

**THE BALANCED SCORECARD: STRUCTURE AND USE IN CANADIAN  
COMPANIES**

A Thesis Submitted to the College of Graduate Studies and Research  
in Partial Fulfillment of the Requirements for the Degree of Master of Science  
in the Department of Accounting  
University of Saskatchewan  
Saskatoon

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## ABSTRACT

This thesis develops a balanced scorecard model based on the attributes of Kaplan and Norton's Balanced Scorecard (1992, 1996, 2001). The model is then operationalized using a survey that is administered to CMAs (Certified Management Accountants) employed by for profit, Canadian companies with greater than 51 employees. One hundred and forty nine usable responses were received. The thesis attempts to answer two research questions: (1) What attributes of a Kaplan & Norton (hereafter K&N) Balanced Scorecard (BSC) are present in the performance measurement systems of Canadian organizations? and (2) What are the differences between organizations with different levels of K&N Balanced Scorecard adoption?

Of the 149 responses, 110 (73.8%) organizations were classified as BSC firms (Levels 1 to 4) and 39 (26.2%) were classified as non-BSC firms. The 110 BSC firms were further classified as follows: 15 (13.6%) as Level 1 BSC firms, 14 (12.7%) as Level 2A BSC firms, 20 (18.2%) as Level 2B BSC firms, 25 (22.7%) as Level 3 BSC firms and 36 (32.7%) as Level 4 BSC firms. Thus, based on our conceptual model, we can say that 32.7% of the BSC firms (24.2% of the total respondents) had a fully developed K&N BSC.

The study found several differences between Level 4 and Level 1 BSC organizations. For example, respondents in 83% of the Level 4 organizations, versus in 67% of the Level 1 organizations, indicated that their organizations reviewed their performance measures when their strategy changed.

This study adds to academic research by conceptualizing Kaplan and Norton's (1996, 2001) Balanced Scorecard and comparing this to the performance measurement systems of Canadian companies. Although there are numerous academic studies on the balanced scorecard (e.g., Chan & Ho 2000; Hoque & James 2000; Lipe & Salterio 2000, 2002; Malina & Selto 2001; Ittner & Larcker 2003; Speckbacher et al. 2003; Stemsrudhagen 2004), only the Speckbacher et al. 2003 study has developed a conceptual model of Kaplan and Norton's (1992, 1996, 2001) Balanced Scorecard and used it to examine the extent of its adoption. Our study mirrors theirs, with two notable exceptions: we have a different and noteworthy conceptualization of Kaplan and Norton's Balanced Scorecard and we apply this to a Canadian setting.

## **ACKNOWLEDGEMENTS**

First and foremost I thank my family (my wife Valerie and our children Jennifer, Michael, Alana and Nicole) for their support and patience while I worked on this project. Several other people contributed and need to be mentioned. My Aunt Hilma who provided me with a place to stay when I came to Saskatoon. Many of my friends contributed: Jim and Theresa picked me up at the bus depot many times, lent me their bike and often fed me superb meals; Gary Short gave me a hand when I needed it the most and made it easier for me to continue; Koreen Geres was always encouraging and eager to hear how things were going and made me feel that I could finish; Chima Mgabwu, a fellow MSc. colleague proof read my thesis and provided me with suggestions and amendments.

Finally, I am most indebted to my thesis committee who played a major role in this project. Doctors Kalagnanam, Vaidyanathan and Sheehan willingly gave their time, knowledge and patience to this project.

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# CHAPTER 1

## INTRODUCTION

### **1.1 Background**

The business environment has changed in the past several decades. The last 25 years of the 20th century has been termed the “information age” because knowledge and information were more readily available than ever before. Knowledge and information are now competitive factors for today’s organizations.

In a knowledge based business environment, intangible assets create the value for organizations while the traditional tangible assets become less important. Some organizations are comprised almost entirely of intangible assets, such as new product innovation, brands or unique organizational designs, which are difficult to measure with traditional financial accounting systems. The increasing importance of intangible assets creates a need for a different type of performance measurement system.

Empowerment has pushed decision making further down the organizational chart to the shop floor. Front line employees are being called upon to make decisions that used to be the sole domain of upper management. To do this they need ready access to information that can help them make the decisions - information that is actionable and relevant to their tasks, criteria that traditional financial measures do not meet.

In addition, change is much more rapid. Competitors, technology and regulations can change seemingly overnight. Globalization introduces opportunities and competition from all corners of the globe. Organizations need information to deal with these challenges. The changing business environment has also brought about dissatisfaction with using solely traditional financial measures for performance measurement (Ittner & Larcker 1998). There are numerous criticisms of depending totally on financial measures. For example, financial measures are lagging indicators and thus lack predictive qualities. Predicting the future from financial measures involves extrapolating from the past with the assumption that any trends will continue: a dangerous assumption in a fast changing environment (CMA Canada 1999). Traditional financial measures of performance are most useful in conditions of relative certainty and low complexity, a condition that is atypical for many of today’s organizations (Malina & Selto 2001). Financial measures

are so far removed from the front-line worker that they provide little guidance, if any. Employees do not know how their day to day activities translate into financial results and managers are unable to tell them. Financial measures fail to capture most of the intangible value that an organization has or can create. This can work against knowledge based strategies by treating human capital, the major component of the value creation chain, as an expense thereby encouraging its reduction.

Given the shortcomings of relying totally on traditional financial performance measures, performance measurement systems that incorporated other nonfinancial measures are required. In response to this call for a more broad-based performance measurement system, models such as the integrated performance measurement system (Nanni et al. 1992), balanced scorecard (Kaplan & Norton 1992; 1996; 2001) and performance prism (Neely et al. 2002) have been developed. This study will focus on one of these performance measurement systems, the Balanced Scorecard (Kaplan and Norton 1992, 1996, 2001).

Kaplan and Norton (1992) introduced the Balanced Scorecard in the early 1990's to overcome the deficiencies of traditional financial performance measures in today's business environment. The Balanced Scorecard is a multi-dimensional performance measurement system encompassing both financial and nonfinancial measures that are derived from the organization's strategy and that are linked together in a series of cause-and-effect relationships. Kaplan and Norton (1992, 1996, 2001) propose the use of four performance dimensions: Learning and Growth Perspective, Internal Business Perspective, Customer Perspective and Financial Perspective. According to Kaplan and Norton, the ultimate goal of implementing the Balanced Scorecard is the achievement of superior, long-term financial results.

The Balanced Scorecard has become a widely known management tool and recent surveys have indicated that many organizations use, or intend to use, the Balanced Scorecard (Chan & Ho 2000; Speckbacher et al. 2003). While much research has been conducted on the Balanced Scorecard, most studies involved organizations in the United States and Europe (Ittner & Larcker 2003; Speckbacher et al. 2003). Little is known about its use in Canada. Additionally, it appears that there is a lack of uniformity among

organizations in their understanding of the term BSC (CMA Canada 1999). A desire to address these two issues motivates this study.

