeting systems have evolved to better serve their niche, must continue evolving to meet challenges from changing societal ideologies and corporate ecologies in expected, and the evolution is likely to take unexpected ways, means and forms as it meets changing management needs. Thus, it can be suggested that, in these systems *designed to facilitate strategy-management*, new perspectives of management control systems should instigate a re-characterisation of the entire suite of strategic and management systems, rather than an ongoing patchwork of changes. It infers that, as new tensions for managing of organisations emerge, traditional MC and budgeting systems need to be continually reviewed, reformed, and revitalised.

3.4.4 Intellectual Capital

The earliest notion of IC in the form of human capital was traced back to 1960s where it provided support for managing workforce as assets (Flamholtz *et al.*, 2002). Human capital as a core and potential asset to create capabilities had a resurgence of interest in the early 1980s (Flamholtz *et al.*, 2002). Sullivan (2000, p. 13) asserts that, in relation to IC “...history actually began in the early 1980s, as managers, academics, and consultants around the world began to notice that a firm’s intangible assets, its intellectual capital, were often a major determinant of ...[its profits].” Before that time, the dominant practice of business strategy was based on a competitive-based view. As alternative standpoint, a resource-based view, the IC literature has made dramatic advances since the mid-1980s, when the concept of intangible assets was first introduced to managers in Northern Europe and Scandinavia (Allee, 2000). IC

literature usually presents three aspects: reporting, measurement and management.

Low and Kalafut (2002, p. 14) assert that:

Once you really understand intangibles, you'll never run a company the same way again. You'll operate by new rules. You'll create and learn to track new performance measures—measures that look forward as well as backward, that show how you're likely to be doing in a year or two as well as how you did last quarter.

The importance of IC management and measurement frameworks was given a boost as society entered into the information era. The driving force behind the agenda of IC is a belief that key sources of value creation have shifted to intangible assets. However, pioneer IC scholars agree that “information on IC has little value for users unless it is linked to the firm's strategy” (Marr *et al.*, 2003, p. 443).

As an evolving field of activity, the management aspect of IC has been highlighted as the need to create and extract competitive value—this role positions IC at the core of a firm's systems. If the optimum role of a business organisation's management is to gain/maintain long-term competitiveness, the management of IC should serve “...the true values of a company's performance ... its ability to create sustainable value by pursuing a business vision and its resulting strategy” (Edvinsson and Malone, 1997, p. 17).

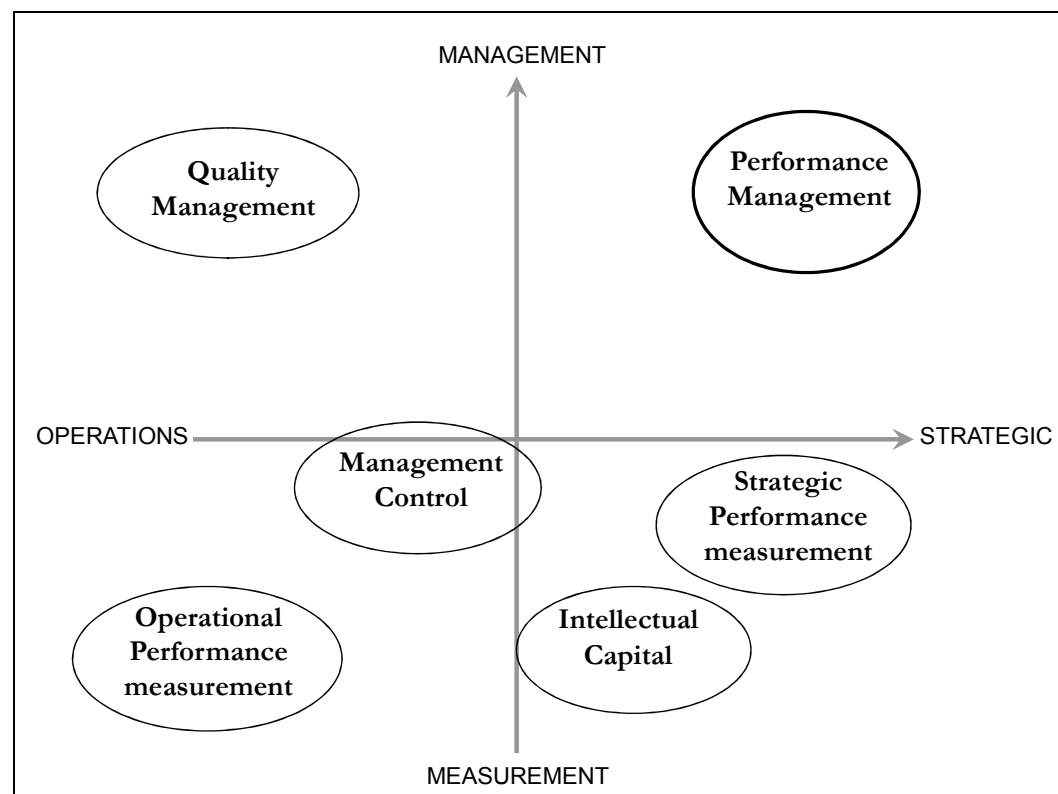
3.5 Convergent Evolution of Performance Management

PMgmt, (also known as: strategic-performance-, corporate-performance, integrated-performance or enterprise-PMgmt), is an integrative framework for managing an entire organisation. It emerged recently and its:

...literature...is eclectic, diffuse and confused. The definitive *general theory* of performance management remains elusive, and is unlikely ever to emerge. Important contributions can be found in field as diverse as strategy, organizational behaviour, operations management, industrial economics and accountancy. [And, the] ...concept of performance management has progressively broadened...to the extent that by the 1990s it had become closer to implying a concern with the strategic management of an entire organization... (Smith and Goddard, 2002, p. 247).

Louis Sullivan’s principle, “*form ever follows function*” (per Duncan, 1989, p. 318), originally focused on explaining evolution in architecture, is widely accepted in evolutionary biology, and parallels many of the processes in business and social organisations. If different management disciplines are performing the same task, in a highly competitive environment, then eventually all should have similar, or at least overlapping, attributes—a related concept is that of convergent evolution. According to its broad definition, convergent evolution arises from forces that may explain the development of at least four management concepts—PMsrmt, QM, MC, and IC—which, in increasingly competitive environments, are converging from various perspectives to be PMgmt systems.

Figure 3.3: Positioning Map of Management Practices



As illustrated in Figure 3.3, QM systems, for example, TQM, MBNQA, and Benchmarking shifted their domains from operations management to strategic

management. Operations measurement systems, for example, TdB and QMPMS and strategic measurement systems, for example, BSC, and IC measurement system, for example, SBN shifted their focuses to strategic management. MC systems, for example, LOC and VBM and other frameworks were increasingly introduced in a strategic management domain. This course of change was driven by senior management who sought to sustain competitive advantage in the early 1980s which shifted from shop-floors to marketing and strategy, continuing to 1990s with importance to handle beyond-control factors arising from awareness of increasing rate of uncertainty and ambiguity (see Chapter 2 for more details).

Management concepts and tools are constantly being modernised as part of the history of how the firm that operates in the free-market system (Johnson, 1983). It is generally accepted that management needs, arising from a need to maintain competitive advantage in a constantly-evolving-business ecology (Johnson, 1981; Johnson and Kaplan, 1987; Johnson, 1992; Mintzberg, 1993, 1994; Otley, 2003, 2007; Drucker and Maciariello, 2008) drive the use and destiny of PMgmt systems. The convergence in PMgmt systems starts with harnessing many management concepts and tools into a strategic arena that then forces those systems to do the same or similar tasks. As a result of these continually evolving competitive stresses to respond to the same problem, management systems arose from divergent sources, growing beyond their creators' intent, via embracing strategy-management capacity, to create and deliver strategy in expected and unexpected ways, means, and forms. Consistent with the design dictum of *form follows function*, the attributes or form of these systems converge, from differing traditional tasks or roles, to better serve managements' new focus of *achieving and sustaining a firm's competitive advantage*. It is argued that, as the analysis in this chapter is an output of a literature analysis, a

convergent evolution of the management concepts and tools into PMgmt is not only a consequence of managerial needs to respond to rapidly evolving business ecology but is also seen as a reflection and realization of management scholars of a critical problem gradually emerging within their arenas.

According to the biological evolution-related concept, discussed earlier, the potential of a management concept or tool to develop in serving management needs in a given period depends largely on its original attributes and on its ability to adapt. In general, a number of management concepts and tools may fail to evolve the needed adaptations simply because they lack the minimum requisite attributes to do so (e.g. humans do not have a gene with the ability to evolve flight). According to the principle of convergence, there are relatively more attributes in the individual management concepts or tools in previous generations (i.e. they varied in their forms and functions). Once the systems begin to compete for the same niche, they begin to be shaped by those features/attributes that confer advantage in that niche and those systems furthest from those ideal features/attributes or least able to change tend to be abandoned by management. Over time, of the many systems that started from very different points and perspectives are either eliminated via environmental winnowing or evolve into similar forms that are highly fit for the needs of the niche (see Kaster and Berger, 1977). What surviving management systems have in common is the ability to adapt to and fit new demands, based on becoming strategic, holistic, and integrative systems for facilitating the management of strategy. Please note: mature ecosystems, by definition, do not have multiple species/systems competing to dominate the same niche. Thus, multiple species/systems is an indication that an ecosystem has not stabilised into maturity, or the multiple species/systems are actually adapted to meet the specialised needs of multiple sub-niches, or (as is likely the case

for business ecologies) the ecosystem is undergoing continual shocks/perturbations that never allow it to stabilise into equilibrium. In the latter case, the adaptive flexibility of many systems may be more valued by organisations than the economic efficiency of having one system that is perfectly adapted to an ecology that is unlikely to persist.

The literature analysed in the section 3.4 indicates that evolving PMgmt concepts and tools of PMSrmt, QM, IC and MC have progressively broadened their functions and roles—to be more strategic, holistic, and integrative. PMSrmt systems are expanding their attributes from a measurement focus to a focus on strategic PMgmt. An implied key driver of this process is the ongoing dissatisfaction of senior managers with extant PMSrmt systems—why else are new systems continually being created (e.g. someone scratching is excellent evidence of an itch). MC systems have broadened their role and functions to gradually become more strategically oriented. QM philosophies and practices are evolving from an operations management focus on quality improvement, to become a framework for managing the entire firm. TQM and related approaches have been evolving beyond their traditional paradigms, as part of serving senior management in the creation of a strategic and holistic perspective that help retain competitiveness. As a strategic resource-based approach, IC frameworks are expanding their ability from mere highlighting, to the measurement and reporting intangibles into comprehensive frameworks to assist in managing new forms of strategic competitive factors.

As noted earlier, after identifying the evolutionary paths of management practices, the final step in the study of convergent evolution of PMgmt systems is to examine the current attributes of particular management practices to ensure that their current attributes are similar in form and function. Convergence in PMgmt systems

was confirmed in the next section, via the second-order analysis (see section 3.3.2 for detail).

3.6 Form and Function of Performance Management

Concept of convergence evolution suggests that, even though the original locations and attributes of various management systems are the different, the current form and function of evolving management systems tend to be driven by competitive pressure into being similar in form and function. Form in PMgmt systems is multifaceted and these facets combine to shape a system's appearance. This analysis defines form as orientation of PMgmt system. The look of a PMgmt system is shaped by its form, which reflects its function(s). On the other hand, function is defined as activity which is those of PMgmt systems perform. Functions of the PMgmt systems are assessed in the context they operated. It can be observed that the function of a PMgmt system is what it does in its evolving role and has consequences for its fitness to its current and future environment(s). It is noted that form and function are closely related—change in one affects the other.

The evolution of four management practices and their form and function are discussed in section 3.4 and the narrative in section 3.6 seeks to account for the current form and function of these systems results from a blend of their origins and convergent evolution. The descriptions of forms and functions of each management practice, resulting from qualitative content analysis, in term of codes and counts can be found in Table A2.4 in Appendix 2.

3.6.1 Form of Performance Management

3.6.1.1 Measurement-embedded System

PMgmt is a strategic-management approach incorporated with PMSrmt—it can, also, be seen as integral element of all management processes. PMgmt works on the management adage that: *what is measured is managed*. As a system designed to manage PMSrmt, a PMgmt system has provided the context for measurement—it can be seen as the use of PMSrmt. Change in a PMSrmt system that is at the core of a PMgmt system, should be supported by modifications to the entire management processes and systems in organisation.

3.6.1.2 Horizontally and Vertically Integrated System

As a particular measurement or management system broadens to become a system for managing an entire organisation, it creates cross-functional issues that impact top management and people throughout the entire chain of the organisation. As a system for managing an entire organisation, PMgmt should be constructed on integrative and holistic perspectives—some evolve from tactical- or functional-views to become a means for organisation-wide management —i.e. from everyday operational activities to high-level strategic decision making.

3.6.1.3 Strategic-oriented System

A core ability of PMgmt is its facilitation of a continuous cycle of strategy initiation, management, and renewal. As a system designed to facilitate strategy-management, PMgmt systems characterise an entire suite of strategic and management systems to create a strategy-management capability to compete in the market.

3.6.1.4 Fact-based Information System

PMgmt systems can be seen as information systems in which financial and non-financial information are stored, analysed, and distributed through the entire chain of an organisation. It provides a store of knowledge and gives feedback to supply inputs for analysing and learning from performance data. The information created by PMgmt is a vital in facilitating fact-based decision making, at all levels of an organisation.

3.6.2 Function of Performance Management

3.6.2.1 Creating and Maintaining Strategic Alignment

PMgmt systems seek to draw and integrate an entire organisation into alignment, as part of creating and sustaining business value via consistency between decision making and action. A cascading a set of performance measures, creates, and maintains goal congruence throughout an organisation—this *management by measurement* is goal-oriented and the ultimate intent is to influence organisational members to make decisions and take actions that are likely to be consistent with organisational goals.

3.6.2.2 Supporting Decision Making

Senior management needs frequent feedback to formulate effective decisions and to link those decisions to management process (to ensure strategic alignment), and to translate improvements into achievement. PMgmt analyses trends, to provide advance warning, direct business strategies, and indicate who can, and should, respond to issues. It supports the extension and cohesion of goal-based diagnosis and goal sharing to, and from, senior management into the strategic and service units.

3.6.2.3 Assisting Formulation and Execution of Strategy

PMgmt scholars usually take strategy for granted and are more attentive to the processes and procedures of strategy implementation. However, strategic planning translates corporate goals into business-unit goals and is directed at influencing the goals of the business-unit staff, via performance measures. It helps managers ensure that planned strategic intent is activated by the relevant action areas. Rapid change and uncertainty can cause a firm to constantly adjust and realign its plans and strategies in response to unexpected emerging issues—timely, relevant information provided by PMgmt systems can help companies cope with urgent problems, issues and opportunities through planning instead of via post-event reaction.

3.6.2.4 Influencing Organisational Behaviours

PMgmt can be designed and used to shift the corporate culture, via breakthrough improvements, by focusing on innovative thinking, and setting aggressive and stretch targets. Feedback from the PMgmt system is used to create extrinsic motivation. The ultimate purpose of PMgmt is not *control* of people but to influence them to make decisions and take actions that are likely to be consistent with organisational goals, and to refocus organisational goals.

3.6.2.5 Facilitating a Learning Organisation

Organisational learning is, in itself, considered a major source of competitive advantage. In learning milieus, PMgmt is focused on learning, challenging, and improving performance further. As strategic alignment requires information, strategic learning provides information and knowledge relevant to the organisation via its PMgmt systems. Learning through feedback maybe the only way to validate the concepts used to formulate a plan. Systematic learning can create a self-correcting

system with continuous improvement adjusting alignment to an evolving and possibly shifting desired status.

In summary, management concepts and tools are social constructs and there are relationships between *the form and function* of a given tool in use. As form flows from function, PMgmt only performs strategically if it has a strategic and integrative measurement system. This measurement system is used to control and drive behaviours in the workplace and to facilitate organisational learning. Since management information is needed by both supervisors and employees, fact-based information systems add to PMgmt by producing the information needed to make decision and manage.

While the explanation of biological evolution is based on natural selection, the development and adaptation of management concepts and tools that are revealed in their form and function, is (directly and indirectly) driven by human actions, if not intent (i.e. artificial selection) (Dickson, 2003; Ghoshal, 2005). The function of a management tool may change, over its evolutionary progression, in response to a variety of specific management demands. Trade-offs, imply that it is impractical for a given management tool to evolve a solution that is optimal for all *niches*. Patterns of form and function of management systems may first vary, as does the environment tunes forms and functions to fit the environmental. The current forms and functions of a management concept or tool reflect a succession of outcomes of prior choices, in the search for distinct PMgmt capabilities.

Adaptation increasing the inclusive fitness of a tool by changing its form and function enables it to adapt successfully to fill a *niche*, if not involve a passive adaptation to the favour of conditions of the changing environment. However, this

analysis did not provide evidence about passive adaptation of PMgmt systems. Some attributes of a management concept or tool may indicate that a management system may be in an early evolutionary stage—while some of these earlier attributes may lose much of their original form and function (as a result of the evolutionary progression to meet desired attributes), others (as a result of the *retention* process in organisations) (Knudsen, 2002) may remain visible, but atrophied attributes that reflect an earlier but no-longer useful or functional role. This case is obvious when many management systems retain labels which likely represented their original attributes/role but no longer reflect their current roles in their organisation (e.g. Budgetary control, TQM, and BSC).

3.7 Conclusions

This chapter gives an interdisciplinary perspective on PMgmt that transcends the narrow perspective found in many academic disciplines, to provide a potential reframe of the mindset of scholars and managers, in their dealings with facets and forms of contemporary PMgmt systems. Malmi and Brown (2008) assert that a broad picture of management control systems, as a *package*, may facilitate an advance in theory that impacts the development, adoption, and use of management systems. The nature of PMgmt embraces a far greater scope of knowledge than that within any given disciplinary area (Smith and Goddard, 2002; Neely, 2005; Merchant and Otley, 2006; Franco-Santos *et al.*, 2007). This expanded understanding of the convergence of PMgmt systems should provide a more complete picture to management scholars and practitioners.