## **1.2 Focus of the Research**

The goal of this exploratory study is to clearly delineate the characteristics of a Kaplan and Norton (1996, 2000) Balanced Scorecard. This involves developing a conceptual model of the balanced scorecard, constructing a questionnaire based on this model and then using the questionnaire to examine what attributes of the model are present in the performance measurement systems of Canadian organizations.

## **1.3 Literature Review**

Since the introduction of the balanced scorecard (BSC) by Kaplan and Norton in 1992, it has become very popular among academics and practitioners. Many organizations, both in the private and public sectors, have embraced the concept and implemented it in an attempt to improve performance (Chan & Ho 2000; Hoque & James 2000; Ittner & Larcker 2003). However, it appears that the term balanced scorecard is subject to different interpretations. For example, a document published by CMA Canada (1999) suggests that the term “Balanced Scorecard” maybe understood differently by different individuals/organizations. They state that many organizations believe that if a performance measurement system includes both financial and non-financial measures, it is a balanced scorecard, whereas Kaplan & Norton claim that a BSC is much more than just a collection of performance measures.

Different interpretations of a BSC are evident in academic studies as well. Hoque & James (2000) determined BSC usage using a 20-item scale noting that their BSC measure might not pick up the strategic linkages of a real BSC. As a result, companies in their study may possibly have had varying levels of BSC implementation which could have affected their results, especially considering the fact that BSC usage was the dependent variable in their regression model. Chan & Ho (2000) stated in their limitations section that “... the respondents may have mistaken their organization’s performance measurement system to that of a true BSC (p. 167).” It is also possible that a company’s performance measurement system has all of the attributes of a balanced scorecard but they do not consider it to be one. Clearly defining a BSC would be a

contribution to future research by providing a basis to determine the extent of BSC adoption by an organization. This study will attempt to do this.

Although there are numerous studies on the balanced scorecard (Chan & Ho 2000; Hoque & James 2000; Lipe & Salterio 2000; Malina & Selto 2001; Lipe & Salterio 2002; Ittner & Larcker 2003; Speckbacher et al. 2003), only one study has attempted to develop a conceptual model of the scorecard and used it to examine the extent of its adoption. This was in Austrian, German and Swiss organizations (Speckbacher et al. 2003). This suggests a need for more research to examine what attributes of a Kaplan and Norton (1992, 2001, 2006) Balanced Scorecard other organizations use in their performance measurement system.

The first research question is:

**RQ1: What attributes of a Kaplan & Norton Balanced Scorecard are present in the performance measurement systems of Canadian organizations?**

Kaplan & Norton (1992; 1996; 2001), the originators of the balanced scorecard, emphasize that the inclusion of non-financial measures is just one aspect of the balanced scorecard, noting that there are several structural attributes that make it unique from other frameworks, such as KPI (key performance indicator) cards and stakeholder cards. Kaplan & Norton (1996, 2001) also suggest that its unique structure allows it to be used as a strategic tool to steer organizations towards sustained long-term profitability. They argue that simply including non-financial metrics in their performance measurement system is not enough for organizations to learn, improve, and grow. If Kaplan and Norton's argument is correct, then companies with different levels of BSC adoption should see different results. This suggests a need to compare organizations that have different levels or numbers of balanced scorecard attributes to see if there are any differences. As well, academic studies may be more comparable if a clearly defined Balanced Scorecard was used. A clearly defined BSC would enable organizations and researchers to assess the level of BSC adoption which may help to explain some of the differences in results between studies.

The second research question is:

## **RQ2: What are the differences between organizations with different levels of K&N Balanced Scorecard adoption?**

This study will not attempt to explain the reasons for any differences between organizations with different levels of Balanced Scorecard adoption, it will only report them.

In summary, while other studies have looked at specific aspects of the balanced scorecard, only one has looked at its structure as a whole (Speckbacher et al. 2003). Similar to Speckbacher et al. (2003), this study examines the structure of the BSC as a whole. This study is however, unique in that it addresses both the structure and use of the BSC. It is also unique because it will survey Canadian organizations.

### **1.4 Research Method**

A survey instrument was developed to assess the characteristics of Kaplan and Norton's Balanced Scorecard. The survey was then administered to CMAs (Certified Management Accountants) in Canadian organizations employing more than 51 employees. The population was accessed through CMA Canada's database of members.

The survey was web-based and was completed on the respondent's computer. At the end of the survey, when the respondent clicked on the "Submit" button, the results were sent to the software seller's database, from which the researcher downloaded the data to the supervisor's computer at the University of Saskatchewan.

A total of 2,297 e-mails were sent by CMA Canada to CMAs who met the selection criteria established by the researcher. Seventy-nine e-mails were undeliverable which reduced the population size to 2,218. One-hundred and forty-nine useable responses were received for an effective response rate of 6.7%.

### **1.5 Contributions of the Research**

This study is a systematic examination of the extent to which the structure and use of performance measurement systems in Canadian organizations are representative of Kaplan & Norton's (1992; 1996; 2001) Balanced Scorecard. Consequently, the study includes the following steps: (1) develop a conceptual model of the balanced scorecard framework, (2) develop a survey to assess the model, and (3) administer the survey to a large sample of Canadian certified management accountants (CMAs).

A major contribution of this study is the conceptualization and operationalization of Kaplan & Norton's framework which can be used by academics and practitioners. For academics, this study will allow researchers to assess an organization's Balanced Scorecard implementation. This will permit comparisons between organizations and between Balanced Scorecard studies. This study may also ultimately allow accounting researchers to answer the question "Does the Balanced Scorecard improve performance?"

From a practitioner's perspective, the results of the study will provide a benchmark from which managers can compare performance measurement systems. Moreover, a better understanding of the structure and use of the scorecard will allow managers to alter their systems to fully utilize the scorecard and derive its purported benefits.

This thesis is organized as follows. Chapter Two will discuss the attributes of a Kaplan and Norton (1992, 2001, 2006) Balanced Scorecard and present them in a balanced scorecard pyramid format. It will also discuss previous balanced scorecard research. Chapter Three describes the research methodology. It discusses why a survey was considered the best method, the survey's development, the sample and how it was selected, the survey administration, and finally some of the survey results based on sample characteristics such as company size and job titles of the respondents. Chapter Four presents the survey results and attempts to answer the two research questions. Chapter Five concludes the thesis. It discusses the contributions of the research, the weaknesses of the study, and possible areas of future research.