The convergence of PMgmt systems arises when the PMgmt protocols or systems (such as PMgmt, QM, MC and IC) from differing origins are shaped by a

competitive environment to perform in the same way or for the same intent—for strategy-management capabilities. As evolving PMgmt systems mature into new functions, their initial/source attributes can fade as their evolving attributes—holistic, strategic, and integrative—dominate and crowd-out earlier ones. PMSrmt systems are expanding their attributes from measurement to strategic PMgmt. MC systems have broadened their role and functions to gradually become more strategic. QM philosophies and practices are evolving from a quality-improvement view to a wider framework of managing the entire firm. IC frameworks are also expanding their ability from spotlighting, measuring, and reporting intangibles to be comprehensive frameworks for managing the new-form strategic competitive capabilities.

The general content of these management approaches indicates that the strategic-PMSrmt system acts as the core of PMgmt, by providing methodologies to optimize the response to strategic risk. It facilitates the emergence of strategic decisions (based on an informed and holistic perspective), helps senior managers align all organisational components with chosen strategies, informs various management levels of the chosen strategies, and gives feedback to influence organisational behaviours and facilitate employee development.

The conclusions in this chapter are drawn from an analysis of the literature of four management themes, over 10 years. While that array is relatively small (in terms of size and time frame) to support general conclusions about convergence of PMgmt, this chapter and its findings provide value as a *bedrock* affirmation of the establishment of PMgmt as an area for further academic interest and study. Specifically, if the competitive co-evolution of similar systems and knowledge within an organisation's markets is a process, then comprehension is doable for only fleeting

periods, after which the organisation must again strive to understand and adapt to ever-accelerating change.

However, convergent evolution in PMgmt systems may create functional overlap (i.e. some PMgmt systems, or parts thereof, perform parallel with other systems to achieve similar roles/functions/tasks), especially in corporations where a great variety of management tools are in use and jostling for dominance. While firms should understand the extent of wasted administrative effort arising from this convergence, they should also be cognisant of the capacity of PMgmt systems to combine their scope, capabilities, and resources to devise new possibilities and choices. The phenomenon and potential functionality of functional overlap is presented in the next chapter, as speculative thought, to consider and illustrate such post-convergence effects.

Chapter 4

A Speculation of Overlap and Niche of Performance Management Systems

4.1 Introduction

This chapter examines functional overlap in PMgmt systems, as a consequence (a corollary) of convergent evolution in PMgmt. Chapter 3 showed that many PMgmt systems started from differing functional origins and evolved toward common forms and functions that include measurement-embedded, horizontally and vertically integrated, strategic-oriented, and fact-based information systems that would be seen as essential to an archetypical PMgmt system. These systems have evolved to perform archetypical PMgmt strategic functions, such as: creating and maintaining strategic alignment, supporting decision making, assisting formulation and execution of strategy, influencing organizational behaviors, and facilitating organizational learning. This chapter is speculative in that it considers the effects, costs, and potential advantages/disadvantages that arise if organizations apply multiple PMgmt systems. It provides insight on post-convergent evolution in PMgmt systems and identifies functional overlap as an issue—a concept not explicitly addressed in the current scholarly literature.

This chapter focuses on management tools that are potentially implemented as PMgmt systems—an organization-wide, strategic, integrated management tools and techniques to facilitate the management of strategy by senior managers—which are operating under diverse trade names—e.g. BSC (Kaplan and Norton, 1996b, 2001b), Benchmarking (Watson, 1993; Maire *et al.*, 2005), TQM (Smith and Goddard, 2002) and IC frameworks (Diakoulakis *et al.*, 2004; Johannessen *et al.*, 2005; Mouritsen *et al.*, 2005). While these tools and practices look (as if they are) different, they have many similarities. Even though these management tools and practices originated from

differing perspectives and for specific proposes, according to the convergent evolution (see Section 3.5) the ongoing pressing needs of managers, in response to the current business environment, may force them into doing the same or similar tasks (Drucker, 1982), as PMgmt systems.

Since results from management tools surveys suggest, as a global trend, that corporations are increasingly using a greater variety of management tools (Rigby and Bilodeau, 2007), managers who are using a number of management tools need to become aware of the features of the tools and techniques they have adopted (and are going to adopt). Along with the *different-tasks* associated with the array of management tools introduced and used, often come *similar tasks* occurring concurrently with different trade names, but with extensive areas of task/function overlap. Regardless of the perspective applied in adopting management tools and practices (see Abrahamson, 1991), management need to become aware of the consequences, costs, and opportunities created by this overlap—as they seek to create, sustain, and/or enhance their organization’s performance.

Table 4.1 reports the usage rate of several tools which potentially perform PMgmt—Benchmarking, Knowledge Management (KM), BSC, and TQM. In general, usage rates of the management tools have been increased from 1999 to 2006. Surveys (Rigby, 2001a; Rigby and Bilodeau, 2007) identify that corporations use, on average, 11 to 15 management tools, at any given time. However, it should be noted that not all 11 to 15 management tools utilised by organizations are performing PMgmt functions. Nevertheless, if organizations employ two or more of PMgmt tools together, significant functional overlap is difficult to avoid.

Table 4.1: Trend in Management Tools and Techniques Utilization Rate

<i>Tools and Techniques</i>	<i>Tool Usage Rate (%)</i>			
	<i>1999</i>	<i>2002</i>	<i>2004</i>	<i>2006</i>
Benchmarking	76.3	84.0	73.0	81.0
Knowledge Management	28.5	62.0	54.0	69.0
Balanced Scorecard	43.9	62.0	57.0	66.0
Total Quality Management	40.7	57.0	61.0	64.0

Note: This table was summarized from Bain & Company management tools survey by Rigby (2001a, 2003); Rigby and Bilodeau (2005, 2007).

Marr's (2005, p. 57) observations about the use of PMgmt systems supported that even though BSC is the dominant PMgmt system, "...only about 14 percent of [780] respondents to the study ... relied solely on the BSC as their performance measurement tool ...[and] many firms combined it with other methodologies – most common combinations were BSC with TQM or Baldrige, or BSC and EVA™".¹³ Although it can be argued that not many firms use BSC and other management tools as PMgmt systems—they may currently use earlier versions (e.g. BSC as PMsmt systems or Benchmarking and TQM as management frame-works for product and service quality), a study of the implementation of BSC in Germanic countries confirms that 22 and 39 of 40 respondent companies used BSC at, respectively, the corporate and business-unit levels. Indeed, more than one-fourth of those companies applied type-III BSC (strategic PMgmt system) to their organizations (Speckbacher *et al.*, 2003).

Senior management may fail to identify the consequences of such convergence. The adoption and/or continuation of similar-task management tools may happen by accident because managers may not recognize that their management systems overlap—especially if incremental change in their business environment gradually shaped management tools, over an extended period (van de Ven and Hudson, 1984; Senge, 2006). Also, the development and application of a management tool can go far

¹³ EVA = Economic Value Added (Young and O'Byrne, 2001).

beyond its original intent. Additionally, given that PMgmt systems are developed through inter-disciplinary knowledge and knowhow, the ability to make sense of convergence in management tools and practices may be limited—especially in individuals who were shaped by a given area of expertise, over for long time, in a prior period.

The key concern in this chapter rests with the consequences of multiple PMgmt systems being used concurrently in an organization—the costs and consequences of redundancy *may* be large and escalating, or on the other hand, the benefits from their flexibility and synergistic benefits may be massive (functional overlap appears to be under-explored). Ongoing evolution of senior-manager needs makes functional overlap a key issue for scholars and practitioners alike.

This chapter is *speculative*, it is driven by concerns of plausibility—rather than those of proof and validity (Weick, 1989). It is intended to add value by creating an awareness of the potential of functional-system overlap—the intent is to encourage scholars and practitioners to pursue further study and analysis to gain a greater understanding about the effects of the overlap. The critical role of the PMgmt, to senior managers, is also inferred and highlighted in this chapter.

The contents of this chapter are constructed into seven sections as follows:

- Section 4.2 explains speculative thought used as an analytic tool to demonstrate functional overlap in PMgmt systems.
- Section 4.3 gives a review literature of the PMgmt and its functionality which is used to assess the functional overlap.
- Section 4.4 presents a review of the functionality of four management systems.
- Section 4.5 depicts functional overlap in the management systems.
- Section 4.6 discusses the preliminary managerial implications of functional overlap and propositions are suggested.
- Section 4.7 provides the conclusion and a link to the next chapter.

4.2 An Analytic Approach—Speculative Thought

Speculative thought is used as an analytic tool to examine functional overlap in PMgmt systems. As noted previously, speculative thought is “...the endeavour to frame a coherent, logical, necessary system of general ideas in terms of which every element of our experience can be interpreted” (Siebers, 2002, pp. 22-3). It moves beyond what is known, by starting from an assumption that is driven by concerns of plausibility, rather than rigid validity (Weick, 1989). Currently, the notion of functional overlap is ambiguous in its plausibility and value, so speculative thought was the appropriate tool to analyse plausibility of functional overlap and the potential value of this notion.

Speculative thought shows, via analysis of the *nature of existence* that a concrete fact can exhibit abstract entities (Siebers, 2002, pp. 105-6). It can be seen as a tentative interpretation, elaboration or provisional explanation that clearly articulates a new idea using a pattern of fundamental ideas as a means to interpret experience. The fundamental idea used in this analysis, to exhibit functional overlap, is the notion of convergent evolution in PMgmt systems and its implications for the concurrent use of multiple PMgmt tools in an organization. The functional overlap can be examined in light of a speculative thought analysis in which the reader is asked to imagine that the multiple PMgmt systems are operating concurrently in an organization. Since those PMgmt systems overlap in some of their functions, it suggests that significant functional overlap is expected in organizations with multiple PMgmt systems.

Using speculative thought as an analytic approach is based on a premise that thought and practices reinforce each another. Speculative thought helps develop an understanding of a phenomenon being studied, by making sense of its occurrence—that starts within the limits of that topic, but can extend to challenge and transcend the

limitations of what is known and understood. At the core of this idea is the notion that a researcher conducts speculative thought analysis much like other researchers conduct experiments (Weick, 1989). This speculation is tested for their plausibility, not its external validity, which would be tested later after the concept is formulated.

Speculative thought, in comparison with other analytic approaches, has received limited attention in academia. While speculative thought is often seen as being more avant-garde than mainstream, this analytic approach provides a viable means to clarify meaning, make explicit what is understood, and give a grounded explanation of the phenomenon being studied (Golightly, 1951). While it is acknowledged that the approach used in this chapter is avant-garde, it supports the notion that “...all knowledge springs from reason...is analytic...[and is consistent with the notion that] ...rationalism as a method of inquiry about the real world must be abandoned in favour of empiricism (Golightly, 1951, p. 510).” However, the analysis of speculative thought can be useful only when the foundation ideas as means to interpret experience are adequately represented as a proxy of reality. If not, the forgoing interpretation, based on speculative thought, may be insufficiently plausible to reflect reality.

The analysis of this chapter is based on relevant literature about PMgmt systems. Four management systems were used as proxies to demonstrate and give insight into functional overlap. It is argued that the more numbers of management systems selected as proxies, the more evidence to support the conclusion about the functional overlap—e.g. four potentially overlapping management systems should be sufficient to exhibit the presence of functional overlap across a broad array of management areas. Even though the selection process was subjective, three key criteria are proposed to select management systems for this analysis:

- 1) The selected management systems contain PMgmt characteristics that form the system. A PMgmt system can be characterised by its form (see Chapter 3) including measurement-embedded, horizontally and vertically integrated, strategic-oriented, and fact-based information system. These management systems emphasize the mechanism of PMgmt that should be applied as a system for managing and optimizing organizational strategy.
- 2) The management systems were selected to ensure that the overlap analysis occurs across a broad array of extant management systems. The four management systems (i.e. BEM, BSC, SBN, and Benchmarking) which originated in various academic/practitioner disciplines were used as proxies. The BEM is the model introduced in the operations-management arena as a proxy of TQM. The BSC is a management system which has been popular in the fields of PMsmt and MC. Although there are a number of systems which can be selected as a proxy from IC perspective, the SBN (a well-known IC model) is ideal, because it significantly influenced the development of subsequent IC models and frameworks (Mouritsen *et al.*, 2005). Benchmarking is a management tool which is, suggested from relevant literature, belong to several areas. Even though Benchmarking is originated in operations arena, it is originally regarded as a PMsmt system. Moreover, it is also considered as a management accounting tool by accounting scholars (see Chenhall and Langfield-Smith, 1998a; Joshi, 2001; Hyvönen, 2005).¹⁴
- 3) All of the management systems, chosen to act as proxies, were introduced and used in many organizations over the last 10 years. In addition, only the management systems which have been utilized above the mean of utilization rate in the 2006 Bain & Company management tools survey (see Rigby and Bilodeau, 2007) were selected.¹⁵ So, if this analysis indicates that function overlap occurs, the results should be more relevant to a large number of organizations, because they are concurrently using many of these management systems.

As noted, this chapter aims to demonstrate that functional overlap should logically occur when two or more management systems operate in the same niche and/or perform in a similar manner. The overlap intensity among management systems is defined in this study by the number of proxy systems providing a given function, and is expected to vary with the importance of that function. Therefore, if the assumption that the management systems are performing overlapping PMgmt

¹⁴ Since a management tool has a multi-facet attribute, it can be seen that within the scope of any given discipline, scholars in different disciplines may consider a management tool as their tool. This is obvious in cases of BSC and Benchmarking.

¹⁵ A number of surveys consider diffusion of management tools and techniques, especially in management accounting (e.g. Chenhall and Langfield-Smith, 1998a; Joshi, 2001; Hyvönen, 2005). However, this analysis prefers the Bain & Company management-tools survey as it covers management tools and techniques from all areas of management and should, therefore, be more relevant to the interdisciplinary nature of this study.

functions will be validated/true if two (or more) systems do, in fact, overlap in the reviewed functions.

4.3 Performance Management and Its Functions

The creation of an effective PMgmt system embraces far greater knowledge and know-how than can be found within the limits of any given discipline (see Chapter 3). Indeed, the development of PMgmt is as a conjunction of diverse scholastic works in diverse management arenas. As the field of PMgmt is relatively new, there is a lack of a grounding theory (Otley, 1999; Smith and Goddard, 2002) and, as noted by Stringer (2007), a limited understanding of the integrative manner of PMgmt.

PMgmt gained enormous momentum via management accounting and operations management, in early 1980s and 1990s (Johnson and Kaplan, 1987; Ittner and Larcker, 1998; Otley, 1999; Franco and Bourne, 2003; Neely, 2005). It branched out and emerged as a new source of competitive advantage, after practitioners began searching for better (management planning and control) measurement techniques to support QM initiatives, evaluate the cost of goods sold, and value intangible resources). As evolving PMgmt systems mature, their initial attributes (that reflected the intent of their creators) can fade as their evolving attributes—strategic, holistic, and integrative—become similar to those of other evolving systems, by serving the same PMgmt agenda (Amaratunga and Baldry, 2002; Smith and Goddard, 2002; Otley, 2003; Mouritsen and Larsen, 2005).

Dissatisfaction with the capacity of traditional management systems to sustain their firm's competitive advantage in an ever-more aggressively competitive business environment causes senior management to favour development of new frameworks

and/or the adaptation of existing frameworks for measuring and managing strategic performance (Johnson and Kaplan, 1987; Kaplan and Norton, 1992; Ittner and Larcker, 1998; Tatikonda and Tatikonda, 1998). In order to better serve senior management's needs, many of these systems have now evolved far beyond the original intent of their creators, to become highly strategic and managerial-oriented.

Figure 4.1: Functions of Performance Management Systems



The PMgmt functions presented in Chapter 3 (see section 3.6.2) were applied as a reference framework to identify and evaluate functional overlap. These views are synthesized and organized using knowledge from several academic perspectives, rather than from the perspective of a single academic area—PMgmt functions reviewed to infer overlap include:

- 1) Assist the formulation and implementation of strategy-related processes,
- 2) Support strategic decision making,
- 3) Influence strategic organizational behaviour,
- 4) Facilitate strategic organizational learning, and
- 5) Create strategic alignment.

The forgoing functional elements (see, also, Figure 4.1) form the foundation of an enterprise-level PMgmt system based on the four forms of a PMgmt system from Chapter 3, that is measurement-embedded, horizontally and vertically integrated, strategic-oriented, and fact-based information system. Overall, managing strategic change needs the PMgmt to fine-tune or even re-align organizational strategy, to achieve desired outcomes. Moreover, on the flipside, managing cultural change needs PMgmt systems to be used in a strategic context—it influences what an organization's members think and do. The current attributes of PMgmt systems indicate that strategic measurement is at the core of the PMgmt systems that provide methodologies to optimize strategic risk. It facilitates the making of strategic decisions on the basis of an informed and holistic perspective.

Based on the recent literature review, PMgmt scholars usually take strategy for granted and place more emphasis on the process of its implementation instead (Smith and Goddard, 2002; Tapinos *et al.*, 2005). In fact, PMgmt enhances strategic planning by providing the information required to make decisions on strategic choices (Tapinos *et al.*, 2005). However, in the current age of uncertainty and rapid change, the survival of a firm requires constant adjustment—not a periodic refinement of static plans. While strategy may arise freely to deal with urgent issues (even responses to emerging issues are not incongruent with the existing goals; (Mintzberg, 1973; Smith and Goddard, 2002), only timely, relevant information provided by PMgmt systems can help companies cope with urgent problems, issues and opportunities. At a micro-level, the performance measures embedded in PMgmt systems enable individuals to understand and to evaluate their contribution and expectations to organizations (Atkinson *et al.*, 1997; Chenhall, 2003; Ittner *et al.*, 2003).

A PMgmt system provides information to facilitate fact-based decision making (Bredrup, 1995; Henri, 2006; Tillmann and Goddard, 2008). It analyses trends and, if an organization's performance is unlikely to meet the goals, the PMgmt should be able to give a advanced warning and help identify the reasons for under-performance (Neely *et al.*, 2002). A PMgmt can provide direction and the location of where to act and is, also, useful in indicating what person should respond to a given issue (Neely *et al.*, 1996).