## **CHAPTER 2**

### **THE BALANCED SCORECARD**

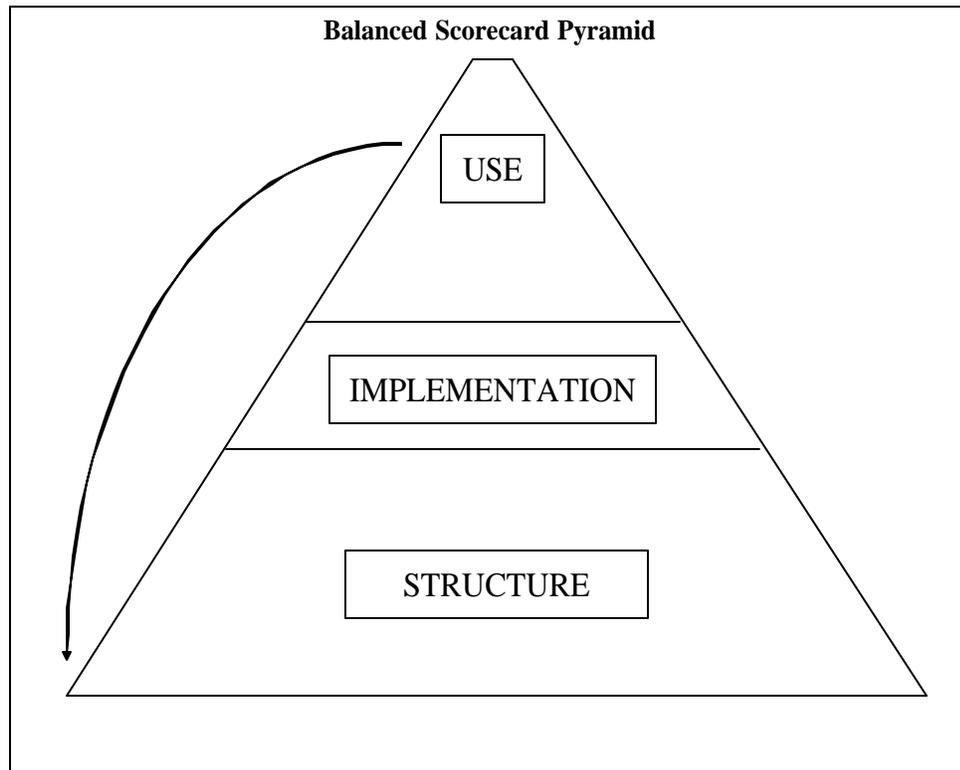
The following chapter discusses the balanced scorecard in terms of structure, implementation and use. Sections 2.2.1 to 2.2.3 describe the elements that comprise structure. Section 2.3 briefly discusses implementation and section 2.4 deals with the use attribute of the balanced scorecard. Section 2.5 discusses the balanced scorecard levels that were used to sort and analyze the data. Finally, the last section, 2.6, reviews previous balanced scorecard studies.

#### **2.1 Introduction**

According to Kaplan & Norton (2001) the balanced scorecard is more than just a collection of measures; it is a strategic management system that managers can use to clarify and implement strategy. As mentioned in Chapter 1, Kaplan and Norton (1992, 1996, 2001) propose the use of four perspectives in a balanced scorecard: Learning and Growth Perspective, Internal Business Perspective, Customer Perspective and Financial Perspective. Each perspective contains multiple measures that are linked together in a series of cause-effect relationships. Cause and effect, also called leading and lagging indicators, are measures where a change in the first measure, the leading measure, results in a change in the second measure, the lagging measure.

The uniqueness of their framework can be understood in terms of the following three aspects: structure, implementation, and use. Structure relates to the design of the scorecard, implementation relates to how the scorecard is put in place in the organization, and use relates to how the scorecard is employed to implement strategy and assess performance. These three aspects may be visualized as a pyramid (see Figure 2.1) with the Structure attribute forming the base, the Implementation attribute forming the middle, and the Use attribute forming the apex. The balanced scorecard will be examined in terms of each of these aspects in further detail below.

**Figure 2.1 Balanced Scorecard Pyramid**



## **2.2 Structure**

The balanced scorecard is different from other performance measurement systems in that, unlike those systems, the scorecard is not simply an ad hoc collection of financial and non-financial measures. Structurally the scorecard has three important features which differentiate it from other performance measurement systems: (1) its measures are derived from strategy, (2) there is balance among measures, and (3) the measures are causally linked.

### **2.2.1 Measures Derived From Strategy**

Using strategy as the basis for developing measures reflects a carefully considered thought process in the design of an effective performance measurement system. Linking the scorecard's dimensions and measures to the organization's strategy is a key characteristic of the balanced scorecard. Kaplan and Norton state that an organization's strategy should be apparent by looking at its Balanced Scorecard. This is the key requirement for an organization to be considered to have at least begun to adopt

a Balanced Scorecard. If the measures are not derived from the organization's strategy, then the performance measurement system cannot be called a Balanced Scorecard.

In a survey of Canadian hospitals, Chan & Ho (2000) found that hospitals which said they had implemented the balanced scorecard rated significantly higher on the linkage between strategy and measures than those that said they had not implemented a scorecard. More recently, Banker et al (2004) conducted an experiment to test the importance of the linkage between strategy and performance measures. Their results suggest that "managers must understand the linkages between performance measures and business unit strategy in order to benefit from the adoption of the BSC" (p. 22). These findings affirm the importance of the measures being linked to the organization's strategy.

### **2.2.2 Balance**

The second aspect of structure is the notion of balance. Traditionally, performance measurement systems have largely focused on reporting financial measures. Recently, this focus has been criticized. For example, Malina & Selto (2001) state that using only financial measures for performance measurement promotes short-run, myopic decision making. They go on to suggest that "... organizations sensibly and perhaps optimally may use a diverse set of performance measures to reflect the diversity of management decisions and efforts" (p. 52). Although both financial and non-financial measures are necessary to assess the effectiveness of strategy implementation, Nanni et al. (1992) suggest that non-financial measures are more actionable and better relate to long-term strategic objectives than the financial measures. Moreover, they believe that non-financial measures are more useful in understanding why strategy implementation may have failed. There is a considerable amount of research suggesting that more organizations are supplementing financial measures with non-financial metrics and using them for evaluation and reward purposes (e.g., Ittner & Larcker 1998, Behn & Riley 1999, Banker et al. 2000, Kalagnanam 2002).

To assist in creating balance, Kaplan & Norton (1996, 2001) suggest that an organization's scorecard should consist of measures along four perspectives or dimensions: (1) learning & growth, (2) internal business process, (3) customer and (4) financial. The financial perspective is designed to answer the question, "If we succeed,

how will we look to our shareholders?” It focuses on an important stakeholder, the investor. The customer dimension attempts to answer the question, “To achieve my vision, how must I look to my customers?” Including customer measures reminds managers that customers are the source of revenues and must be satisfied. The internal business process perspective attempts to answer the question, “To satisfy my customers, at which processes must I excel?” Finally, the learning & growth dimension focuses on answering the question, “To achieve my vision, how must my organization learn and improve?” The last two dimensions are aimed at focussing attention on the activities needed to achieve the customer and financial goals.

Together, the four perspectives encourage organizations to focus on where they want to be **and** how they plan to get there. These four perspectives are a guideline, not a straightjacket. Kaplan & Norton (1996) note that they have seen companies using five perspectives; similarly, there are other organizations that report measures along three dimensions (Rucci et al. 1998; Malina & Selto 2001; Speckbacher et al. 2003). The multi-dimensional approach to performance measurement proposed by Kaplan & Norton (1996, 2001) is only one aspect of balance. They also suggest balance with respect to the number of measures in each perspective, and the types of measures included in the scorecard (e.g., leading and lagging indicators, financial and non-financial measures, and quantitative and qualitative measures).

CMA Canada (1999) discusses several possible advantages of incorporating a balanced set of measures: continuously improving performance, implementing more complex strategies, running lean, decentralized organizations more effectively, feeding systems for organizational learning and being able to drive organizational change. The potential advantages of a balanced set of measures and the criticisms of using solely financial measures highlight the importance of having balance in a performance measurement system.

### **2.2.3 Causal Linkages**

The third aspect to structure pertains to the linkages between the different measures within individual perspectives and across the different perspectives. According to Kaplan & Norton (1992, 1996), measures should be linked together in a series of cause (leading indicators) and effect (lagging indicators) relationships, which ultimately

culminate in the financial perspective. Some measures in a perspective may have cause-and-effect linkages between them but at least one measure in each perspective must be linked to a measure in another perspective. For example, a company could decide to measure employee satisfaction and employee retention in the Learning and Growth Perspective and employee productivity in the Internal Business Perspective. Employee satisfaction could be linked to employee retention which, in turn, could be linked to employee productivity. These linkages should be explicit and testable. For example, Sears was able to say that a five unit increase in employee attitude led to a 1.3 unit increase in customer impression which led to a 0.5% increase in revenue growth (Rucci et al. 1998).

Causal linkages are important because they provide the mechanism to link the everyday actions of frontline employees to financial results. A complaint about using solely financial measures for performance measurement is that they are too far removed from the lower level employees and therefore do not provide any guidance or feedback on their decisions (Malina & Selto, 2001). Causal linkages are also important because they provide the mechanism to validate the organization's strategy. Kaplan & Norton (1996, 2001) maintain that the cause-and-effect relationships are hypotheses about the organization's strategy. If the expected results do not materialize, the organization will need to consider whether or not its strategy is appropriate, a process called "double-loop learning" (Argyris 1982, 1991; Kaplan & Norton 1996) which is discussed later.

It appears that organizations that have causally linked measures are more successful than those that do not. For example, Ittner & Larcker (2003) reported that fewer than 30% of the companies they examined developed causal models, and only 23% consistently built and verified causal models. Those 23%, on average, had 5.14% higher ROE than companies that did not use causal models. They found that in many cases management relied on its preconceived notions about what was important rather than verifying whether those assumptions had any basis in fact. In their field study of a U.S. Fortune 500 company with more than 25,000 employees, Malina and Selto (2001) found that preliminary analysis of the statistical properties of the host company's BSC confirmed many expected causal relations. However, Norreklit (2000) dismisses the notion of causal relationships; instead she argues that these are relationships of

interdependence. For example, she argues that increased research may lead to increased profits, but increased research also needs satisfactory profits to start with, thereby suggesting that the direction of causality cannot be determined. There has to be some relationships that have an input-output relationship and Norreklit's argument helps to strengthen Kaplan and Norton's assertion that the causal linkages need to be verified. Financial results only occur after some type of action is taken, which is an output – input relationship. Verifying the causal linkages ensures that the right activities are being measured.

### **2.3 Implementation**

For conceptual purposes “Implementation” is the next layer on the pyramid, but in practice this process begins when the Balanced Scorecard project begins. Input from all levels of the organization is required to develop the appropriate measures and create the buy-in necessary to successfully implement the project. The biggest success factor identified by Kaplan and Norton (1996) was buy-in and participation in the Balanced Scorecard project by senior management. Without their support, most Balanced Scorecard projects fail. As well, Kaplan & Norton (1996) say that companies must view the communication of the scorecard to employees as a strategic campaign. They stated that several companies measured their employees' knowledge and understanding of the organization's strategy to verify the effectiveness of their “campaign.”

The focus of this study is on the structure and use of balanced scorecards in Canadian firms, not the implementation process. As such, the study will only briefly address implementation issues by surveying the amount of senior management involvement in the development of the performance measurement system.

### **2.4 Use**

The “use” of the Balanced Scorecard is at the pinnacle of the pyramid because it is the ultimate function of the Balanced Scorecard. The “use” attribute can be characterized by several activities: planning and control, compensation, and strategic (double-loop) learning. Kaplan and Norton (1992) say that the Balanced Scorecard should be used as a communication, informing, and learning system and that it should become the cornerstone of the management system.

### **2.4.1 Planning and Control**

Even though Kaplan and Norton (1992) say that the Balanced Scorecard should not be used as a controlling system, the BSC appears to be an effective management control tool (Malina & Selto 2001). Managers in the Malina & Selto study perceived that the data they received from the BSC allowed them to take actions that positively affected their customer-relationship strategy. The management control ability of the BSC led to strategy alignment which produced positive outcomes.

Linking budgeting, which is part of the planning and control function, with the Balanced Scorecard is an indication that the organization is using the Balanced Scorecard as its central management tool. Kaplan and Norton (1996) state that the BSC provides executives with a mechanism to incorporate strategic considerations in the resource allocation process rather than using capital budgeting mechanisms that stress near-term cash flows.

### **2.4.2 Compensation**

Kaplan and Norton (1996) called tying compensation to the Balanced Scorecard the final link. It is often delayed for a period of time until the organization is comfortable with its Balanced Scorecard. Once compensation is tied to the goals and objectives in the scorecard it is much more likely to be used as the cornerstone of the management system (Kaplan & Norton 1996). Linking compensation to the Balanced Scorecard is an indication of management's confidence in their scorecard. For these reasons, linking compensation to the scorecard is placed at the top of the pyramid.

### **2.4.3 Strategic (Double-Loop Learning)**

Double loop learning (Argyris 1982, 1991) is the activity that keeps the Balanced Scorecard in tune with the external environment. Double loop learning is the process of questioning the assumptions held about the organization's strategy, and of the linkages and measures of the Balanced Scorecard, particularly when the actual results differ from the expected results. If the strategy is found to be lacking the organization will need to refine it and may consequently revise some or all of the measures on the balanced scorecard. The arrows on the outside of the pyramid (see Fig 2.1) represent this review (double-loop learning) process.

Kaplan & Norton (1992, p. 252) state:

“Management processes built around the strategy articulated in the Balanced Scorecard must provide regular opportunities for double loop learning by collecting data about the strategy, testing the strategy, reflecting on whether the strategy is still appropriate in light of recent developments, and soliciting ideas throughout the organization about new strategic opportunities and directions.”