A PMgmt can be designed to change the corporate culture, through breakthrough improvements, by forcing innovative thinking—to achieve aggressive and stretched targets (Watson, 1993). The ultimate intent of *managing by measuring* is not control of people but to influence them to make decisions and take actions that are likely to be consistent with organizational goals (Flamholtz, 1979). Indeed, feedback from the PMgmt system is used to generate extrinsic motivation (Robson, 2004). The strong salutary effect on aligning people's behaviour with the organization's goals is a major value of PMgmt (Powell, 2004; Verweire and Berghe, 2004).

Organizational learning is, in itself, regarded as a major source of competitive advantage (Senge, 1990). The PMgmt models (e.g. cause-and-effect relationships) assist management learning the dynamic behaviour of core factors affecting performance (Kaplan and Norton, 2001a; Neely *et al.*, 2001). It provides a store of knowledge and gives feedback that supplies inputs for analysing and learning from performance data (Kaplan and Norton, 1996a). The feedback helps the organization's members learn to construct key issues in managing their business (Neely *et al.*, 2001).

Strategic alignment is fundamental to the dynamics of competitive advantage (Porter, 1996). PMgmt uses performance measures as a means to create alignment by

linking corporate strategy with all aspects of an organization (Labovitz and Rosansky, 1997; Chenhall and Langfield-Smith, 1998b). Corporate-level PMgmt is a requisite for developing the lower-level performance measures, with the purpose of creating alignment throughout the chain of command. The corporate-level measures are derived to support initiatives created in the lower-level management in order to unite purposes, measures, and activities across departments, people, systems and processes (Melnik *et al.*, 2005).

Although varying theoretical frameworks—e.g. Levers of Control (LOC; (Simons, 1995) and Performance Management Framework (PMF; (Otley, 1999)—can be used as a frame of reference to evaluate PMgmt systems, they may be less appropriate where cross-disciplinary fields converge to create a new discipline—PMgmt (Marr and Schiuma, 2003). Since a reference frame is created within a given management context, it should reflect a certain paradigm (Kuhn, 1970). Acceptance of convergent evolution in PMgmt systems should lead to a new management tension emerging—it also redefines the appropriateness of the reference frameworks (Whetten, 1989). While the LOC and PMF frameworks focus on similar issues (via differing terminologies), they do not take strategic alignment as a core function, even though it would seem significantly important. Moreover, the LOC and PMF are ‘*process-mechanisms*’-oriented rather than ‘*function-output*’-oriented frameworks that may not fit to analyse the context of *functional* overlap.

The next section reviews the functionality of the four proxy management systems individually.

4.4 Performance Management Systems

4.4.1 *Balanced Scorecard*

The origin of the BSC reflects a contemporary history of PMsrmt in response to the limitation of cost accounting and financial-oriented measures developed in the early 1980s to incorporate QM of manufacturing production. Kaplan (2008, p. 1263) gives an idea about origin of the BSC that “*Norton and I originally envisioned the balanced scorecard as an enhanced performance measurement system.... Our vision for the BSC was for managers to define and track performance among multiple financial and nonfinancial measures that were considered important for company success*”. However, a constantly evolving progression brought the BSC from being a set of performance measures (reflecting four distinct perspectives: financial, customer, internal business process, and learning and growth; (Kaplan and Norton, 1992) to become a framework for implementing strategy (Kaplan and Norton, 1996a) and then a strategic management system (Kaplan and Norton, 2001a).

The strategic plan (a common output from developing the BSC and strategy maps) highlights an organization’s goals, performance measures and strategic initiatives. The plan is visualized, via strategy maps, as a causal relationship between leading and lagging factors. Lawrie and Cobbold (2004) assert that the most important attribute of the BSC, as a strategic PMgmt system, is that it “removes the separation between formulation and implementation of strategy”. Kaplan and Norton (1996a, p. 15) suggest, from experience implementing the BSC, that:

“Management reviews and updates shift from reviewing the past to learning about the future. Managers discuss not only how past results have been achieved but also whether their expectations for the future remain on track.”

Achieving alignment is the main purpose of the BSC. The BSC translates strategy into a logical structure and strategy maps by which an organization can

formulate a common and understandable language of reference for all organizational units and employees, set targets and align strategic initiatives that enhance strategic feedback and learning (Kaplan and Norton, 1996a, 2001a). It ties all key components of organization altogether and results in

“...the conclusion of the communication and linkage process, everyone in the organization should understand the business unit’s long-term goals, as well as the strategy for achieving these goals. Individuals have formulated local actions that will contribute to achieving business unit objectives. And all organizational efforts and initiatives will be aligned to the needed change processes” (Kaplan and Norton, 1996a, p. 13).

They assert that “Balanced Scorecard enables...[senior managers] to monitor and adjust the implementation of their strategy, and if necessary, to make fundamental changes in the strategy itself” (Kaplan and Norton, 1996a, p. 15). While the BSC provides “...a stronger motivation [to managers] to implement the organization’s strategy” (Bruggeman, 2004, pp. 42-3), it also “...creates consensus and teamwork among all senior executives, regardless of previous employment experiences or functional expertise” (Kaplan and Norton, 1996a, p. 12).

4.4.2 Business Excellence Model

This study applies the BEM as a proxy for the TQM philosophy to analyse the effects to TQM. Indeed, TQM does not, as a concept, provide an integrated theoretical foundation which is easily applied to various types of organizations. There are a number of equivalent models, under the umbrella of TQM. The BEM models slightly vary among nations (Chuan and Soon, 2000)—over 76 countries have launched business excellence awards (Miguel, 2005) and includes the MBNQA discussed in Chapter 2. However, each offers a very similar set of causal links between performance drivers and an organization’s results.

The BEM is a generic business model that is integrated with multi-key-dimensional performance criteria (e.g. leadership, strategic planning, customer and market, measurement, information, and learning, human resource, process management, and results) to guide companies in moving toward performance excellence (Chuan and Soon, 2000; Leonard and McAdam, 2003; Miguel, 2005). *The Criteria* work as a loosely coupled strategic measurement system. It provides management principles to ensure that core-management processes and systems are comprehensively considered (NIST, 2003). It is designed to help organizations use an integrated approach to organization-wide management. A BEM's self-assessment process "...allows the organization to discern clearly its strengths and areas in which improvements can be made and culminates in planned improvement actions that are then monitored for progress" (EFQM, 2008) in a way that facilitates organizational learning. In addition, the BEM model has criteria that focus on the information and knowledge needed for organizational learning. It considers the information and knowledge management as a foundation of the management of organizations

Harry S. Hertz (director of MBNQA) states that:

"...the Criteria [of MBNQA] provide a valuable framework that can help you measure performance and plan in an uncertain environment...the Criteria can help you align resources with approaches, such as ISO 9000, Lean, a balanced scorecard, and six sigma; improvement communication, productivity, and effectiveness; and achieve strategic goals" (NIST, 2003).

The BEM is used by senior management as a strategic framework to manage initiatives by co-ordinating and implementing them in a structured approach (Leonard and McAdam, 2002, p. 21). The role of PMgmt systems as a facilitator in the delivery of strategy is not well established in the literature. While Ritchie and Dale (2000, p. 246) propose that one of the benefits of the self-assessment process is to provide "...a disciplined approach to business planning", Leonard and McAdam (2002, pp. 18-9)

give evidence that BEM “...criteria concerned with policy and strategy do not focus on how effective is the corporate strategy or how dynamic is the strategy planning; rather it considers how aspects of TQM have been incorporated in the strategic processes.”

The BEM provides a means to influence organizational behaviour and provide information to management and employees. Yet, the BEM, as a holistic management framework, that explicitly acts as an auditing framework to supply strategic information can be used to support the management of strategy. It should be noted that even though a BEM's criterion (i.e. workforce focus) explicitly concerns the management of human resources, solutions for dealing with people are not suggested in detail.

4.4.3 Benchmarking

Benchmarking is a processes of continuously measuring and comparing an organization's business process against business leaders (e.g. McDonalds may see Formula One pit-crews as the ideal benchmark for speed effectiveness, service and safety) to gain information which will facilitate learning in order to take action for achieving competitive advantage (Watson, 1993; Holloway *et al.*, 1999). A history of benchmarking began in the late 1950s-60s, when Japanese industry representatives visited firms around the world, to improve their manufacturing processes (Bendell *et al.*, 1993). However, the birth of modern benchmarking occurred when the Xerox Corporation in the US adopted a similar approach in 1979. Traditionally, a benchmark refers to a scaled unit for measurement (Sarkis, 2001). Since emerging in industrial engineering, benchmarking has evolved through several phases (Maire *et al.*, 2005) toward *strategic benchmarking*—evolving from an operational level to a strategic level—to create a management platform, to attain a competitive advantage.

A PMsrmt system, incorporating benchmarking, is derived from strategic priorities that tend to vary among companies and is used to develop a common understanding—“...a process that includes organizational development, and involving people in the process is necessary to succeed. [in this process, gaps] ... between current and desired priorities serve as a basis for managing the cultural process” (Bredrup and Bredrup, 1995, pp. 345-6).

The benchmarking process serves as a venue where organizational learning processes are discovered and developed. Benchmarking motivates people in an organization by setting stretched-but-achievable targets (Watson, 1993, p. 191). Information produced from the benchmarking processes acts as a key requisite to continuously learn and develop. Benchmarking can be seen as

“...a management practice that facilitates the continuous input of new information to an organization. ...[It] seeks two types of information: measures that indicate process excellence, and enabling activities that have produced the observed exceptional results” (Watson, 1993, pp. 45-6).

Benchmarking is a management system for shaping management processes (plan, do, check, and act) to facilitate continuous improvement:

“Strategic benchmarking studies address particular issues in the strategic plan: development of organizational infrastructure, establishment of goals and objectives, selection of key business process for improvement, identification of technology areas targeted for development, and so on” (Watson, 1993, p. 37).

A strategic benchmarking measurement system is expected to support decision making, monitor strategic plans, record development for improvement, evaluate performance, diagnose (i.e. early warning of problems), motivate employees toward organizational goals, compare and identify gaps, and manage continuous improvement processes (Bredrup, 1995, p.172). However, there is no strong evidence to support that benchmarking has an ability to align entire organization with strategy.

Watson (1993, p. viii) suggests that the emphasis of strategic benchmarking is on “learning from companies that have formed long-term strategic alliances for business process improvement”. From this perspective, strategic benchmarking may become a trap for unwary organizations. Specifically, a company cannot become the best by adopting the strategies and tactics of the best in their field. Theoretically, learning and positioning organization’s goals by using information from best practices, especially from a leader in the same area cannot be an innovative approach because *imitation without innovation* tends to, at best, lead to second best. Indeed, in an innovation-passion era, doing better may be not a good survival choice but doing differently may be (Trout and Rivkin, 2000; Kim and Mauborgne, 2005). However, the second-best trap is avoided if the benchmarking crosses industries/venues to draw upon and capture new process and procedures.

4.4.4 Skandia Business Navigator

The SBN is a pioneer in the IC framework and has significantly influenced the development of subsequent IC frameworks/models (Mouritsen *et al.*, 2005). It was formulated in 1991, as a Skandia corporate-IC function, to create and enhance business value from alternative viewpoints (Edvinsson and Malone, 1997). The fundamentals of the SBN model are that “...the true values of a company’s performance lie in its ability to create sustainable value by pursuing a business vision and its resulting strategy” (Edvinsson and Malone, 1997, p. 17).

An evolutionary progression of IC should cause scholars and managers to be concerned about the management of the information provided by IC measurement systems (Mouritsen and Larsen, 2005). Not only knowledge and knowhow is being used in the measurement of IC, but envisioning also plays an important role—it inspires the way the IC will be managed and utilized. However, there is no IC

measurement system that represent the totality of IC elements (Mouritsen *et al.*, 2005). An IC framework like SBN relies on a conventional financial accounting focus. However, this view is very limited, in that it tends to reflect only the monetary value of a company and neglects the many non-monetised elements of IC that can play important roles in value creation (e.g. a company's culture, organizational learning and employee creativity; (Chen et al., 2004).

The SBN develops an organization's *balance sheet* and seeks to broadly highlight, for stakeholders, information on its intangible factors (Bontis, 2001). Skandia's value scheme contains both financial and non-financial building blocks that are combined to estimate a firm's market value. The model uses five perspectives (financial, customer, process renewal, replacement and development and human resources) to measure and manage IC. Specifically:

“... Skandia, management is committed to the IC development and measurement process and to using this information to rethink the company's organization, its strengths and weakness, and its future” (Edvinsson and Malone, 1997, p. 60).

Information from the SBN stimulates management to seek, identify, develop and utilize all relevant resources to enhance the performance of entire organization. Management of IC fuels a “... steeper learning curve” (Edvinsson and Malone, 1997, p. 60).

It is argued that the SBN enhances the degree of success in managing strategy. It creates a new platform of managing strategy by clarifying intangible components as key resources of the organization. While the strategic themes developed by BSC are drawn from the concept of Porter's competitive strategy (Porter, 1980, 1985), the SBN and subsequent IC frameworks are mostly associated with a competitive-based view of firms. Brooking (1996 in Edvinsson and Malone, 1997: 165) asserts that “... strategic planning and goal setting sometimes fail not because of a faulty plan but because the company discovers too late that it doesn't have the intangible asset

resources needed to succeed.” An IC audit can be used to identify those resource gaps that must be covered as a critical part of formulating and implementing strategy.

Although initial IC frameworks (e.g. the SBN) did not include all PMgmt functions, the extended IC management frameworks recognize and engage many more of the missing functions of PMgmt (see Diakoulakis *et al.*, 2004; Johannessen *et al.*, 2005). The intended functions of the PMgmt system—aligning management processes and systems to strategy and influencing organizational behaviours—are not apparent in the SBN literature. The pioneering IC frameworks were focused on providing more-accurate information, especially regarding hidden-sources of the organization’s value, to management (Mouritsen and Larsen, 2005). According to Kloot and Martin (2000, p. 236), since the SBN pays attention to measuring and reporting IC in an integrated manner as a means to better facilitate the management of strategy, the SBN and IC subsequent models should be potentially developed to apply as a PMgmt system.

4.5 Observations on Functional Overlap

Management tools compete in the niche of better serving the needs of senior management. Thus, per the dictums of convergent evolution (see, section 3.1), it is inevitable that they will eventually share: identical, similar, or (at least) parallel properties. The results of the literature review of the four proxy management systems, given above and summarised in Table 4.2, indicate that there is strong overlap among the reviewed management systems. This overlap symbolizes intra-organization relationships among the PMgmt systems. A tool that retains relevance must show attributes that meet one or more prevailing needs—a distinct capability. Further, while that attribute may not distinguish it from other tools, the outputs from the tool must be as expected.

Table 4.2: Key Convergence-driven Functional Overlap

<i>Function</i>	<i>BEM</i>	<i>BSC</i>	<i>Benchmarking</i>	<i>SBN</i>
Align entire organization with strategy	☑	☑	○	○
Assist formulating & executing strategy	☑	☑	☑	☑
Provide decision making information	☑	☑	☑	☑
Influence organizational behaviours	☑	☑	☑	○
Facilitate organizational learning	☑	☑	☑	☑

Legend: ☑ = Evidence that PMgmt system performs the function, and
○ = No evidence supported that PMgmt system performs the function.

Niche and overlap in PMgmt functions are suggestive of competitive relationships (i.e. the systems competing with each other). Defining relationships of PMgmt systems, in terms of niche and overlap, requires a conceptual distinction be drawn between overlap and the converse concept of complementarity (which can be defined operationally as a beneficial inter-dependence, not involving overlap). High overlap in a niche is, by definition, likely when one system is a near perfect substitute for another. Each of the reviewed management systems provides at least three key PMgmt functions: assisting in the formulation and implementation of strategy, providing decision making information, and facilitating strategic organizational learning. It infers a high niche-focus on the evolving design of the PMgmt systems. Strategic alignment is not explicitly addressed in the SBN and Benchmarking literature—though it would seem to be significant. Also, SBN review did not show that SBN has an ability to use to influence strategic organizational behaviours.

It is argued that management systems, for example, the SBN and subsequent IC frameworks, are in early stage of evolution. They may not be able to perform a full-suit of functions expected of PMgmt systems. A review of empirical PMgmt research in *Accounting, Organisation and Society* and *Management Accounting Research* (Stringer, 2007) suggests that many of the prior studies focused around PMgmt issues and suggested that some of the functions of PMgmt systems in early stage evolution are less visible. On the other hand, it may also imply that a

consequence of the divergent development of management systems within a given academic discipline is to lose sight of the whole picture of PMgmt.

Although the same function-outputs can be achieved via various form-attributes, the similarities of, and relationships between, the functions of strategic PMgmt systems are recognized. A case study of a medium Danish software company shows that while the BSC and IC frameworks are used concurrently in an organization, they tend to highlight different functions (Bukh *et al.*, 2002). Specifically, the IC framework is used primarily as information to develop capabilities and resources, and the BSC is used primarily as a means to monitor initiatives and projects and programmes in line with their performance measures. Thus, these two systems are more complements than substitutes. However, an experience of Australian local governments in the simultaneous adoption of the BSC and ISO 9000 QM standard (a technique which have been recently upgraded to be almost parallel with the foundation and practice of the BEM (Larsen and Häversjö, 2001; Kujala and Lillrank, 2004)) resulted in costs rising and much more attention required—too much focus on process and documentation but not enough on the service quality—with insignificant achievement of intended outcomes (Kloot and Martin, 2000).

Although it is easy to view functional overlap as a dichotomy (i.e. overlap is present, or it is not), it is more appropriate to envision its presence as a continuum of full, partial, and none. Proceeding from this understanding, all of the reviewed management systems create partial overlap, as they contribute to the strategy-management processes in different stages. While the BEM's self-assessment is proposed as a tool for scanning business environment—an initial step in strategic planning, strategic planning is, itself, a part of benchmarking. The BEM criteria

(including strategy formation and its implementation) go beyond a PMgmt system, to become a management philosophy. It treats strategy-management processes as a component of its system. As a model intended to grapple with new sources of competitive advantage, the SBN creates new insights to enhance an organization's values by emphasizing intangible resources. This later version of BSC removes the partition/division between formation and implementation of strategy and performs continuously in strategy-management processes.