Previous research has not addressed the “double-loop” learning component of the Balanced Scorecard. This study will address the double-loop attribute by attempting to determine the number of organizations that use the process in their performance measurement system.

## **2.5 Balanced Scorecard Levels**

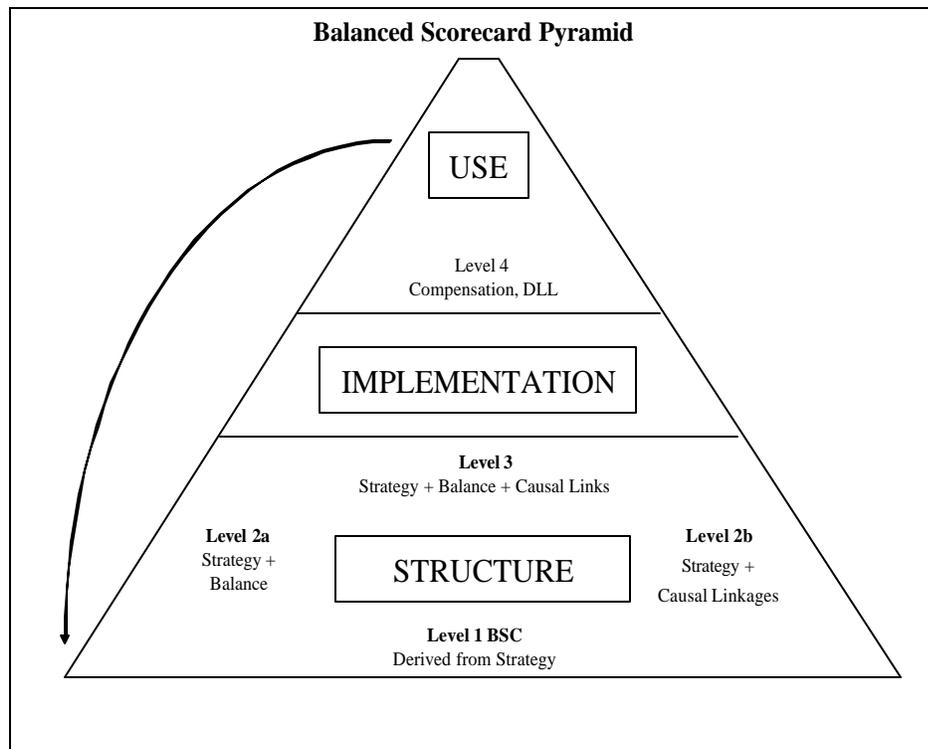
For purposes of analysis, the balanced scorecard was structured into four levels (Figure 2.2). Level 1 which is deriving the performance measures from the business unit’s strategy signifies the minimum requirement for balanced scorecard adoption. Organizations not meeting this requirement are referred to as non-BSC organizations and were compared against the BSC organizations (Levels 1 to 4) to help answer RQ2: What are the differences between organizations with different levels of Balanced Scorecard adoption?

Level 2 was delineated into two sub-levels, 2a and 2b. Level 2a included the Level One organizations that additionally have balance among their performance measures. Level 2b includes Level One organizations that additionally have causal linkages between their performance measures. Using Levels 2a and 2b signifies that there is no indication of whether these two attributes are developed together or sequentially. This study treats the two attributes (Balance and Causal Linkages) as being equally likely to be developed first and therefore has two possible Level 2 balanced scorecards. Level 2a is a Level 1 BSC plus Balance and Level 2b is a Level 1 BSC plus Causal Linkages.

Level 3 is all respondents that meet the requirements for Levels 1, 2a and 2b. A Level 3 organization has balanced measures with causal linkages and measures that were derived from the organization’s strategy.

Finally, Level 4 organizations are the Level 3 organizations that additionally use their performance measurement system to compensate at least some of their employees and incorporate double-loop learning into their performance measurement system.

**Figure 2.2 Balanced Scorecard Levels**



## 2.6 Previous Balanced Scorecard Research

The Balanced Scorecard has generated much interest since its introduction in the early 1990s. Researchers have used surveys, field research and experiments in the quest to understand the Balanced Scorecard. This section will briefly discuss these studies to provide an overview of the current research, to show how these studies differ from the current study and how this study adds to the current body of knowledge. The studies will be discussed using the Balanced Scorecard Pyramid (Figure 2.2), starting with studies that relate to the Structure attribute and concluding with studies that relate to the Use attribute.

### **2.6.1 Studies Relating to the Structure Attribute of the BSC Pyramid**

As discussed previously in Chapter 2, the Structure aspect is further divided into three attributes: Derived From Strategy, Causal Linkages and Balance. Several studies have dealt with some, or all of these attributes.

Hoque and James (2000) surveyed 66 Australian manufacturing firms (66/188 = 35.1% response rate). BSC usage was measured using a 20 item scale similar to that developed by Hoque et al. (1997). This study used the Balance attribute to determine balanced scorecard use by the responding organization. The survey instrument comprised items that incorporate Kaplan and Norton's (1992) four dimensions of the BSC. It asked respondents to indicate the extent to which each item was used to assess their organization's performance on a fully anchored, five point Likert scale. Hoque and James (2000) noted that their BSC measure might not have picked up the strategic linkages of a real BSC. Organizations in Hoque and James (2000) could thus be considered to be Balanced Scorecard users without actually deriving their measures from their strategy or without having causal linkages between measures and perspectives, which is different from the approach taken in this study. Hoque and James (2000) did find support for the hypothesis that larger organizations tend to make more use of the Balanced Scorecard and it suggests that greater BSC usage is associated with improved performance. Hoque and James (2000) differs from the current study in three important ways: (1) it did not address all of the Balanced Scorecard attributes in assessing Balanced Scorecard use, (2) it was conducted in Australia while this study is conducted in Canada, and (3) it focused on manufacturing firms only while the organizations in this study's sample represent a broad spectrum of industry types.

Chan and Ho (2000), in their survey of 121 Canadian hospitals (121/555 = 21.8% response rate), queried the respondents about their perceptions with respect to several balanced scorecard attributes, mainly Balance and Strategy. The survey responses were compared using the following groupings: hospitals that had, and had not, heard of a Balanced Scorecard, and hospitals that had, and had not, implemented Balanced Scorecards. Balanced Scorecard use was determined by the respondent indicating that they had implemented a Balanced Scorecard. Chan and Ho (2000) reported that the Balanced Scorecard implementers made use of all four Balanced Scorecard perspectives

and used a relatively balanced mix of outcome measures and performance drivers. They also reported that there was no significant difference between implementers and non-implementers of Balanced Scorecards with respect to the respondent's perceptions about the following two statements: (1) there is a direct link between your organization's long-term strategy and performance measures, and (2) the performance measures reflect a clear, articulated strategy. This is meaningful because it is possible that organizations that have not formally implemented a Balanced Scorecard may already be using at least some of the Balanced Scorecard attributes discussed earlier. If this is the case, then relying on self-assessed Balanced Scorecard usage may not accurately differentiate between Balanced Scorecard users and non-users, which could lead to less meaningful results. This study plans to address this issue by clearly defining a Balanced Scorecard and constructing a survey to determine the extent of its use in an organization. Chan and Ho (2000) however differ from this study in two ways. First, Chan and Ho surveys only (non-profit) Canadian hospitals where this study surveys organizations in many different for-profit industries. Second, the level of balanced scorecard adoption is not defined by Chan and Ho (2000) while this study specifically defines balanced scorecard levels.

Debusk et al. (2003) attempted to examine Balance and Use attributes in their study. They presented a hypothetical case containing dashboard measures to MBA students and graduate accounting students and asked the participants to identify the importance of various measures and to evaluate the organization's performance. The study presented three research questions: (1) How many components (perspectives) are there to dashboard performance measurements – the four components (perspectives) proposed by Kaplan and Norton or a different number? (2) Does strategy play a role in determining the number of perspectives in a performance measurement system? and, (3) Are financial measures weighted more (i.e. more important) than nonfinancial measures? With respect to the first research question, eight components (perspectives) were identified as important which is four more than the four perspectives identified by Kaplan and Norton (1992, 1996, 2001). This seems to be somewhat misleading because none of Kaplan and Norton's four perspectives are contained in the eight components identified by Debusk. It appears that several of the eight components could be combined under one of Kaplan and Norton's four perspectives. For example, DeBusk et al. (2003)

have two components labelled Growth and Volume that could be included in the Financial perspective of a Kaplan and Norton Balanced Scorecard. The Growth component contains the following measures: baseline growth, incremental growth and annual market share increase. The Volume component contains the following measures: revenue per barrel and throughput per month. One could argue that these measures would be suitable under a Financial perspective or under their current perspectives of Growth and Volume. The main point is that the number of perspectives will be influenced by factors such as strategy and even organizational preference. The study reports that at least four of these components can be traced to organizational strategies outlined in the case which supports the role of strategy in determining the number of perspectives used. This suggests that different strategies could lead to a greater or lesser number of perspectives. However, financial measures were clearly important. Principal components analysis suggests that success in bottom line financial measures was perceived to be the result of controlling non-financial driver-type measures. This implies that the subjects felt there was some degree of causal linkages among the measures. While Debusk et al. (2003) focus on how subjects used specific performance measures to evaluate the organization's performance, this study attempts to determine what attributes Canadian organizations use in their performance measurement systems.

Ittner and Larcker (2003) conducted field research in more than 60 manufacturing and service companies supplemented with survey responses from 297 senior executives. Causal linkages were a major focus of this study which reported that only 23% of the surveyed companies consistently built and verified causal models. Ittner and Larcker (2003) reported four common mistakes companies make when trying to measure nonfinancial performance. These are: (1) not linking measures to strategy, (2) not validating the links between the measures, (3) not setting the right performance targets, and (4) measuring incorrectly. Ittner and Larcker (2003) reported that at least 70% of companies use measures that lack statistical validity and reliability. Ittner and Larcker (2003) is similar to this study in that it looked at the Strategy, Causal Linkages and Balance attributes. Ittner and Larcker (2003) differs because it looked at only manufacturing and service companies, presumably in the United States, and it did not

attempt to differentiate between the organizations that used or did not use specific sets of attributes.

A Norwegian study by Stemsrudhagen (2004), surveyed 83 Norwegian manufacturing companies (83/182 = 45.6% response rate). This study set out to explore the degree to which performance measurement systems have the structural properties which are inherent in the Balanced Scorecard. The study also asked whether the properties of the performance measurement systems in BSC companies are different from the properties found in non-BSC companies. To determine BSC usage, respondents were asked to specify whether they had any knowledge of BSCs (yes or no), and whether they were using a BSC (yes or no). The respondents were also asked to what extent each measure (35 measures provided in a list) was used for managing the company. Stemsrudhagen reported that the structures of performance measurement systems comprise many of the measures found in Balanced Scorecards, irrespective of whether or not the companies have in fact implemented this system. Stemsrudhagen is similar to this study in that both studies have almost identical research questions. However, one important difference between the two is that in the Stemsrudhagen study, respondents were asked to determine whether or not their organization had a balanced scorecard, whereas in this study, the researcher makes this determination. Another difference is that this study classified organizations into four levels of balanced scorecard adoption and then compared the organizations at each level with organizations at different levels while Stemsrudhagen did not do this. A third difference is that this study looked at specific uses of the balanced scorecard while Stemsrudhagen did not. And finally, the geographical setting of the two studies is different, Norwegian (Stemsrudhagen) versus Canadian.

Speckbacher et al. (2003) surveyed publicly traded firms in Germany, Austria and Switzerland on their usage of the Balanced Scorecard. Speckbacher et al. (2003) derived three main types of BSCs based on the attributes present in the organization's performance measurement system. For example, a Type 1 BSC had strategic measures grouped into perspectives and a Type 2b BSC was a Type 1 BSC that additionally employed cause-and-effect relationships. Speckbacher et al. (2003) reported that 39% of the organizations surveyed had at least started a BSC. Almost all of these organizations

used three of the four Kaplan and Norton Balanced Scorecard perspectives: Financial, Customer and Internal Business perspective. Speckbacher et al. (2003) reported that “Improved alignment of strategic objectives with strategy” and “Improved company results in the long-term” were common expected benefits of Balanced Scorecard use.

Speckbacher et al. (2003) and this study have many similarities. Both studies have defined a Kaplan and Norton (1992, 1996, 2001) Balanced Scorecard and used the attributes to derive Balanced Scorecard levels. The definitions of a Kaplan and Norton Balanced Scorecard included the same attributes: Strategic objectives or measures, balance, cause-and-effect relationships, and incentives linked to the Balanced Scorecard. Finally, both studies looked at many of the same expected benefits of Balanced Scorecard use. The two studies have three main differences: (1) This study addressed the attribute of double-loop learning which Speckbacher et al (2003) did not, (2) in the Speckbacher et al. (2003) study the respondents indicated that they were BSC organizations (i.e., the respondents self-classified themselves) whereas in this study the researcher classified an organization’s performance measurement system as a BSC based on the attributes the respondent reported using, and (3) the geographic area is different with Speckbacher et al. (2003) surveying organizations in German speaking countries and this study surveying Canadian organizations.

These previous studies have dealt with some, or all of the Structure attributes in some form or other. Two of them, Stemsrudhagen (2004) and Speckbacher et al. (2003), are similar to this study in terms of objectives.

### **2.6.2 Studies Relating to the Use Attribute of the BSC Pyramid**

The next group of studies looks at the Balanced Scorecard in terms of its Use. As discussed earlier, this study has characterized the Use attribute with two components: linking compensation to the performance measurement system and using the process of double-loop learning. The following studies have examined the compensation component, the effectiveness of the balanced scorecard in communication and the use of financial and nonfinancial measures in evaluating performance. None of them examined the double-loop learning component, which this study attempts to do.