Even though management systems perform overlapping functions to sustain alignment, they reach strategic alignment via differing means. The inter-related performance criteria of the BEM are clearly shown as a means to provide the alignment among all critical components of organization. The BSC is alike in achieving alignment via strategic measures that tie functions within an organization horizontally and vertically.

Management information is the output provided by their organisation's management systems. It is then used as inputs, to generate mechanisms to facilitate organizational learning and to influence decision making. Learning (that is capable of experimenting and integrating a variety of knowledge) also generates dynamic strategies for rapidly changing circumstance (Mintzberg, 1993). In this manner, the implementation of a broad range of PMgmt systems might be not considered redundant but instead as an aid in increasing the effectiveness of strategic-decision making—e.g. by making relevant information more available (Tillmann and Goddard, 2008). Variety in the types and forms of management information can aid decision makers in recognising, shaping, and interpreting surrounding opportunities and threats accordingly to their priority and management's need for a decision at a given point.

The nature and content of assumptions influences the way people think about and do business—thus, the implicit and explicit assumptions employed by management and its tools also enhances and limits the learning capabilities of an organisation and affects its ability to outperform—learning enables individuals by extending their ability to visualize, choose and perform (i.e. the ability to learn creates the ability to perform (Schunk, 2008). The SBN was developed on differing assumptions—that enabled management using the SBN to view and run their business in a different way (Drucker, 1995). The benchmarking experiences facilitate organizational learning via long-term strategic alliances where opportunities for further learning and development are discovered. The BEM and the BSC literature presents detailed solutions—they develop organizational learning through *measurement-information-learning* systems. The learning interprets current strategy and supports sense-making of the emergent strategy—challenging the assumptions about extant strategy.

Strategic measures are utilized in various ways—the information derived from strategic measures is required to align management processes and systems to achieve strategic outcomes (Ittner *et al.*, 2003; Pun and White, 2005). Although information can be a basis for learning strategy and for influencing behaviour to be more congruent with intended goals, all reviewed management systems tend to utilize information as a means to learn rather than to explicitly control behaviour.

The reviewed management systems create appropriate drivers for intrinsic motivation, via rewards and incentives. Along with strategic measurement, particular systems produce distinct mechanisms to manage human behaviours (e.g. the BEM's two criteria—leadership and human focus). Benchmarking offers a more practical approach by setting stretched-but-achievable targets for the outcomes specified as the

final state desired by an organization. However, as per Robson's (2005, p. 140) assertion: "*what gets measured gets done*", poorly designed measurement systems can create and/or encourage adverse-behaviour.

Functional overlap in PMgmt should be conceptualised for its logic, reason, and value. Convergent evolution and its consequences of functional overlap are not explicitly recognized as an obviously emerging phenomenon. The next section discusses implications for functional overlap as a means to increase the awareness of people who are dealing with multiple PMgmt systems.

4.6 Preliminary Implications for Functional Overlap

Two or more of the reviewed management systems performing in the same niche, in the same organisation raise the question: *should multiple management systems be adopted simultaneously in an organization?*

Functional overlap is a double-edged sword: It provides a useful outlet in creating new possibilities, but it may also signal wasteful redundancy. Harvey (1964, p. 64) notes that a "...chief executive has gotten to that high estate by virtue of this ability to distinguish between the *best* solution and the *best possible* solution." To make a proper decision, managers need to comprehensively understand the implications of the functional overlap within the context the PMgmt systems operated.

In general, there is always at least one limitation in any manageable system that prevents the system from attaining the optimum (Goldratt and Cox, 1984). Thus, it is argued that achieving the best solution/situation is so difficult as to border on being impossible. In a concept derived from economics (Lipsey and Lancaster, 1956), it may be better to let two or more PMgmt systems to *fight* each other out rather than making an effort to improve either PMgmt system so as to achieve the

perceived perfect optimum. It is possible that a next-best solution/situation involves changing other variables away from the PMgmt systems that are usually assumed to be best (Lipsey and Lancaster, 1956). Thus, it may be better for the organization to intervene in a way that is an achievable second best rather than to pursue a global optimal that is (effective) unattainable. In business, a process similar to second-best (or next best) is often called *satisficing* (Simon, 1947, 1956).

In general, increasing the number of systems increases both opportunities and problems. As Geneen and Bowers (1997, p. xiii) note: “If you mix beef broth, lemon juice, and flour, you don’t get magic, you get a mess.If a car has three wheels and you add a fourth—now *that* is synergy. But if you add two more, all you get is an extra expense.” Thus, as businesses adapt ever more management techniques, without careful consideration, the synergy of those tools may be dissipated in superfluous redundancy or even in counter-productive and conflicting information.

While the above comments suggest there is an optimum combination to management systems, a wonderful supportive statement can be illustrated via an elephant as an analogy.

Incidentally, sometimes people go ahead and divide an elephant in half anyway. You don’t have two small elephants then; you have a mess. By a “mess,” I mean a complicated problem where there is no leverage to be found because the leverage lies in interactions that cannot be seen from looking only at the piece you are holding (Senge, 2006, p. 67).

As the existing management-systems parts have to be combined into a body and the interaction among them within an organization can create synergistic behaviours to outperform, attempting to break them down for extraction can potentially lead to the collapse of the organization as a whole.

Managers must first realize the nature, scope, and magnitude of the dilemma and opportunities created by PMgmt-functional overlap. Whichever effects are seen to

dominate, functional overlap of PMgmt systems should be managed strategically. However, the power to achieve solutions is not imbedded in the tools themselves, but resides in the users' capacity to make informed choices, discern opportunities, and implement skilfully (Rigby, 2001b, p. 12). A relevant contingency-theory corollary, suggest that a (set of) PMgmt system(s) should be developed accordingly to their given environments to serve managers' perceived needs. Indeed, the criteria—dependent upon an organization's contingencies—will be based on what is considered an appropriate for the organization.

The cost of expanding system-function overlap may be a large and escalating worry—that cost is not just in the preparation and dissemination of their output but, also, in the cost of managers analysing, understanding and resolving of the issues raised. Extreme redundancy should be rationalized; only the dominant PMgmt system should be given primacy in an organization. However, the rest may be integrated or aligned within a dominant PMgmt framework. On the other hand, as noted in Chapter 3, co-existing PMgmt systems may be a realistic solution in the age of high and escalating future uncertainty. It is possible for two or more systems to combine their scope, resources, or capabilities to jointly pursue new strategic opportunities that they could not effectively pursue independently. If overlap is preferred, managers should ensure that there is an optimal extent to which functions overlap. Strategic roles of a PMgmt system should fit and complement other PMgmt system.

Overlap can create redundancy, if it is not recognized and rationalized, staff will continue performing redundant tasks that could be eliminated by a rationalization of redundant functions. Although excellent information technology (IT) solutions can help senior managers to re-arrange systems or functions via standardized and integrated technological infrastructure to solve the redundancy or overlapping

problems technically (Ghoshal and Gratton, 2002; Kay, 2006), not all managers envisage, recognize, and utilize it. Indeed, hoping that current IT solution will resolve these issues is unrealistic since the functional overlap is not recognized by the IT-specialist community. On the other hand, if integrated IT does function well, then parallel and overlapping conventional management procedures maybe performing without adding value to business. According to this viewpoint, a practical solution to this problem is to retain only one PMgmt system in an organization.

The promises of management tools are a main driving force behind their rapid diffusion and wide adoption. Potential users enthusiastically adopt management tools, which are advertised as being fit for their specific purposes regardless of the effect on other potential users (Benders and van Veen, 2001). Senior management may select only a few attributes which they feel serve their business needs and not strive to utilize or even understand all the functions potentially provided. All-in-all, the review and the choice of “which management tool or selection of tools to use” leads to massive complexities and second-guessing that very much makes it ideal for a “second-best” approach.

4.7 Conclusions

This chapter discusses the nature of PMgmt functional overlap and the idea that the slightly different outputs, costs and consequences of each management system need to be coordinated and/or rationalised with the other systems. The intent of this study is to provide insight to evaluate and rationalize functional overlap across PMgmt systems.

This review indicates:

- 1) Functional overlap in PMgmt systems occurs, and
- 2) Not all management tools and techniques, which could be implemented as PMgmt systems, perform all the intended PMgmt functions.

The content of particular management-system literature may address only one, or at most, a few attributes that it has highlighted—the management systems highlight different functions that are derived directly from the systems. Although they provide similar sorts of functions, the processes and perspectives of each management system is slightly different. Further, the popularity of management systems in actual settings might affect the extent of literature in the scholarly literature market (e.g. literature which is specific to SBN, not IC in general, is much less than that of the other systems). As this chapter is a *directed* review, its results and conclusions are limited by the availability of relevant literature.

A basic assumption underlying this chapter is that managers adopt multiple PMgmt systems in their organizations. An array of recognized management systems is selected to be proxies to simulate, review, and understand functional overlap. It can be argued that the data from actual sites would be preferred. However, this simulation (i.e. “simplified pictures of the world having some, but not all, of the characteristics of that world”; (Lave and March, 1975, in Davis *et al.*, 2007, p. 481), provides a means to simplify complex realities to point where they can be understood and modelled (Carroll and Harrison, 1998; Zott, 2003). In most organizational settings, the complexity and dynamics of an organization do not allow researchers to investigate the phenomenon directly—a phenomenon being studied often can be observed only via proxies, metaphors, or archetypes (Weick, 1989). Even though there is a lot of evidence and discussion about the existence of functional overlap, some scholars and practitioners, who favour of empiricism and expect absolute validation, will not accept the notion of functional overlap—unless it is proven in an actual setting. Weick (1989) asserts that if a study seems interesting enough and plausibility can be

sustained, it can be used as a substitute for validity. Weick (1989, p. 516) argues that excessive strictures:

“... weaken theorizing because they de-emphasize the contribution that imagination, representation, and selection make to the process, and they diminish the importance of alternative theorizing activities such as mapping, conceptual development, and speculative thought.”

This chapter seeks to understand PMgmt overlap but does not attempt to develop or identify solutions for rationalizing the overlap—instead, it is speculative and exploratory.

The next chapter provides perspectives and processes to create utility for the concept of functional overlap and to demonstrate the general practicality of PMgmt systems. A set of propositions will be developed to suggest how functional overlap can be reconfigured so as to retain, create or enhance strategy-management capabilities of the associated systems.

Chapter 5

Configuring the Dynamic Strategy-management Capabilities to Utilize the Performance-management Functional Overlap

5.1 Introduction

This thesis, after discussing the consequences of PMgmt convergent evolution in Chapter 3, creates an awareness of functional overlap in Chapter 4. This chapter uses a resource-based view of the firm (Barney, 1991) to introduce a three-legged-stool model on how to utilise PMgmt functional overlap. In the three-legged-stool model, three dimensions (perspectives, processes and applications) are applied to comprehend functional overlap as a means to build dynamic strategy-management capabilities. As such, new and often conflicting perspectives are offered on functional overlap in PMgmt systems to encourage practitioners and academics to recognize the need to address this emerging phenomenon.

This chapter suggests that a resource-based view will provide valuable insights for conceptualizing PMgmt systems, as a means to create and sustain competitive advantage. The resource-based view argues that organizations possess resources which facilitate their efforts to attain and sustain competitive advantage (Barney, 1991). Resources, in this sense, must have future benefits that can be applied to creating and/or sustaining capacity to generate profit and/or prevent losses (Miller and Shamsie, 1996). Resources provide capabilities that are useful in sensing and responding to market opportunities and threats (Christensen and Overdorf, 2000). These capabilities may extend beyond those of typical accounting assets to include technical skills, managerial ability, management systems, and production and service processes. A number of empirical studies suggest that organizations that possess resources with the ability to create competitive advantage achieve superior

performance (see Cool and Schendel, 1988; Hansen and Wernerfelt, 1989; Mahoney and Pandian, 1992). Although capabilities generated via PMgmt systems may not directly create and sustain competitive advantage like other resources (e.g. financial assets, brand names, or patents), the functional overlap of PMgmt systems may be integral to complex interlocking capabilities that sustain long-term competitive advantage.

The resource-based view of organisations (Prahalad and Hamel, 1990; Barney, 1991; Miller and Whitney, 1999) suggests that emerging functional overlap in PMgmt systems may signify new-form capabilities. If functional overlap is perceived as new and potentially useful to organizations, it meets the definition of an innovation, or at least innovative idea (Angle and van de Ven, 2000). Optimistically, functional overlap creates or enhances synergistic strategy-management capacity to pursue innovative ways to preserve the firm's competitiveness—that cannot be effectively pursued by a lone PMgmt system. Functional overlap generally, and not unexpectedly, occurs in corporations where a variety of management tools are used (see, Chapter 4). A prime cause of the functional overlap in PMgmt systems is that diversified PMgmt systems, which were derived from differing contexts (according to their initial functions, perspective, and roles), have evolved toward the common ground of facilitating strategy-management.

In rapidly-changing global markets, senior management must avoid rigid organization structures so as to promptly respond to changing market conditions and to ensure their firm is dynamically stable (Osborn, 1998). As new forms of competition emerge at an accelerated rate, innovative forms of strategy-management systems are needed to enhance their firm's ability to compete. New-form strategies are becoming an important element of strategic management (see, Chapter 1)—this

insight re-characterises the entire suite of strategy-management processes and activities. Thus, PMgmt systems need to further expand their now historical role of implementing strategy, and begin to facilitate a continuous cycle of strategy initiation, management, and renewal.

Changing managerial precepts should challenge managers into new perspectives and to adapt their behaviour (Drucker, 1970). Any fundamental shift in the business infrastructure also influences the nature of competition among and between companies. Thus, traditional advantages can decline in importance and sustainability, while others gain enhanced salience. As a result, a successful well-adapted and fully-integrated strategy can rapidly become a non-survivable limitation. As managers grapple with these operational, organizational, strategic challenges, they should take particular care to rid themselves of the illusions and insipid truisms that evolving technologies often inspire—e.g. internet has transformed how business is done (Nonaka, 1991). An alternative lens is needed to make constructive sense of this emerging phenomenon, especially as prior perceptions and understanding appear to become ever less informative (see, Chapter 4). New perspectives should inspire senior managers to reconfigure their strategic capabilities so as to advance and sustain their firm's competitive advantage in the current rapidly evolving environment.

This chapter gives insight into the characteristics and implications of *innovative-form PMgmt systems* that can generate a new-form resource-based competitive advantages. It focuses on PMgmt systems which, even though they operate under diverse trade names, perform similar functions and can be coordinated into an organization-wide, strategic, integrated system to facilitate and spur strategy-management. A justification for PMgmt systems (as the vital system to manage

strategy) is that they currently embody a superior capacity to quickly identify and manage ways to compete in rapidly changing markets.

PMgmt systems (as an outgrowth of the intention and need to manage, deliver and control strategy), are enterprise-level management systems that incorporate PMsrmt to over-come corporate cultural inertia by facilitating strategy-management activities. Moreover, they generate strategic information for organizational learning, as a guiding strategy to managers and other employees, to monitor strategic drivers and results, and to steer organizational behaviours toward congruency with given goals. It is the *measurement-information-learning* domains that set these functions as a part of *activating* strategy—it builds dynamic-aligned-capabilities that enable a firm to out-perform its competitors.

The phenomenon of functional overlap in PMgmt systems, in an organization, must be recognized and embraced as a resource before it can be utilized in an informed way. Also, as a new phenomenon, PMgmt functional overlap needs new words and concepts, for as Wittgenstein (1961, p. 151) notes “...what we cannot speak about we must pass over in silence.” Speculative thought harnessing plausibility via *a mind's eye*, is preferred to waiting for mere happenstance to produce the words and means to create new-frontier concepts to alter faltering conventional practices (Weick, 1989). The basic proposition of this chapter highlights two contrasting views:

...convergence in PMgmt systems and its consequence of functional overlap seem to be a significant source of inefficiency—alternatively, applications for system overlap could be considered, as a means to fully utilize its potential to meet the management needs imposed by a rapidly evolving environment.

The primary concern in this chapter is how alternative insights on strategic costs and opportunities associated with PMgmt functional overlap can create ways to manage two or more highly complicated strategic PMgmt systems, so as to optimize

their utilities in terms of a highly dynamic competitive environment. A preferred approach to manage a set of these highly-complex performance-related systems is to utilize the power of their complex relationships, as means to develop new ways to add-value to firms. This is in contrast to a conventional view of functional overlap as redundancy that should be rationalized via aggressive pruning.

This chapter is organized as follows:

- Section 5.2 outlines a three-legged-stool model for deriving utility from functional overlap —with perspectives, processes, and applications being each of the three legs and the expected outcome is to use the functional overlap to reconfigure strategy-management capabilities.
- Section 5.3, considers strategic perspectives arising from functional overlap in PMgmt.
- Section 5.4 uses a concept of socio-technical system as means to understand the transformation of the functional overlap concept from *an idea* to *an innovation*. It focuses on the relationships between people and their tools.
- Section 5.5 proposes an approach to build functional overlap as dynamic strategy-management capability.
- The last section provides conclusions for this chapter.

5.2 Framework for Drawing Utility from Functional Overlap

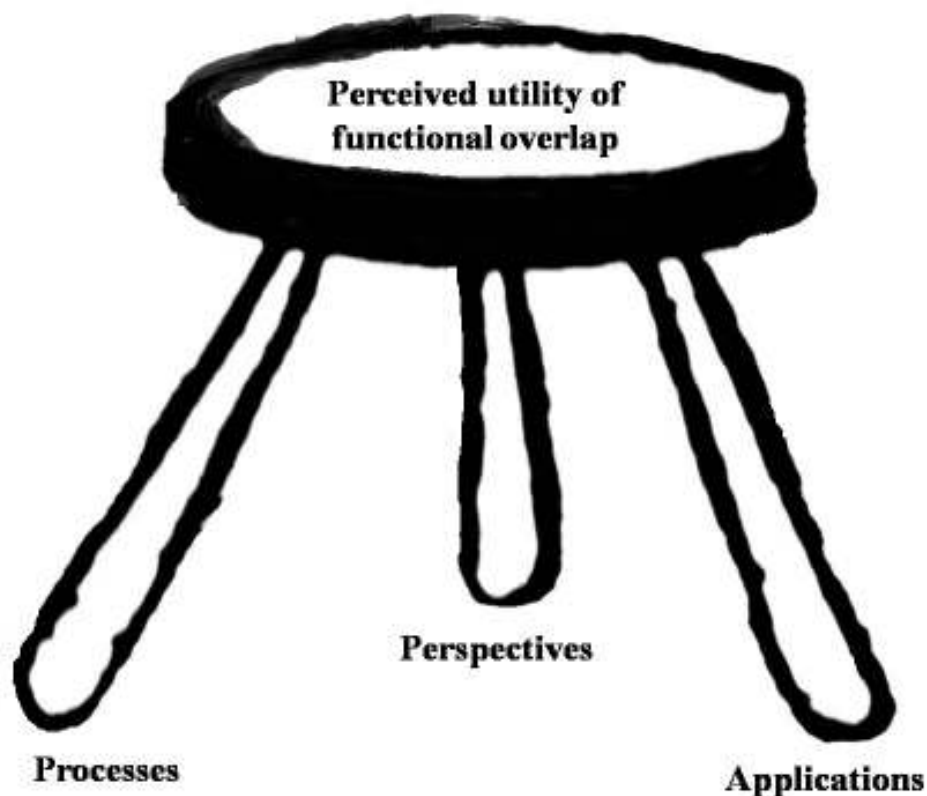
A analogy of a three-legged stool having the ability to stand secure on both smooth and irregular surfaces inspires a model that represent a strong flexible foundation to drawing utility from functional overlap. Three interrelated dimensions are proposed in this chapter, as a foundation for building utility from functional overlap (see, Figure 5.1).¹⁶ These dimensions (perspectives, processes and applications) are proposed as a means to guide the reflection, options, choices, and actions of senior managers to draw utility from functional overlap as a means to use renewal and diversity to re-establish strategy-management capabilities. As with the

¹⁶ There are a number of analogies to assist in drawing conceptual models. The analogy of three-legged stool is used widely in both sciences and social sciences (e.g. McLean, 1998; Dawe and Ryan, 2003), if there are three components as basis of models. Indeed, two-legged stool cannot even stand firmly on a flat floor and a four-legged stool is only stable if the floor is flat. However, an octopus model may be an appropriate choice if there are eight components as foundation of the models.

three-legged stool, if any one of the three dimensions/legs fails, the stability of the model/stool is compromised and it is likely to tip-over.

The first dimension of three-legged-stool model is perspectives. It is argued that the functional overlap is, from a strategic perspective, a double-edged sword—it is a useful means to formulate new plausibility, but, all too easily, bogs down into redundancy. However, even though managers recognize that many tools are operating concurrently in organizations, it may not occur to them that two or more of their PMgmt systems fill the same niche and provide similar outputs—i.e. overlapping functions. An innovative perspective is needed to conceptualise the functional overlap as a resource rather than as a liability.

Figure 5.1: Three-legged-stool model for building strategy-management capabilities



Once managers realize that overlap exists, their view of functional overlap may range from it being an undesirable liability through to a potential asset. However, the opportunities arising from uncertainty are likely to make some level of functional overlap beneficial in creating new ideals/modes as a competitive response. Consequently, once the existence of functional overlap is identified, a strategic perspective is employed to comprehensively explore and map and exploit the advantages and disadvantages of functional overlap.

According to the resource-based view of the firms, a range of PMgmt systems operating in an organization can be conceptualized as capabilities. In discipline of accounting, a broad scope of management accounting information helps organizations to achieve their goals in providing diversified useful information to response to a range of factors (Porter, 1985; Mia, 1993; Mia and Winata, 2008). It is argued that the management accounting systems can be also be viewed in terms of generating capabilities to identify and buffer against unexpected difficulties and unforeseen situations (Mia and Winata, 2008). Sustaining organizations, in an age of rising uncertainty, depends largely on the thoughtful adaptation, implementation and renewal of knowledge and knowhow that is embedded in people, tools, processes, systems and technologies (Ellis and Shpielbarg, 2003). Using the forgoing logic, it is argued that maintaining multiple PMgmt systems may be better able to preserve a firm's long-term sustainability via the provision of new competitive advantages that are unlikely to arise from a lone PMgmt system. If the functional overlap is regarded as beneficial and is retained, the full range of PMgmt systems needs to be stimulated and harmonized with a full suite of strategy-initiation, management and renewal roles.

The second dimension of three-legged-stool model is processes. It is the process of transforming the innovative notion of functional overlap into managerial

innovation. A key assumption in dealing with functional overlap, as an innovative idea, is the inter-play between systems and the people who manage them—in the processes of turning diversity, to plausibility, to capacity. Such relations can be elucidated via the concept of socio-technical system (STS) (Bostrom and Heinen, 1977b, 1977a)—a STS perspective exhibits relationships connecting people, tools, technology, systems, and processes in organizations (Bostrom and Heinen, 1977a; Clegg, 2000). The STS perspective recognizes that PMgmt systems are than mere management systems.

This chapter considers the STS perspective to exhibit the process of turning multiple PMgmt systems into an innovation because that perspective recognises that any system in an organization cannot be considered as being fully deterministic—in that it does not always perform in a fully predictable manner (Bostrom and Heinen, 1977a). Indeed, PMgmt is a subsystem of a more complex STS that includes people, work processes, and institutional and cultural factors (Luna-Reyes *et al.*, 2005). People, involved with PMgmt systems, have the potential to shape those systems in several ways. Thus, a lack of attention to the human and organizational aspects of PMgmt is potentially a major factor in systems failure (Clegg *et al.*, 1997). It should be noted that this STS view is in stark contrast to the more traditional beliefs that tools, technologies, processes, and systems in organizations perform in ways that are independent and value-free (Cherns, 1977). Section 5.4 will exhibit that the potential of PMgmt systems, to be useful to organizations, depends largely on the nature and adaptability of the relationship between the systems and peoples involved. The overlap and diversity of the PMgmt systems must identify plausible scenarios/ideas that help managers enrich their ability to anticipate and deliver strategic notions/outcomes.

The last dimension of three-legged-stool model is laid in application of the functional overlap. It provides concepts to apply functional overlap as strategy-management capabilities to sustain organization's competitive advantage. A critical managerial task, in the building of dynamic strategy-management capability, is to balance short-term survival and long-term growth. While an overlapping set of PMgmt systems may be preferred as a means to sustain long-run competitive advantage, an approach to optimise the overlap costs those systems operating is needed. In a given period, a PMgmt system will be selected as a foundation management platform for competing via a *single* theory of the business (i.e. the fundamental hypothesis about the organization).¹⁷ Any PMgmt system has its own specialization embedded in their design that should be suitable for different field of competition. Thus, the theory of the business should be a guide to choosing an appropriate PMgmt system, as a foundation management platform to cope with the organizational contexts in a given period. The selected PMgmt system, as a foundation management platform, should be rationalized to co-align and harmonize to other PMgmt systems.

This chapter conceives the functional overlap of PMgmt systems as an innovative management idea (Damanpour and Aravind, 2012). The next few sections explore how, during the adoption process of functional overlap, an organization: becomes aware of new ideas, seeks to acquire/adapt them, and adopt them. While the next section inspires managers and creates an awareness of the new way of viewing functional overlap, section 5.4 focuses on explaining the process of adapting

¹⁷ Drucker (1994, pp. 99-100) conceives a theory of the business through three set of assumptions about its business. It is a blueprint for management of an organization. The first set of assumptions is about the environment of the organization (including its society and structure, the market, the customer, and technology). The second set of assumptions is about the specific mission of the organization. The last set of assumptions is about the core competencies needed to accomplish the organization's mission. These sets of assumptions should not be taken for granted, but should treated as hypotheses that need regular testing, as the environment changes at an accelerating rate.

functional overlap and transforming an innovative idea into an innovative management action. Section 5.5 focuses on concepts of how organizations might use functional overlap to enhance their strategic capacity to sustain their competitive advantage.

5.3 Understanding of Conflicting Perspectives of Functional Overlap

Organizations must become aware and make sense of increasing uncertainty caused by the rapid changing environment and respond appropriately (Ellis and Shpielbarg, 2003). Uncertainty is a condition where there is a significant lack of clarity about the external environment (Lawrence and Lorsch, 1986). The threats and opportunities in the external environment perceived by managers determine the choices of strategies (Kreiser and Marino, 2002). However, uncertainty makes it difficult to make accurate predictions about the effect of a given strategy on the external environment and the effect of those environmental changes on the organization. Thus, organizations require continuous innovation and renewal, to keep pace with ongoing changes in the environment, (Ellis and Shpielbarg, 2003).

Different viewpoints, on the convergence and functional overlap of PMgmt systems, suggest differing approaches for senior managers to optimize those systems. However, discontinuities in the rate of change make *cause-(past)-and-effect-(future) approaches* invalid and forces issues to be viewed in ways that differ from summing and projecting past incremental improvements. Thus, a firm operating within a rapidly changing environment will likely consider overlap in PMgmt function-system as advantageous and see high levels of overlap as potentially optimal—i.e. they value diversity in know-how and its associated enhancement of creativity, opportunities, and possibilities. Such firms see overlap as a way to sustain flexibility and as a means to organize continual self-re-invention.

A resource-based perspective of strategic management infers that many sources of competitive advantage are embedded in organizations. Long-run sustainability depends on the willingness of management to continually re-invent organizational capabilities (Hamel, 2006)—many anecdotes suggest that having a past of incredible achievements, in no way guarantees a firm's future. Thus, companies should seek to develop an array of diversified PMgmt systems that relate to its business ecosystem. Such PMgmt systems should flow from assumptions derived from the theory of the business currently employed by the firm, and be seen as a means to discover innovative ways to outperform competitors and suppliers and to delight customers.

The diversity of PMgmt systems arises, in part, from the wide range of knowledge used by senior managers to plan for an unknown future by storing *may-be-usable* know-how and knowledge that can be adapted for use in unknown arenas that often do not yet exist but may soon come into existence. Risks from uncertainty can be diminished by a *many-baskets policy* that (at a cost of handling multiple information flows) can enhance the flexibility of responses. The availability of diversified management tools strongly affects not only what work can be done but also what possibilities and alternatives can be drawn upon to meet the needs of an increasingly uncertain future. The opposite view is that a dearth of alternatives suggests an accelerating risk of abrupt downward discontinuities in a firm's competitive advantage.

Function-system overlap caters to a dynamic tension between internal competition-cooperation (Nonaka, 1991). Even though given management systems are developed and used by different units within a firm, they involve interdependence—reflecting the ideal that each unit forms part of a causality chain,

within its organization. Overlapping functions tend to work best in an organizational environment where work-related teams seek and benefit from a variety of perspectives that encourage the emergence of naturally-dynamic behaviours of competitive advantage. Such systems complement one another by producing dissimilar-but-relative information to fulfil the needs of the same or similar niche.

However, along the advantage-to-disadvantage continuum, perceptions of functional overlap can range from potential asset to liability. Thus, if overlap adds to the cost of running businesses without adding at least as much value, managers will tend to see it as a liability and seek to eliminate, it in the pursuit of efficiency. However, if managers recognise that they are facing great ambiguity and change in their business environment, they are more likely to value the overlap created by PMgmt convergence as an innovative means to enhance and/or sustain competitive advantage.

5.4 Transforming Functional Overlap into Managerial Innovation

Hamel (2006, pp. 75-6) defined management innovation as a departure from traditional management principles, processes, and practices that “alters the way the work of management is performed. Put simply, management innovation changes how managers do what they do”. Management innovation has been conceived as variances in discrete outcomes and processes (Damanpour and Aravind, 2012). This section conceives of *PMgmt-system functional overlap* as a management innovation and explores its adoption and adaptation via a STS view.

The emergence of convergent evolution and functional overlap in PMgmt systems is an innovative notion, which has the potential to create new ways and means to visualize and manage strategy. Convergence and the resulting overlap

symbolises a new, challenging and useful idea, that branches from existing concepts (Rogers, 1983). As van de Ven (1986, p. 592) notes, as “...long as the idea is perceived as new to the people involved, it is an *innovation* even though it may appear to others to be an *imitation* of something existing elsewhere.”

An organization can, as a whole, be conceived of as a STS that embodies reciprocal relations among people, management techniques, and tools (Bygstad *et al.*, 2008). The PMgmt systems and sub-systems within an organization can, also, be viewed as an STS. According to Bostrom and Heinen (1977a, p. 17) the “...technical system is concerned with the processes, tasks, and technology needed to transform inputs to outputs, ...[in contrast, the] social system is concerned with the attributes of people (e.g. attitudes, skills, values)...” The outputs of an organization or system result, to a large extent, from the conjoint performance of its subunits and people with the processes, tasks and techniques it employs.

According to van de Ven (1986), understanding functional overlap as an innovative-adaption process, recognizes the innovation and understands the complicated socio-technical factors that are embedded in the processes of innovation development. The socio-ecology of an organization (i.e. people in an organization and their relationships) is a key determinant that can facilitate or hinder the acceptance, development, and utilization of innovations (van de Ven, 1986). Thus, the processes by which new ways of thinking are institutionalized can be greatly affected by the perceived realities/limitations of the organisation’s socio-ecology.

The concept of humans being key organizational assets seems highly appropriate in a knowledge-based economy—by definition, knowledge is people created/driven. Thus, people are more than mere actors in an organizational setting, individuals are the initial source of all knowledge that is, can be, or will be, applied in

organizations (Nonaka and Takeuchi, 1995). Management tool champions are not merely seen as *one who strongly embraces the tools*, but more importantly embraces the knowledge and *know-how* embedded in the tools. However, even though new ideas/knowledge/know-how are initiated by individuals, only the interaction among people in the organization transforms the new idea into a usable innovation (Spanos and Prastacos, 2004).

The actual process, as a PMgmt system converges into a strategic arena, depends on the relationships among the people who hold the strategic management tools that makeup the socio-political environment of the organization (Carroll *et al.*, 1988). Humans are likely to protect their existing practices and turf rather than accept the discomfort of embracing new directions (van de Ven, 1986). Thus, there will always be conflict between those who pursue innovation and those who are resistant to change. Also, people are concerned with more than developing an innovation—they want to not only turn it into a wealth, but that the new wealth is in a form they control. Decision makers, such as senior managers, often use the legitimacy and the power of government and/or governing bodies to favour the adoption of tools that favour their sphere of dominance (Carroll *et al.*, 1988).

The limited willingness of humans to accept radical, complex changes that confront organizational norms (van de Ven and Hudson, 1984) diminishes the chances that a valuable idea will become an accepted innovation. On the other hand, slowly changing environments seem to be not consciously noticed by individuals. Where the convergence in PMgmt systems does not occur promptly, people often do not notice or differentiate incremental change until it is irreversibly established (Senge, 2006). In cases, where an organization's measurement is compared against previous data or industry trends, the changing reality of competition is not recognized easily. Using

frogs as an analogy may be appropriate to describe behaviour of individuals and their organizations.

If frogs are put into a pail of scalding water, they jump out—they don't like the heat. However, when frogs are placed into a pail of cold water, and the pail is placed on a stove with the heat turned low, over time the frogs will happily cook to death (van de Ven, 1986, p. 595).

Although people do realize and reach the core issues surrounding a change, consistence with the analogy of the frogs, the assumptions about reality are not changed. Thus, what they try to figure out may only consider the *form-element* but the changing activities seem unable to alter *function-output* of management systems to create an ability to outperform in order to compete for the future.

The imperative, “*drop your tools or you will die*” (Weick, 1996), provides an important idea in physiological and mental aspects about the relations between people and tools in use. Weick (1996, p. 302) argued that to “...drop one's tools is simultaneously to accept mutation and to modernize remembered values or to believe the past as well as doubt it.” In practice, people may embrace the tools if they are fearful of, or have not the skill to change. Further, if they strongly identify with the tool, dropping it means losing their identity (an equivalent to failure or to not being). The status quo is always favoured because, if people believe in the tool, it is seen as the means to survival and if change is seen as not making much difference they prefer to continue to hold.

In summary, earlier arguments suggest that even though functional overlap in PMgmt systems is considered beneficial, it will be adapted into a valuable innovation, to create strategy-management capability, if and only if the idea prevails in the competitive views of those who hold the tools. In counter-point, if those who change can out-compete those who do not change, then change may eventually occur,

because its acceptance may favour survival in highly competitive business environment.

5.5 Building Strategy-management Capability from Functional Overlap

The three-legged-stool model (see, Figure 5.1) suggests that three dimensions (i.e. perspectives, processes, and applications) are essential for developing building strategy-management capabilities from functional overlap. Section 5.3 explored the first step, in the process of adopting functional overlap. The previous section explained how the innovative idea of functional overlap might be transformed into management innovation. This section provides key concepts on how to build functional overlap into dynamic strategy-management capabilities to sustain an organization's short- and long-term competitive advantage.

Sustainable growth should not involve trading short-term pain/gain for a longer-run advantage/disadvantage. Ideally, management should seek applied solutions to deal with the short-run and prepare for long-run opportunities and threats. Thus, a critical consideration in the design and development of dynamic strategy-management capabilities is in setting the balance between the short- and long-term interests. Plausibility, flexibility and opportunities to ensure long-term dynamically-stable growth are generated via establishing coherent and synergistic cross-links between multiple PMgmt systems. Specifically, short-term benefits are generated by selecting a dominant PMgmt system (based on the theory of the business in the current period) and that foundation management platform is made sufficiently flexible with the other PMgmt systems to allow for evolution to meet future needs, risks and opportunities.