Malina and Selto (2001) conducted field research in a Fortune 500 company for the purpose of answering the following research questions: (RQ1) Is the BSC an

(in)effective communication device, creating strategic (non)alignment, (in)effective motivation, and (negative) positive organizational outcomes? (RQ2) Is the BSC an (in)effective management control device, creating strategic (non)alignment, (in)effective motivation, and (negative) positive organizational outcomes? They found support for RQ2: *Effective management control* appears to cause *Aligned with strategy* and *Effective motivation*, which in turn appears to cause *Positive outcomes*. In other words, effective management control appears to contribute to positive motivation of the employees and to an organization working with the organization's strategy which leads to positive results. They found no support for RQ1. In summary, they found that in at least one corporate setting, the balanced scorecard presents significant opportunities to develop, communicate and implement strategy. They also stated that more empirical evidence would be useful, because most of the BSC literature is either normative prescription or uncritical reports of BSC successes.

Ittner, Larcker and Meyer (2003) provide, one of the first detailed studies of scorecard-based compensation plan. They perform field research in one organization and find that, even in a balanced scorecard setting, short-term financial measures are the primary determinant of bonuses. They also find that a large proportion of branch managers' performance evaluations are based on factors other than the scorecard measures, even though discretion to consider other factors was not a component of the bonus plan. The current study deals with the subject of compensation and the balanced scorecard by asking respondents if their compensation is linked to their performance measurement system. However, due to scope limitations, the current study is unable to provide any comparisons.

Lipe and Salterio (2000) gave 58 first year MBA students balanced scorecards for two divisions and then asked the students to evaluate the manager of each division. The study found that the participants evaluated the division managers solely on the common measures. Performance on the unique measures of the scorecard had no effect on the evaluations. The results implied that the balanced scorecard might not be as effective as espoused by Kaplan & Norton (1996), who note that measures that are common across units often tend to be lagging measures and financial indicators of performance. In contrast, unique measures are more often leading measures and

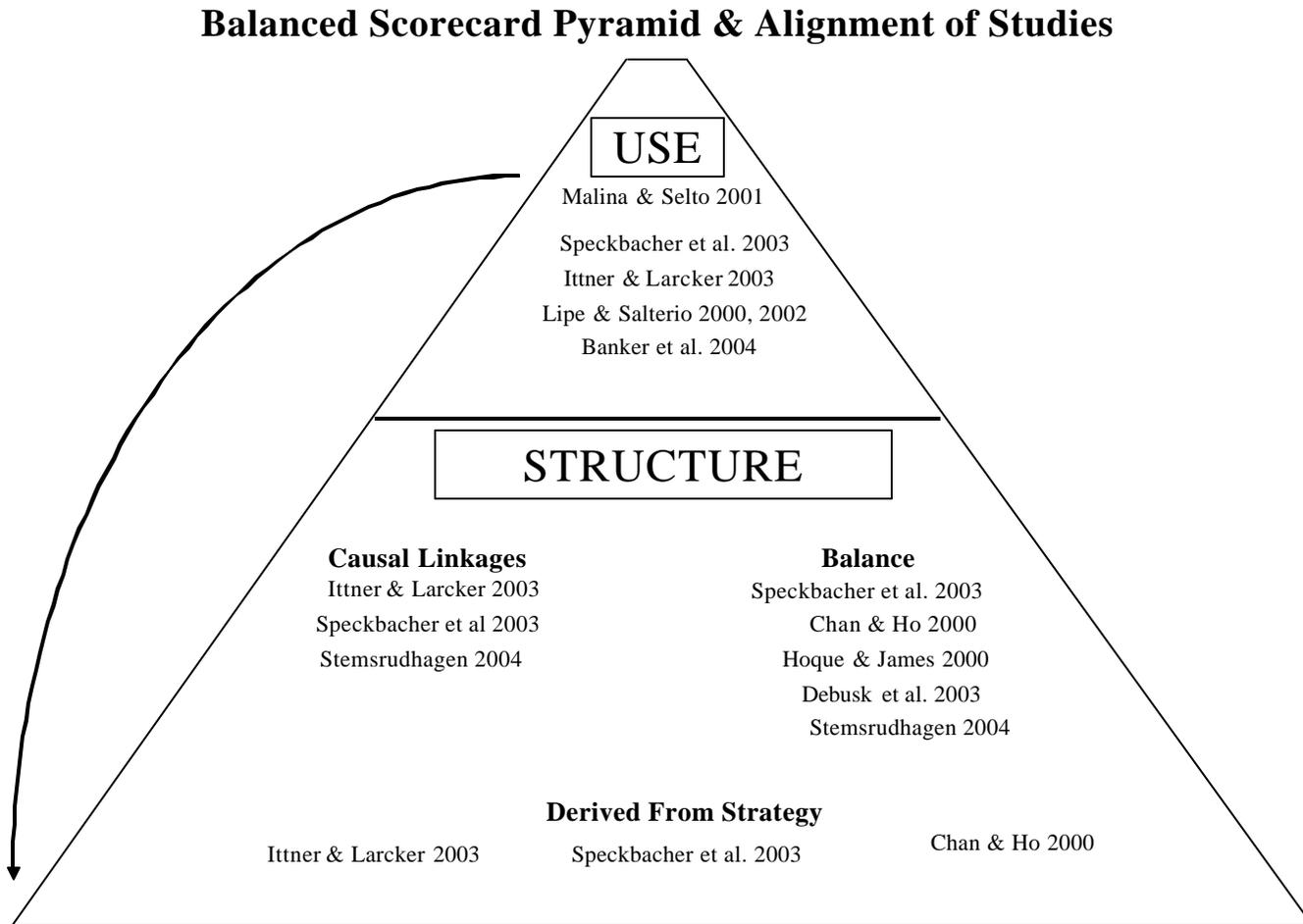
nonfinancial measures. Consequently, Lipe and Salterio's (2000) results may suggest that managers appear to pay insufficient attention to leading and nonfinancial measures. This defeats the purpose of the BSC, which is to expand the set of measures that managers use in decision making. If the unique measures on the scorecard do not affect managers' decisions, firms may not reap the espoused benefits of the BSC adoption.

Banker et al. (2004) replicated much of the structure of Lipe and Salterio's (2000) experiment with one main difference. Banker et al. (2004) provided one group with "explicit and salient information about the SBU strategies" (p. 8). Their results were consistent with Lipe and Salterio (2000). The participants relied significantly more on common measures when they were not provided with the strategy information. When the participants were provided with the additional SBU (Strategic Business Unit) strategy information, they relied significantly more on strategically linked measures. This seems to indicate that SBU strategy knowledge is crucial to using the balanced scorecard appropriately.