5.5.1 Building Synergistic Behaviours among Performance Management Systems

If overlap is preferred, as means to create dynamic capability to preserve long-term growth, an approach to harmonize the diversity of PMgmt systems to create synergism is needed. An appropriate blend of integration and differentiation is needed to optimise conflicts and politics among those using the management tools. Specifically, some conflict is good and can enhance the nature of change, but excessive conflict reverses the synergistic advantages generated by diversifying the PMgmt systems (see, section 5.4). System integration (i.e. a system of systems) results when two or more subsystems are linked so that the independence of one or both is sacrificed to the creation of a stronger and more comprehensive system (Karapetrovic and Willborn, 1998b). Although a greater the degree of differentiation adversely correlates to the achievement of integration (Young, 1979), in some cases, increasing the level of integration is an inferior choice. Specifically, over-integration can do a lot of damage (Vestring *et al.*, 2004)—e.g. increasing inter-dependence between two or more systems reduces their capacity to independently check and cross-check one another and/or can limit the scope of what is considered.

Dynamic strategic alignment is a key element in delivering strategy (Labovitz and Rosansky, 1997; Kaplan and Norton, 2001a), sustains competitive advantage (Porter, 1996), and is well served if there is synergism among PMgmt systems. Synergy between two or more integrated PMgmt systems is best served by retaining all, or most, of the preferred functions of the individual systems. Normally, even though individual systems are modified to meet a given intent, integrated systems often perform the intended functions better than an individual system—thus, integration can be positive. If managers realize significant positive value (i.e. synergy), they are likely to encourage integration instead of retaining the overlap.

Organizational resources become synergistically capable only if they are consciously brought together to form socially complex processes to accomplish given tasks (Spanos and Prastacos, 2004, p. 36). On the other hand, separate resources which are operating independently also gain in ability if they are properly integrated to meet a common set of objectives, while avoiding sub-optimization (Karapetrovic and Willborn, 1998b). Strategic alignment is often preferred during organizational change—i.e. total alignment means all people, processes, and systems strive to achieve congruent goals. However, even though this approach can yield short-term success, it may coalesce into structural and cultural inertia—when all components are rigidly interlinked, implanting continuous change is impossible and discontinuous change becomes more difficult, costly, and time consuming (Tushman and O' Reilly III, 1996).

In summary, the preceding arguments suggest that synergistic behaviours can produce positive net outcomes, if the means to create dynamic strategy-management capability are stimulated by the outcomes of synergy (as quantified by the benefits of integration minus the cost of conflicts).

5.5.2 Building a Foundation Management Platform

To survive in the short-run, a foundation management platform using a single PMgmt system can be designed according to a prevailing theory of the business. However, this approach may be limiting if a new theory of the business emerges to help the organization break-through to new possibilities (Drucker and Maciariello, 2008; Gawer and Cusumano, 2008). Ideally, a management platform should be created from a range of PMgmt systems based on a continuously evolving theory of the firm. This new approach would force senior management to accept a tension where evolving PMgmt systems create new-form strategic competency via the

opportunity to think and do a business in a new and different way (not better but different). The ability to create such plausible alternatives secures the sustainability of a business—especially where the business-ecology is undergoing accelerating change.

As a minimum requirement, all management tools and systems should co-align. In a corporate context, management-system-function overlap can be seen as being incompatible to strategic alignment. This short-term problem arises because overlap diminishes cohesive managerial focus and, as a result, is seen as ineffective and inefficient. Finally, its effect on the bottom line must be considered. Efficient strategic PMgmt systems are the result of eliminating duplicate function-systems, business activities, and efficient cutting of costs, expenses, and staff (Cullinan *et al.*, 2004).

A theory of the business (i.e. business model) provides the *raison d'être* for the PMgmt systems selected as the dominant PMgmt system from a range of diversified PMgmt systems which perform similar functions. The system is not only expected to create a competitive business platform for external competition, but it is also used as grounding platform to harmonize other internal systems. When a PMgmt system is selected as a dominant system to be *a leading or foundation platform*, it forms an ecosystem that allows other management systems to be complementary. The dominant PMgmt systems are designed to facilitate the *management of strategy* by top management, a chosen PMgmt system as business platform needs to perform strategic PMgmt functions as well as create the ability to coordinate and collaborate with co- and sub-systems.

Any tool has its own identity, destiny, and specialization where it performs best. It has been shown in this chapter that a single PMgmt system may not be best for all situations and times and that the optimal theory of the business is subject to change (Drucker, 1994). For example, if competitive advantage is located at operations, a

PMgmt systems such as TQM or Benchmarking may make the best foundation management platform; However, a change in competitive conditions may cause IC to be a better driver of competitive advantage and a PMgmt system in the IC arena will make a better a foundation management platform. It is argued that the foundation management platform needs to be as dynamic and changeable as the business environment in which the organisation operates, if that organisation is to retain its competitive advantage.

In summary, although each tool has an identity and specialization, a dominant PMgmt system should selected as a foundation management platform for competing according to the current prevailing theory of business and ideally, that platform should be sufficiently flexible to meet the challenges of a change in the theory of business.

5.6 Conclusions

The world is changing at an accelerating rate and, as a result, organizations cannot safely rely on static capabilities or understanding in formulating and managing strategy. In an increasingly changing world, PMgmt needs to be sufficiently dynamic to continually re-invent an organisation's competitive advantage. PMgmt convergence and the resulting functional overlap provide opportunities for such dynamism.

This chapter conceives the functional overlap of PMgmt systems as an innovative management idea. The emerging of functional overlap as an innovative notion is not explicitly recognized in the literature. Thus, the first step in the process of adapting functional overlap is to create awareness and acceptance of the new idea of functional overlap. Once awareness of functional overlap is accepted by management, then the innovative notion of functional overlap can managed into innovation. Concepts on how to utilize functional overlap will evolve over time.

In terms of the resource-based view of the firm, a three-legged-stool model of how to create utility from functional overlap is introduced to guide management choices, options, and actions. A three-legged-stool model involves:

- **Perspectives**—to think through and define positive and negative effects of functional overlap,
- **Processes**—to transform an innovative idea of functional overlap into a managerial innovation,
- **Application**—to utilize functional overlap as means to build dynamic strategy-management capabilities.

Use of functional overlap, as a means to create dynamic strategy-management capability, starts with the perception that functional overlap can range from being a liability to being a potential asset. In the later case, functional overlap can be a means to quickly form strategy-management capability to meet the demands of accelerating change in the business environment. Humans in organizations play a key role in transforming the innovative idea of functional overlap into usable solutions. Successful transformations are likely to be driven by management-tool champions, not the tools themselves. Conflicting points of view among people who pursue innovation and those who resist change are likely to have a major effect on the transformation process.

Strategy-management capabilities are built according to the perspectives of senior management as to their own perceived advantages from functional overlap. The overlap will be sustained if senior management perceives advantage from functional overlap. The balance between short- and long-term benefits requires the establishment of synergistic behaviour among diversified sets of PMgmt systems. Short-run optimisation requires that one PMgmt system be chosen as a management platform for delivering intended strategy as a means of regaining maximum efficiency and attaining profits. Ultimately, the power to achieve the potential of functional overlap

is not imbedded in the tools themselves, but it resides in users and their capacity to discern value, take informed choices, and implement innovation (Rigby, 2001b).

Notions about the convergent evolution and functional overlap in PMgmt systems are a newly emerging phenomenon. As a result, practitioners and academics have not recognized that this issue is a key to future competition. This chapter seeks to challenge the mindsets and choices of scholars and managers with a new competitive concept to enrich their musings, choices, options, and actions in the management of strategy.

Chapter 6

Concluding Remarks

6.1 Research Objective, Question and Methods

This thesis is directed at identifying and/or creating concepts to assist the development of PMgmt practices to meet the current and future needs of organizations. The main research question for this thesis is: *What PMgmt concepts will form a basis for future practice?* It is about why and how differing management systems evolved out of their original arenas to serve the same niche of PMgmt. This research notes that changes in PMgmt concepts and practices tend to follow trends that can be understood using biological science via evolution. Specifically, business organizations are (or can be thought of as) biological entities/systems/communities that must adapt to their environments and compete so as to dominate and/or exclude others from their niche within their environments.

This research is mostly inductive. It should be noted that inductive research does not require a pre-determined theory or concept before data is collected and analysed (Hyde, 2000).¹⁸ As a result, it allows research findings to emerge from the themes inherent in the raw data and uses those themes to draw tentative hypothesis and define theories or concepts. However, this research is not purely inductive. Specifically, the literature guided and framed the research question at the beginning of the study (Heath and Cowley, 2004).

This research is a multi-stage investigation driven by ongoing analysis and emerging results. Differing qualitative methods (e.g. literature review, qualitative content analysis, and speculative thought) were applied to this thesis in different stages. The literature review and analysis were used to draw-out and make-sense of

¹⁸ In contrast, deductive research requires the establishment of hypotheses via theory or a conceptual framework (Sekaran, 2003).

the evolutionary progression of PMgmt from the history embedded in a large sample of prior studies involved multiple-arenas of knowledge. The rationale is that tracing and analysing PMgmt concepts and practices which continuously adapt to meet the evolving needs of organizations will provide important clues as to how they develop and change over a period in time.

Initially, the interest in the evolution of PMgmt was stemmed from the shortcoming knowledge and knowhow in the field of PMgmt to resolve practical issues in organizations where the author had worked as a consultant. An initial literature review was conducted with an aim to understand the development paths of PMgmt from the 1980s until the present. This preliminary literature review suggested that knowledge in the field of PMgmt is wandering and less structure/progress than other management disciplines. The initial interest in the concept of convergent evolution flowed from the literature review of contemporary PMgmt systems that indicated that PMgmt systems have been evolving to serve the same arena of senior-management needs (see, Chapter 2).

A qualitative content analysis was incorporated with a grounded-theory approach, to review 10 years of received literature in the areas of PMsmt, MC, QM, and IC. In trying to make sense of the convergent of management systems toward PMgmt systems (see Chapter 3), the biological concept of convergent evolution was adopted and fit the phenomenon being studied. Speculative thought was used as an analytic approach to impute the emergence of the functional overlap as a logical outcome (a corollary of) convergent evolution being conjoined with organizations maintaining multiple PMgmt systems (see, Chapter 4). Four PMgmt systems including Benchmarking, BSC, BEM and SBN were selected as proxies from various management arenas to demonstrate that the presence of functional overlap, across a

broad array of extant PMgmt systems. The content of the selected PMgmt systems research was used to supply articles for this review and analysis. Speculatively thought suggests that the emergence of convergent evolution and its associated outcome of functional overlap across many PMgmt systems crates potential benefits for organizations. A three-legged-stool model was applied to make sense to make use of convergent evolution and functional overlap (see Chapter 5).

6.2 Summary of Main Findings

The analysis drawn from the literature review (see, Chapter 2) describes the transition of disparate management systems into PMgmt and an array of PMgmt systems were used as illustrative exemplars of this process. The need of senior management to attain and sustain competitive advantage for their organizations in a business environment that is undergoing accelerating change is suggested as the driving force behind the evolution of PMgmt systems.

In the analysis, it is clear that PMgmt systems have evolved from many disparate perspectives, the major shifts including, shifts from: 1) production to strategy; 2) shareholder to stakeholder values; 3) measurement to management; 4) static to dynamic modes. The literature review suggested that understanding the development of PMgmt practices requires more concepts that those embedded in the knowledge and knowhow of any given academic discipline.

In management systems, convergent evolution occurs when protocols from differing origins are used in the same ways for the same purposes (see, Chapter 3). The analysis in this thesis suggests that PMgmt systems evolved from differing origins toward archetypical forms including measurement-embedded, horizontally and vertically integrated, strategic-oriented, and fact-based information system. Thus, the

reviewed systems have evolved from disparate purposes toward the a common intention to perform strategic functions, including: attaining and sustaining strategic alignment, supporting decision making, assisting formulation and execution of strategy, influencing organizational behaviors, and facilitating organizational learning.

A logical consequence of the convergent evolution of PMgmt systems is functional overlap. The functional overlap of PMgmt systems occurs when an organization employs several PMgmt systems which were introduced under different trade names to concurrently perform the same or similar tasks (see, Chapter 4). Initially, this overlap may occur without conscious direction/intent (i.e. the convergent evolution is taken place without managers being aware of it). The analysis in this thesis indicated that there is a substantial degree of functional overlap among the reviewed PMgmt systems. This overlap occurs because the PMgmt tools are competing to better serve the senior management need for the same or similar niche—thus, they must inevitably share identical, similar, or at least parallel properties.

Awareness of PMgmt system convergence inevitably leads to concern over functional overlap among those systems and to concern over why organisations would choose to use several PMgmt systems concurrently. The apparent lack of concern of organisations for functional overlap suggests either they are unawareness of the potential waste or they are aware and believe that the benefits presented by overlap outweigh the costs. In any event, the existence of PMgmt convergence and overlap suggest that academics and managers should reconceptualise how organisations use and coordinate their multiple concurrent-PMgmt systems. As part of the process, new words may need to be developed to capture these new concepts for discussion, debate, and comprehension.

A three-legged-stool model was proposed for use in visualising the creation of value from functional overlap—the three legs of the model represent the dimensions of: perspectives, processes and applications (see, Chapter 5). While the perspectives dimension makes positive sense of functional overlap in environments of accelerating change, the processes dimension seeks to transform functional overlap from a new concept to an organizational innovation, and the applications dimension suggests how functional overlap creates or enhances strategy-management capabilities. Accelerating change and uncertainty appear to be driving forces behind the increasing acceptance of functional overlap as a preferred outcome that generates opportunity. However, in a given organisation, functional overlap will only be adapted as a valued innovation, to the extent that it is valued (as such) by those holding the tools. As a preferred occurrence, the PMgmt systems need to be stimulated and harmonized with the full suite of managerial processes and activities encompassed in the diversity and the overlap. A PMgmt system selected as foundation management platform being consistent with the theory of the business of the firm is designed for competing in short-run. The foundation management platform for competition will be created by using the nature and potential competency of a selected PMgmt system.

6.3 Implications of this Research

A *good* management theory or concept or *theorizing* (Weick, 1995) moves beyond additive enhancements of knowledge to create opportunities to potentiate knowledge into multiplicative increases by directing research to crucial questions and (most importantly) enlightening management as a profession (van de Ven, 1989; Gagliardi, 1999).

This thesis creates new ways of viewing PMgmt systems and their applications through the emerging phenomenon of convergence in PMgmt systems

and its consequence of functional overlap. It uses inquisitive, imaginative, and speculative thought that (via multi-stage enquiry) generates a logical and energetic narrative on the probable nature, drivers, and consequences of convergent evolution in PMgmt systems. The resulting new understanding about PMgmt revealed in this study, may prove useful as a guide for further scholastic investigations and as a practical guide for thinking about organising choices and actions, in the design and use of PMgmt in organizations.

This thesis is drawn from an interdisciplinary perspective and is significant in its potential to reframe the mindsets of scholars and managers who are dealing with (a variety of) PMgmt systems. As discussed in the relevant chapters these include:

- An earlier assumption that one PMgmt system can serve an organization's needs is negated by a new perspective that multiple PMgmt systems can operate concurrently in an organization.
- Functional overlap, a consequence of the PMgmt convergence is generally emerging unnoticed and unintended in large corporations, where a great variety of management tools and techniques are implemented. Academics and managers need to be aware of the opportunities, costs, and consequences of PM-systems functional overlap.
- Functional overlap from PMgmt convergence may enhance strategy-management capability by creating a synergistic manner to pursue new opportunities—that a lone PMgmt system cannot pursue, independently. On the other hand, a failure to cover-off the original orientations and an over-abundance of management systems may diminish an organization's relative performance.
- Functional overlap in PMgmt systems may inspire management to create new possibilities via the use of multiple PMgmt systems that more than offset the costs of functional overlap. The convergence of PMgmt and its consequences should become an explicit issue in the strategy of managing strategy—it characterizes the strategic capacity to initiate new-form competitive advantages that potentiate an organisation's competitive advantage.

Functional overlap among PMgmt systems needs to be perceived and managed, in constructive ways, as means to guide managerial perceptions, options, choices, and actions in the management of strategy. If management make choices from an obsolete or incomplete paradigm, what they do is likely to decrease rather than add net value. A fundamental shift in the strategic-management notion also

affects the competition level(s) in the affected industries. Managers are encouraged to re-conceptualize this phenomenon as a means to formulate new perspectives to outperform and outflank competitors. As managers struggle with these strategic challenges, they should seek to capitalize on the benefits that evolving management theory and practice often inspire. This creates an alternative lens to aid to senior managers in reconfiguring the strategic capabilities that to sustain the dynamic of their competitive advantage.

6.4 Limitations of the Study

Like all studies, this thesis has a number of limitations that, in part, arise from its research approaches and methodologies—as discussed in the relevant chapters, these include:

- **Incomplete histories** – for any given issue, there are many histories (White, 1965). In general, historical research is conditional and current capacity of human being cannot write a complete history (Previts et al., 1990). Since historians search for patterns and attempts to explain nature (what happened) and drivers (how it happened), facts are collected and organized through a historian's perceptions and decisions which constrained by time and available evidence.
- **Implicit biases** – traditional literature reviews may generate biases including the personal bias of the author and a bias in the material selection with no clear methodology (Petticrew and Roberts, 2006). However, a literature review is important to this study as its outcome direction and scope to this research. The small number of PMsrmt systems shown in the review (Chapter 2) may not be sufficiently broad (i.e. in numbers and time frame) to exhaustively support general conclusions about PMsrmt systems. Nonetheless, the development of new insights can be gained by literature review to form a significant research question for this research.
- **Limited by the availability of data** – the results and conclusions of literature content analysis are limited by the availability of the relevant literature. In addition, a researcher needs to read and analyse all retrieved data to make a claim even though they may not relate to the topic studied.
- **The generalisability of grounded theory is often in question** (Rennie et al., 1988), especially when the analysis is conducted on a small number of selected informants. Although a large sample size is not required for grounded theory, generally it may be called for a validation. This problem is more of an issue for quantitative research (where quantity is quality) and is seen as being less significant and even irrelevant in qualitative research.
- **Concerns over the use of Speculative thought** – this analytic approach is appropriate to this research as it creates awareness for functional overlap which is not explicitly

addressed in the relevant literature. However, as noted in Chapter 4, some scholars and practitioners who favour of empiricism may not accept the notion of functional overlap of PMgmt systems and need absolute validation conducted in actual settings.

There are some gaps of research in this thesis. The recommendation for future research is provided in the next section.

6.5 Recommendations for Future Research

While this research creates value by using relevant PMgmt-systems literature to give *grounded explanations*, further insights will be obtained when future research considers the nature and consequences of PMgmt convergence are observed in actual settings and/or cases:

- While current forms and functions of PMgmt systems can be readily observed and documented, the effect of their original forms, that remain visible but functionless or less-useful, should be considered and mapped for potential advantages and disadvantages.
- A further unexpected side-effect of the convergence process is that many management systems have been twisted out of their original functions to serve strategic needs. Understanding the advantages and disadvantages created by this convergence and the extent to which any original functions are not being done, or are being poorly done (as part of the evolution trade-off) need to be considered.
- The form and function of PMgmt convergence can be used as a set of variables for constructing models depicting the convergence and also its effects on future operations. The examination of PMgmt mechanisms in such settings should add empirical support to the limited conceptual understanding developed in this study.
- The convergence and its consequences can be evaluated on a continuum from positive to negative, depending on an organization's contingencies and senior management experiences. More understanding is needed on the extent of management effort wasted by this convergence and the extent to which any original function, in not being done is creating harm—such examinations need to consider that the cost of convergence may be larger than what is immediately visible.
- The ongoing tweaking and evolution to PMgmt systems is strong empirical evidence that senior managements' needs in that role are not being well served by extant systems and that an effort should be made to identify what system attributes will serve those needs, now and in the near, inter-mediate, and long-run future.
- A further unexpected side-effect of the convergence process is that firms may become burdened with an over-abundance of management systems that have been twisted out of their original functions to serve strategic needs and then are half abandoned as new systems are twisted, and overlapped with old systems, to that need.
- Once the convergence, functional overlap, and multiple perspectives of PMgmt systems are well understood, organisations will have to make conscious decisions as to what to

keep and what to trim from their integrated multiple PMgmt systems. That conscious design process will require extensive analysis and study as to the relative benefits, costs, and importance of the various parts of such systems.

Debating and responding to accelerating change is an ongoing management task—new perspectives/concepts/words on life and work are needed to indentify change and to shift from reactive into proactive responses. This research is a never-ending game—management concepts and practices seem to never die: each develops a destiny, via an accelerating process of evolution that creates new possibilities, opportunities, choices, and difference. Competitive advantage via PMgmt is a treadmill where one must run at an ever quickening pace, just to not lose ground to others who are also running ever faster. While this study is beneficial in helping to reframe mindsets of scholars and mangers who are dealing with multiple PMgmt systems, it is current only for a limited season since managers constantly force PMgmt systems to serve their needs. And, the phenomenon should be re-researched regularly to keep pace with the rapidly evolving nature and consequences of the PMgmt convergence.

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Appendix 1

Performance Measurement and Management Systems

The development and alteration of 22 individual PMsrmt and PMgmt systems are illustrated in details and then summarized in the Table A1.1. The following PMsrmt and PMgmt systems reviewed are shown chronologically.

A1.1 Tableau de Bord (TdB)

The record about Tableau de Bord (TdB) can be traced back to 1932 when it was developed by French engineers for improving production processes (Malo, 1995; cited in Bourguignon *et al.*, 2004). The earlier use of the TdB was as a tool used by top management to identify key parameters to facilitate decision making (Epstein and Manzoni, 1997). Until the late 1980s, the TdB was basically understood as reporting device as well as a tool for diagnosis, interaction and hierarchical dialogue (Bourguignon *et al.*, 2004). It is a dashboard which assists senior managers by providing a set of performance indicators that allow them to monitor, learn and take corrective actions to maintain the progress of businesses (Epstein and Manzoni, 1997; Bourguignon *et al.*, 2004).

A1.2 Benchmarking

The evolution of benchmarking is significantly associated with evolution in PMsrmt (Anderson and McAdam, 2004). Indeed, traditionally, a benchmark refers to a metric unit on a measurement scale (Sarkis, 2001). Benchmarking originated in the early 1950s, when Deming and Juran trained Japanese industries to improve quality of products (Kolesar, 2008). However, the birth of modern benchmarking, in the field of industrial engineering, occurred when the Xerox Corporation in the USA adopted a similar approach in 1979 (Bendell *et al.*, 1993). It was applied via continuous measuring and comparison of an organization's business process against business

leaders to gain information to facilitate learning, in order to take actions to enhance competitive advantage (Watson, 1993; Holloway *et al.*, 1999). Benchmarking evolved through several phases (Maire *et al.*, 2005) toward *strategic benchmarking*—evolving from an operational level to a strategic level—to create a management system, to attain a competitive advantage. A PMSrmt system, incorporating benchmarking, derived from strategic priorities has become apparent to be leading, forward looking, and predictive (Anderson and McAdam, 2004).

A1.3 Sink and Tuttle Performance Measurement model (S&T)

Sink and Tuttle (1989, 1990) consider organization's performance is a function of seven critical criteria. The S&T model proposed that the performance of an organization is a complex interrelationship among the seven performance criteria: Effectiveness, Efficiency, Quality, Productivity, Quality of work life, Innovation, and Profitability/Budgetability (Sink *et al.*, 1984). PMSrmt is an integral part of each step of the performance-improvement-planning process. As the objective to build a PMSrmt system as means to provide essential information to everyone in the organization, Sink and Tuttle (1990) suggest that not only senior management but all levels of the organization should receive information about the overall organization's performance as well as that relating to a particular employee's activities.

A1.4 Malcolm Baldrige National Quality Award (MBNQA)

The Malcolm Baldrige National Quality Award (MBNQA) was launched by the US Government in 1987 to encourage companies in the US to use TQM (Gadd, 1995). It offers a set of causal links between performance drivers and an organization's results—a predictive framework of organizational performance (Wilson and Collier, 2000). Although it was initiated with the foundation of QM,

since 1999 it was modified to provide a more holistic view to be an organizational performance excellence framework—a strategic PMgmt system (Natarajan *et al.*, 2000; Vokurka, 2001). *The Criteria* of MBNQA work as a comprehensive and integrative set of performance measures. It was designed to help organizations use an integrated approach to organizational PMgmt to improve overall organizational effectiveness and capabilities and deliver competitive value to customers and stakeholders resulting in organizational sustainability (NIST, 2003).

A1.5 The Strategic Measurement Analysis and Reporting Technique system (SMART)

The Strategic Measurement Analysis and Reporting Technique (SMART) system (also well known as the Performance Pyramid) was developed by Wang Laboratories, Inc. (Cross and Lynch, 1988; McNair *et al.*, 1990). It is based on concepts of TQM, industrial engineering, and activity-based accounting (McNair *et al.*, 1990). The purpose of the SMART is to link an organization's strategy with its operations by translating objectives from the top down (based on customer priorities) and measures from the bottom up (Cross and Lynch, 1988). The different hierarchical levels of SMART system provide a clear link between performance measures at all levels in a company. It enables department managers to prepare strategically relevant activities to establish the organization's goals and report the health of the business in integrated approach (Cross and Lynch, 1988).

A1.6 World Class Manufacturing Performance Measurement system (WCMPM)

World Class Manufacturing Performance Measurement system (WCMPM) was developed by combining the World Class Manufacturing concept with a PMgmt system (Maskell, 1989d). During the late 20th century, dramatic changes were made by the US companies in their manufacturing processes to improve competitiveness by

improving quality, reducing lead times and costs and enhancing production flexibility. It is clear that new measures of a manufacturing company are required. The PMsrmt system developed through the best practices of leading WCM companies around the world (Maskell, 1989b). At that time, industry standard had not been established, but an emerging consensus among progressive companies around the world was that performance measures needed to be flexible, directly related to the manufacturing strategy, non-financial, easily understood, and highly responsive to the daily production situation is seen (Maskell, 1989c). PMsrmt systems employed by world class manufacturing companies comprised of five broad categories: quality, delivery, production process times, flexibility and costs (Maskell, 1989c).

A1.7 Skandia Business Navigator (SBN)

The Skandia Business Navigator (SBN) was the initial IC function of Skandia in 1991 (Edvinsson and Malone, 1997, p. 42). The fundamental concept of the model is that “the true values of a company’s performance lie in its ability to create sustainable value by pursuing a business vision and its resulting strategy” (Edvinsson and Malone, 1997, p. 17). The model guides management by proposing a comprehensive framework for measuring and managing IC. Edvinsson and Malone (1997) categorize IC into human capital and structural capital. In sum, Skandia’s value scheme contains both financial and non-financial building blocks that combine to estimate the company’s market value to provide a more comprehensive view highlighting intangible factors to the stakeholders (Edvinsson and Malone, 1997; Bontis, 2001).

A1.8 Results and Determinants Matrix (RDM)

Fitzgerald et al. (1991), developed the Results and Determinants Matrix (RDM) as a PMsmt system for service industry managers. This framework seeks to help service managers develop appropriate performance measures to support the creation of a sustainable competitive advantage. Its performance measures are categorised into the domains: end results and means/determinants. The results domain is comprised of competitiveness and financial measures. This framework helps to manage service businesses by a result-measures set (e.g. competitiveness, liquidity, capital structure and market ratios) with the assumption that there is no variance across different types of service businesses (Fitzgerald and Moon, 1996). The means/determinants domain includes the four categories of: quality of service, flexibility, resource utilization and innovation. The RDM main strength is that it provides a reasonable level detail about the measures and is a useful development process. However, in term of comprehensiveness, the human-resources dimension is not an explicit determinant of performance.

A1.9 Balanced Scorecard (BSC)

It is obvious that the initial focus of Balanced Scorecard (BSC) was as an innovative strategic measurement framework consisting of four distinct perspectives—financial, customer, internal processes, and learning & growth (Kaplan and Norton, 1992). Fundamentally the BSC identifies the cause-and-effect linkage between set of measures (i.e. strategy maps). Kaplan and Norton (1996a) claimed that the experiences of using BSC went beyond a strategic PMsmt system to a strategic management system. They also claimed that the BSC facilitates critical management processes: Clarifies and translates strategy, Communicates and links strategy to measures, Set targets and initiatives, and Provides feedback and feed-forward.

Further it provides continuously interconnected strategic processes by removing the partition between strategy formulation and its implementation (Lawrie and Cobbold, 2004). The use of the BSC as a management system was extended further to build a set of principles known as the strategy-focused organization (Kaplan and Norton, 2001b). In this adapted version, the BSC has emphasized two issues—alignment and focus.

A1.10 Levers of Control (LOC) Model

Simons (1995) proposes four control systems: Beliefs, Boundary, Diagnostic, and Interactive—the mechanisms to implement strategy—as the Levers of Control (LOC). Beliefs systems empower individuals and encourage management and employees to search for new opportunities—communicate core values and inspire all participants to commit to the organization’s purpose (Simons, 1995). Boundary systems establish the rules of the game and identify actions and pitfalls that employees must avoid. While the diagnostic use represents a mechanistic control used to track, review and support the achievement of predictable goals, the interactive use is an organic control system supporting the emergence of communication processes and the mutual adjustment of organizational behaviours (Henri, 2006). Specifically, a diagnostic use of management control limits the role of PMsrmt system to a measurement tool, while an interactive use expands its role to a strategic management tool (Simons, 1994).

A1.11 Consistent Performance Measurement System (CPMS)

Flapper *et al.* (1996) proposed a systematic method for designing a Consistent Performance Measurement System (CPMS) with aims to assist managers to make decision effectively. Explicit attention is paid to the relationship between performance

indicators (PIs). There are three intrinsic dimensions of PI: type of decision (i.e. strategic, tactical, and operational), aggregation level (i.e. overall or partial) of the decision; and, type of measurement unit (i.e. monetary/physical/dimensionless). The system claims to cover all aspects of performance that are relevant to the existence of an organization as a whole. Flapper *et al.* (1996) argue that the system offers management a quick insight into how well the organization is performing and to what extent the organizational objectives are realized from a top-down point of view.

A1.12 Knowledge-Based Measurement Model (KBM)

Knowledge-Based Measurement Model (KBM) suggests three sets of measurement indicators (*growth and renewal*, *efficiency* and *stability*) for three intangible asset categories (*organizational members' competences*, *internal structure*, and *external structure*) (Sveiby, 1997). Although the choices of performance measures depend on the company's strategy, management should select only a few of the measures for each category, but with emphasis being placed on covering all perspectives. Like other IC measurement frameworks, KBM is not compatible with traditional accounting reporting practice. Sveiby advocates a new reporting framework—a knowledge perspective—that can incorporate intangible assets more reliably. Sveiby (1997, p. 157) originally proposed a simple and objective formula for assessing intangible assets where the firm's *market value* is equivalent to *tangible assets* plus *visible equity*. This formulation helped senior managers realize the power of hidden values in companies.

A1.13 Integrated Performance Measurement System (IPMS) Reference Model

Integrated Performance Measurement Systems (IPMS) was created to ensure that business strategy, functional strategy, and individual objectives were aligned in

order to maximize stakeholder satisfaction. The methodology is based on the TQM concept of internal and external customer/supplier relationships. Bititci *et al.* (1997) suggest that two critical elements of the structure of PMsrmt system should be considered—integrity and deployment. As a critical element to the efficiency and effectiveness of the PMgmt systems, IPMS operates at the core of the PMgmt process (Bititci *et al.*, 1997). The IPMS enables the closed loop deployment of business objectives as well as feeds information back to management (Bititci *et al.*, 1997).

A1.14 Integrated Dynamic Performance Measurement System (IDPMS)

Ghalayini *et al.* (1997) proposed an integrated measurement approach that align PMsrmt systems across managerial and operational levels so as to enhance the ability of a company to remain competitive in the dynamic global marketplace. The Integrated Dynamic Performance Measurement System (IDPMS) was built in order to achieve alignment through the levels and drive the continuous improvement process. It is based on the integration of three primary functional areas: Management, Process improvement teams, and Factory shop floor. Although an initial aim for the IDPMS looks similar to other PMsrmt systems by focusing on the continuous improvement of manufacturing competitive advantage, it has integrated a set of well-known methodologies—the Performance Measurement Questionnaires, the Half-life concept, and a Modified Value-Focused Cycle Time (MVFCT) diagram—in order to reduce the constraints of earlier PMsrmt and PMgmt systems.

A1.15 Integrated Performance Measurement Framework (IPMF)

The Integrated Performance Measurement Framework (IPMF) is a comprehensive approach providing a mechanism for designing strategic measures (Medori and Steeples, 2000). The framework also provides managers with up-to-date

and comprehensive information from all critical-areas of performance. Medori and Steeple (2000) claimed that using this framework enables a company to gain several benefits both in term of financial and other perspectives such as business awareness by company members having a clear understanding of the business and focusing on strategic direction. A major advantage is that it can be used both to design a new PMsrmt system and to enhance an existing PMsrmt system. In contrast, the unsatisfactory aspect of this approach is the lack of a structured process for its development.

A1.16 Comparative Business Scorecard (CBS)

Kanji (1998) modified the four perspectives of the BSC in order to propose a Comparative Business Scorecard (CBS). Like the BSC, the CBS provides a holistic perspective of organization; but, alternatively, CBS proposes different perspectives: Stakeholder values, Process excellence, Organizational learning, Delighting the stakeholder (Kanji, 1998). This model was developed compatibly with the principles of TQM and in the direction of the BEM (Kanji and Sa, 2002). The model also offers insights for defining quantitative relations between the four perspectives of performance measures. The set of measures is primarily developed for: 1) Delighting both internal and external stakeholders; 2) Identifying and managing the most important organizational asset; 3) Managing by fact (i.e. analysis of the organizational processes and measuring the key variables); and 4) Developing a culture of continuous improvement.

A1.17 Dynamics Performance Measurement System (DPMS)

Dynamic Performance Measurement System (DPMS) emerged within the IPMS Project with a scheme that a performance measurement system needs to be dynamic

(Bititci *et al.*, 2000). DPMS approach was tested with different types of business processes. However, the logic behind the measurement device is based on a simplistic scenario, and consequently there is a significant gap in feedback process and forewarn management who are dealing with more complex scenarios (Bititci *et al.*, 2000). In order to provide true dynamism and full integration with other business systems, Bititci *et al.* (2000) suggested that a PMsrmt system should be an integral part of the company's Enterprise Resource Planning (ERP) platform.

A1.18 Quantitative Models for Performance Measurement System (QMPMS)

Suwignjo *et al.* (2000) developed Quantitative Models for Performance Measurement System (QMPMS) emphasising quantitative linkage of performance measures. It contains three sets of performance measures—direct, indirect, and interactive affects. An important benefit gained from the QMPMS approach is that the interaction of the factors can be clearly identified and expressed in quantitative terms that are easier to measure (Suwignjo *et al.*, 2000). Bititci *et al.* (2001) shows the use of the QMPMS as a strategic approach to evaluate the performance of alternative strategic choices of manufacturing strategy and adapt to the rapid change environments. This identification brings forward to understanding the dynamic behaviour of the strategic factors affecting performance (Bititci *et al.*, 2001). Although QMPMS intends to eliminate the human errors in the interpreting output, initially to select variables to put into the model requires judgment.

A1.19 Performance Prism (PP)

Performance Prism (PP) was developed to be used by management teams as a tool for constructing key variables that should be addressed in managing their businesses to satisfy all stakeholders (Neely *et al.*, 2001). PP, a strategic measurement

system, assists managers in particular functions. It works like a route map for achievement—management knows where to go and where an organization is moving (Powell, 2004). The framework forces the management to realize organization's goals. It is used to communicate business objectives to their people—a clear framework for working towards the organization targets and to influence behaviour alignment with the organization's goals (Powell, 2004). When a measurement system with the right targets is in the right place, it can monitor and give feedback about objectives are being achieved.

A1.20 Dynamic Multi-dimensional Performance (DMP) framework

Dynamic Multi-dimensional Performance (DMP) framework is founded on the concept of the BSC and the Success Dimensions (Maltz *et al.*, 2003). The suggested framework includes five major dimensions: Financial, Market, Process, People, and Future. The robustness of the DMP highlights human resource which is limited in the BSC as well as assigns specific performance measures for any dimension of the system in order to eliminate the weakness of the Success Dimension model (see Shenhar and Dvir, 1996). The model was built as an integrative approach to provide a dynamic progression, starting with the financial dimension to the future dimension. The proposed dimensions of DMP framework are wide enough so that different organizations in different industries can select their specific measures for each dimension upon their contingencies.

A1.21 Integrated Performance Management (IPM)

Integrated Performance Management (IPM) framework is defined as “a process that helps an organization to formulate, implement and change its strategy in order to satisfy its stakeholders' needs” (Verweire and Berghe, 2003, p. 782). It aims

at developing and delivering strategy to meet organization's target performance. The IPMgmt framework consists of five modules: Goal setting processes, Operational processes, Support processes, Control processes, and Organizational behaviour component. Its themes focus on two levels of alignment—strategic and maturity (Verweire and Berghe, 2003). This framework was initially designed for strategic business unit (SBU) managers who are responsible for the SBU strategy rather than functional managers. It emphasizes strategic goal setting and then monitoring and controlling them along the strategic process.

A1.22 Transforming Performance Measurement (TPM)

Transforming Performance Measurement (TPM) emphasizes building and sustaining appropriate organizational contexts and processes that encourage positive results from PMsrmt. It comprises of four interrelated constituents: Context, Focus, Integration, and Interactivity, for transforming organization into a visionary status. It is essential that all four keys elements work together (Spitzer, 2007). The *context* of PMsrmt in an organization setting influences the PMsrmt in use. A PMsrmt system's *focus* which symbolizes 'what management is paying attention to' is a basis for PMgmt —managing wrong PMsrmt is not only meaningless but also risky. In addition, PMsrmt should be *integrated* with all systems, processes, and structures of the organization. Managing PMsrmt —*interactive* process—is considered as the most important aspects for running a successful measurement system in the long-run (Spitzer, 2007).

Table A1.1: Development of Performance Measurement and Management Systems

Performance measurement and management system	Year introduced	System orientations	
		Initial orientations	Changed orientations
Tableau de Bord (TdB)	1932	Operations/Management (Epstein and Manzoni, 1997)	Strategic/Dashboard/Management (Bourguignon <i>et al.</i> , 2004)
Benchmarking	1950s	Operations/Measurement (Kolesar, 2008)	Strategic/Management (Maire <i>et al.</i> , 2005)
Sink and Tuttle Performance Measurement model (S&T)	1985	Strategic/Measurement (Sink and Tuttle, 1989, 1990)	-
Malcolm Baldrige National Quality Award (MBNQA)	1987	Operations/Management (focused on quality management) (Goh and Xie, 2004; Mitra, 2004)	Strategic/Management (NIST, 2003)
The Strategic Measurement Analysis and Reporting Technique system (SMART)	1988	Strategic/Measurement (Based on the concept of TQM, industrial engineering, and ABC (Cross and Lynch, 1988)	-
World Class Manufacturing Performance Measurement system (WCMPM)	1988	Operations/Management (Maskell, 1988)	-
Skandia Business Navigator (SBN)	1991	Strategic/Measurement/Management (resource-based view) (Edvinsson and Malone, 1997)	-
Results and Determinants Matrix (RDM)	1991	Service industry/Measurement (Fitzgerald <i>et al.</i> , 1991)	-
Balanced Scorecard (BSC)	1992	Strategic/Measurement (Kaplan and Norton, 1992)	Strategic/Management (Kaplan and Norton, 1996a)
Levers of Controls (LOC)	1994	Strategic/Dynamic/Management (Simons, 1994)	-
Consistent Performance Measurement System (CPMS)	1996	Strategic/Measurement (Flapper <i>et al.</i> , 1996)	-
Knowledge-based Measurement Model (KBM)	1997	Strategic/Management (resource-based view) (Sveiby, 1997)	-
Integrated Performance Measurement Systems (IPMS)	1997	Strategic/Stakeholder/Measurement (Bititci <i>et al.</i> , 1997)	-

Table A1.1: Development of Performance Measurement and Management Systems (continue)

Performance measurement and management system	Year introduced	System orientations	
		Initial orientations	Changed orientations
Integrated Dynamic Performance Measurement System (IDPMS)	1997	Strategic/Dynamic/Measurement (aim to auditing measurement systems) (Ghalayini <i>et al.</i> , 1997)	-
Comparative Business Scorecard (CBS)	1998	Strategic/Stakeholder/Management (based on TQM and Business Excellence Model) (Kanji, 1998)	-
Integrated Performance Measurement Framework (IPMF)	1998	Strategic/Measurement (based on TQM and Business Excellence Model) (Medori and Steeples, 1998)	-
Dynamic Performance Measurement System (DPMS)	2000	Strategic/Dynamic/Measurement (Bititci <i>et al.</i> , 2000)	-
Quantitative Models for Performance Measurement System (QMPMS)	2000	Operations/Dynamic/Measurement (Suwignjo <i>et al.</i> , 2000)	Strategic/Management (focused on operations strategy) (Bititci <i>et al.</i> , 2001)
Performance Prism (PP)	2001	Strategic/Stakeholder/Measurement/Management (Neely <i>et al.</i> , 2001; Neely <i>et al.</i> , 2002)	-
Dynamic Multi-dimensional Performance framework (DMP)	2003	Strategic/Dynamic/Measurement (the modification of BSC and Success Dimensions) (Maltz <i>et al.</i> , 2003)	-
Integrated Performance Management (IPM)	2003	Strategic/Stakeholder/Management (Verweire and Berghe, 2003)	-
Transforming Performance Measurement (TPM)	2007	Strategic/Management (Spitzer, 2007)	-

Appendix 2

Summary Frequency Counts of Qualitative Content Analysis

The frequency counting reported in the tables below is supportive evidence to help in ensuring descriptive, interpretive, and theoretical validity (Maxwell, 1992). Table A2.1 summarizes the distribution of papers by years. Table A2.2 shows the frequency counts of the first-order analysis—the evolution of four management themes which have been evolving into PMgmt. Table A2.3 to Table A2.6 show the frequency counts of the second-order analysis—the form and function of four management themes. Actual numbers are provided along with percentages to avoid misleading presentation of the fractions (Sandelowski, 2001).

The frequency report here is used only to back up the analysis, not as primary results showing the convergent evolution. Unlike quantitative content analysis, frequency count is a means to an end, not the end itself—not about averaging or reducing finding to a common metric but “rather enlarging the interpretative possibilities of findings and constructing larger narratives or general theories” (Sandelowski *et al.*, 1997, p. 369). The frequencies were counted from the presence of relevant text in the reviewed papers—i.e. repetitive messages of the same items in the paper were recorded only once. Particular forms of text—words, phrases, sentences, paragraphs, and themes—might be treated and counted equally as a frequency.

Table A2.1: Distribution of Papers Retrieved and Analysed

	Papers Retrieved	Papers Analysed
Performance Measurement	129	105
Management Control	121	78
Quality Management	54	53
Intellectual Capital	38	30
	342	266

Note 1) All papers retrieved from the multi-round searches were sorted manually to remove duplicate copies. Also, the papers such news and advertisement were not used for analysis.

2) As there was limited access to some journals, the following: *International Journal of Business Performance Management* (5 papers), *International Journal of Technology Management* (2 papers); *Journal of Information Science* (1 paper); *International Review of Administrative Science* (3 papers); *Organization Studies* (1 paper); *International Journal of Accounting, Auditing and Performance Evaluation* (1 paper) were not included in analysis.

Table A2.2: Distribution of Papers

	2007	2006	2005	2004	2003	2002	2001	2000	1999	1998	Total
Performance Measurement	22	17	17	10	8	8	12	4	5	2	105
Management Control	9	5	9	6	8	7	4	5	7	18	78
Quality Management	5	5	7	7	2	6	1	5	10	5	53
Intellectual Capital	4	4	6	6	3	4	1	1	1	0	30
	40	31	39	29	21	25	18	15	23	25	266

Table A2.3: Evidence of the Evolution of Management Systems

	Papers Reviewed	Explicit (1)	Implicit (2)	(1) + (2)	Percent
Performance Measurement	105	22	17	39	37.14
Management Control	78	6	27	33	42.31
Quality Management	53	5	11	16	30.19
Intellectual Capital	30	4	6	10	33.33
	266	37	61	98	36.84

Table A2.4: Form and Function of Performance Measurement

	Frequency (paper)			Percent (n=39)
	Explicit	Implicit	Total	
Form				
Measurement-embedded system	39	0	39	100.00
Integrative & holistic system	19	12	31	79.49
Strategic-oriented system	35	2	37	94.87
Fact-based information system	23	5	28	71.80
Function				
Create and sustain strategic alignment	15	3	18	46.15
Assist formulating and executing strategy	20	6	26	66.67
Support decision making	23	3	26	66.67
Influence organizational behaviours	20	4	24	61.54
Facilitate learning organization	23	7	30	76.93
Others: Enhance accountability	6			
Facilitate resource allocation	2			

Table A2.5: Form and Function of Management Control

	Frequency (paper)			Percent (n=33)
	Explicit	Implicit	Total	
Form				
Measurement-embedded system	27	5	32	96.97
Integrative & holistic system	12	10	22	66.67
Strategic-oriented system	31	1	32	96.97
Fact-based information system	28	2	30	90.91
Function				
Create and sustain strategic alignment	8	3	11	33.33
Assist formulating and executing strategy	24	4	28	84.85
Support decision making	31	1	32	96.97
Influence organizational behaviours	18	5	23	69.70
Facilitate learning organization	24	4	28	84.85
Others: Enhance accountability	1			

Table A2.6: Form and Function of Quality Management

	Frequency (paper)			Percent (n=16)
	Explicit	Implicit	Total	
Form				
Measurement-embedded system	11	1	12	75.00
Integrative & holistic system	12	2	14	87.50
Strategic-oriented system	9	4	13	81.25
Fact-based information system	5	2	7	43.75
Function				
Create and sustain strategic alignment	3	1	4	25.00
Assist formulating and executing strategy	5	5	10	62.50
Support decision making	5	2	7	43.75
Influence organizational behaviours	9	3	12	75.00
Facilitate learning organization	10	4	14	87.50
Others: Enhance accountability	1			

Table A2.7: Form and Function of Intellectual Capital

	Frequency (paper)			Percent (n=10)
	Explicit	Implicit	Total	
Form				
Measurement-embedded system	10	0	10	100.00
Integrative & holistic system	4	5	9	90.00
Strategic-oriented system	7	3	10	100.00
Fact-based information system	7	3	10	100.00
Function				
Create and sustain strategic alignment	3	2	5	50.00
Assist formulating and executing strategy	6	2	8	80.00
Support decision making	10	0	10	100.00
Influence organizational behaviours	1	2	3	30.00
Facilitate learning organization	9	1	10	100.00

Appendix 3

Illustrative Quotations as Exemplars

Table A3.1: Illustrative Quotations for the First-order Analysis

	Illustrative Quotations
Performance measurement	<p>Measurement is not an end in itself, but a tool for more effective management. Results of performance measurement indicated what happened, not why it happened, or what to do about it. In order for an organization to make effective use of its performance measurement outcomes it must be able to make the transition from measurement to management (Amaratunga and Baldry, 2002, p. 218).</p> <p>We believe that an integrated, holistic performance measurement system that did all of these things would, in fact, be a performance management system (Kloot and Martin, 2000, p. 236).</p> <p>Nowadays, the performance measurement community seems to have shifted its focus of attention. ...the focus of performance measurement research is now moving from the design and implementation of the SPM [strategic performance measurement] systems to how these systems are used in organizations (Franco and Bourne, 2003, pp. 698, 708).</p>
Management control	<p>Managerial accounting is evolving to encompass a more strategic approach...In response, many firms are adapting strategic performance measurement (SPM) systems that (1) provide information that allows the firm to identify the strategies offering the highest potential for achieving the firm's objectives, and (2) align management processes, such as target setting, decision-making, and performance evaluation, with the achievement of the chosen strategic objective (Ittner <i>et al.</i>, 2003, p. 715).</p> <p>Performance management, as I now prefer to call the area of management control, is therefore still an important issue for contemporary organizations (Otley, 2003, p. 319).</p>
Quality management	<p>The fourth and present stage [of quality management evolution], uses a quality system that embraces the entire organization including its management systems, suppliers, and customers (Wu <i>et al.</i>, 1997, p. 25).</p> <p>... quality has emerged as a formal management function, ... evolving from a reactive and inspection-oriented quality approach to a more proactive and strategy-oriented approach...The fourth stage in the move toward quality is strategic quality management [where it is]...embraced by top management in the strategic planning process (Lau <i>et al.</i>, 2004, p. 701).</p> <p>...despite all the benefits...drawn from the traditional TQM philosophy, the company has noted that it needs to redefine and broaden the application of these principles to suit its current strategy that is now more focused on innovation (Parajogo and Sohal, 2004, p. 872).</p>
Intellectual capital	<p>IC management has already become the core of the enterprise management in the knowledge economy era (Chen <i>et al.</i>, 2004, p. 210).</p> <p>Balanced scorecard and intellectual capital are performance management systems which integrate financial and non-financial indicators and are tightly coupled to the firm's strategy (Mouritsen <i>et al.</i>, 2005, p. 24).</p>

Table A3.2: Illustrative Quotations for the Second-order Analysis

	Illustrative Quotations
Form	
Measurement-embedded system	<p>Performance management precedes and follows performance measurement, in a virtuous spiral and performance management creates the context for measurement. Thus any attempt at separating the two processes is bound to be [in] vain (Lebas, 1995, p. 34). Performance measurement systems are an integral part of management control systems (Tatikonda and Tatikonda, 1998, p. 49).</p>
Integrative & holistic system	<p>Performance measurement is a cross-functional issue....A functional mind-set can seriously undermine the success of a performance measurement system (Bititci <i>et al.</i>, 2004, p. 39). Strategic performance management is therefore used ..., not only at the executive level, but also throughout the entire organization (Marr, 2006, p. xv).</p>
Strategic-oriented system	<p>...there are compelling reasons why performance measurement must become more strategic in outlook. Models and mechanisms must be developed to address the need for appropriate supporting performance measures for business strategy in rapidly changing business environments (McAdam and Bailie, 2002, p. 974). As a method of improving operational effectiveness through the provision of tools and techniques, as a catalyst for change, or in leading the formation and characteristics of the corporate strategy by focusing on the customer. The tactical role of TQM is in the translation of the corporate goals into achievable action plans (Leonard and McAdam, 2003, pp. 656-8). A distinctive feature of these strategic performance measurement systems (SPMS) is that they are designed to present managers with financial and non-financial measures covering different perspectives which, in combination, provide a way of translating strategy into a coherent set of performance measures (Chenhall, 2005, p. 396).</p>
Fact-based information system	<p>...it is understood that their complicated structures, diversity of activities and size in terms of employees, products/services and multi-layered decision-making are strongly related to the use of information. The information required can only be provided as the feedback produced by performance measurement (Tapinos <i>et al.</i>, 2005, p. 380). The purpose of any performance measurement and control system is to convey information. These systems focus on data – financial and nonfinancial information that influences decision making and managerial action (Simons, 2000, p. 4). The measurement systems have to provide performance information that assists everyone to improve the overall performance of the system. The information has to ideally remove the nature variance of performance so that the people involved can see how their actions affect the capability of the system. Furthermore, the measurement system needs to present the critical relevant information in a way that cannot be ignored by those most able to control it (Robson, 2005, p. 144).</p>

Table A3.2: Illustrative Quotations for the Second-order Analysis (continue)

	Illustrative Quotations
Function	
Create and sustain strategic alignment	<p>...a performance measurement system that ties every aspect of the organization—from the boardroom to the factory floor—to the strategy. This is known as “alignment management” (Wade and Recardo, 2001, p. 2).</p> <p>...the purpose of PMgmt [performance management] is to ensure that the organization is ‘steered’ in some sense optimally within that context (Smith and Goddard, 2002, p. 248).</p> <p>A key purpose of performance management is to align organization behind the goal of turning the strategic plan into effective action (Aguilar, 2003, p. 49).</p>
Assist formulating and executing strategy	<p>Performance management (PM) is the process of managing the execution of an organization’s strategy. It is how plans are translated into results (Cokins, 2004, p. 1).</p> <p>If performance measurement and management is to be of any real value to organizations then it must help management to translate their strategic intent into appropriate actions and deliver feedback...showing whether these actions are working or not (Neely <i>et al.</i>, 2003, p. 133).</p>
Support decision making	<p>PMS [performance measurement systems] are used as a facilitator during the decision-making process by providing information to top management. ...More specifically, considering the orientation of flexibility firms toward change, adaptability and responsiveness, they will face more frequent situations where strategic decisions have to be made (Henri, 2006, p. 85).</p> <p>We need to use our measurement data to understand the big picture, the big story of what is happening inside the organisation. And this requires to collect the right data, provide the right information and integrate the performance measurement model into organizational processes so performance analysts can understand the complexities of today’s organisations but still gain valuable insights that inform actions in order to add real value (Neely <i>et al.</i>, 2003, p. 134).</p>
Influence organizational behaviours	<p>An effective control system provides direction and guidelines to employees, explains what is expected of them, and describes how they should fulfil their responsibilities (Tatikonda and Tatikonda, 1998, p. 49).</p> <p>...this was not simply an example of “what gets measured gets done”. When a performance measurement system is incorrectly designed, it can create exactly the wrong behaviours (Robson, 2005, p. 140).</p>
Facilitate learning organization	<p>A distinctive characteristic of SPMS is their objective of ensuring that the organization can develop a capacity to innovate by encouraging learning. ...Diverse measures across financials, customers, processes and long-term innovation provide an important formal mechanism to collect information that can be used to develop organizational learning (Chenhall, 2005, p. 404).</p> <p>IC Navigator/IC index provide a simple, clear and useful appreciation of how business work and could work (Navigator) thereby provide input into any strategic discussion (Pike <i>et al.</i>, 2005, p. 505).</p>