Lipe and Salterio (2002) used an experiment, with MBA students as subjects, to study whether the balanced scorecard structure affected judgments. They used psychology theory to make two research predictions: (1) judgments are likely to be moderated when multiple above-target (or below-target) measures are contained in a single balanced scorecard category, and (2) judgments are unlikely to be affected when multiple above-target (or below-target) measures are distributed throughout the balanced scorecard categories. Their results confirmed the research predictions: the balanced scorecard format moderated the evaluations where particularly positive or negative performance is concentrated in one BSC category. When the performance results were distributed across BSC categories, the BSC format did not affect the judgments made.

The previous studies focused on how the balanced scorecard may be used in an organization. As such, they have a different focus than this study which is attempting to determine how Canadian organizations have structured their performance measurement systems, as well as attempting to discover if there are any differences between organizations with different performance measurement system attributes. (See Fig. 2.3 for a summary of the studies and how they align with the BSC Pyramid).

Figure 2.3 The BSC Pyramid and Alignment of Studies



This leads to the research questions which were presented in Chapter 1.

**RQ1: What attributes of a Kaplan & Norton Balanced Scorecard are present in the performance measurement systems of Canadian organizations?**

**RQ2: What are the differences between organizations with different levels of Balanced Scorecard adoption?**

## **2.7 Summary**

This chapter first discussed the balanced scorecard in terms of structure, implementation and use. It then concluded with a discussion of the balanced scorecard literature. The following chapter discusses the research method, survey development, sample selection, survey administration, and survey validity, and ends with a summary of survey responses.

## **CHAPTER 3**

### **RESEARCH METHOD**

This chapter provides an overview of the research method. It begins by explaining the appropriateness of the research method. It then discusses the survey development process which includes a flow chart of the process. Next the sample selection is discussed with reasons for each of the decisions involved. The next section discusses the survey administration and the role that CMA Canada played in the delivery of the survey to potential respondents. Survey reliability and validity issues are discussed next. Finally, the survey responses are presented.

#### **3.1 Research Methodology**

The goals of this study are to answer the two stated research questions: (1) What attributes of a Kaplan & Norton Balanced Scorecard are present in the performance measurement systems of Canadian organizations? and (2) What are the differences between organizations with different levels of Balanced Scorecard adoption? The research questions explore the structure and use of performance measurement systems in Canadian organizations and make descriptive assertions about the population of Canadian organizations – a task that is best accomplished using the survey method (Babbie 1990). The nature of the research question requires access to a large sample of potential respondents, and the survey method allows the researcher to do just that. As well, given that the balanced scorecard environment in Canada is relatively unknown, a survey method is appropriate because it provides a “search” device (Babbie 1990) to start the inquiry into the topic. This study is a systematic examination of the attributes of performance measurement systems vis-à-vis Kaplan and Norton’s (1992, 1996, 2001) BSC framework within a Canadian setting.

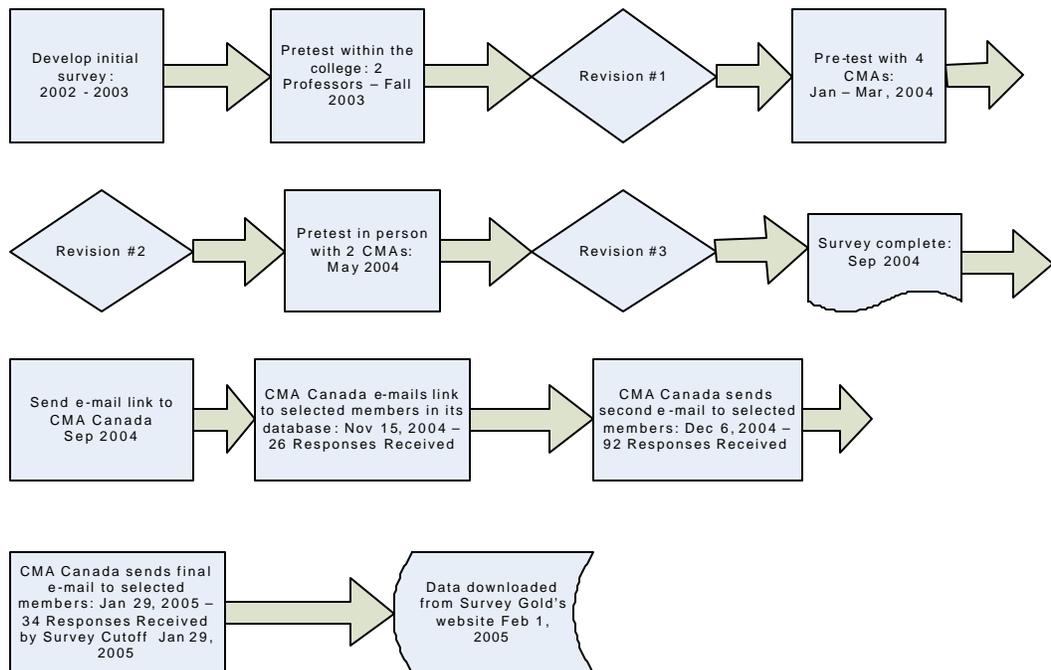
#### **3.2 Survey Development**

An on-line questionnaire, using the SurveyGold software, was developed to enable the researcher to answer the two research questions. The first four sections of the questionnaire (1A, 1B, 2, 3, 4) contain questions pertaining to the performance measurement system’s relationship to the organization’s strategy, its structure,

implementation, and its use. The fifth section seeks to collect data regarding the performance of the organization along five different dimensions. Finally, sections 6 & 7 focus on organization's demographics and optional respondent information. The complete questionnaire is presented in Appendix B.<sup>1</sup>

The questionnaire was designed using a multi-step process as illustrated in Figure 3.1. The first draft of the questionnaire was completed during the summer of 2003 after hours of discussion between the researcher and members of the thesis committee. This version of the questionnaire was pre-tested by two College of Commerce professors at the University of Saskatchewan. One of the professors had extensive experience with survey methodology and the other professor was a Certified Management Accountant (CMA) with a management background. Both of these individuals pre-tested the questionnaire in the presence of the researcher so that any comments, questions and/or difficulties could be discussed right away. This first set of pre-testing led to changes in the wording of some of the questions (see Revision #1 in Figure 3.1).

**Figure 3.1 Survey Development Process**



The revised questionnaire was once again pre-tested by four CMAs – three working in industry and one in academia. The three industry-based CMAs were chosen

<sup>1</sup> Appendix B presents the survey questionnaire along with summary responses for each question.

because they were representative of the target sample for the survey. The CMA in academia was selected to provide feedback on the terminology being used in the survey. The survey link was e-mailed to them so that they could complete the questionnaire on-line. The pre-testers sent their comments back to the researcher. Several changes resulted from their comments: questions were deleted, added and/or modified, some definitions were changed and the presentation of the questionnaire itself was changed to make it more user-friendly (see Revision #2 in Figure 3.1).

Subsequently, the revised version was once again pre-tested by two CMAs working in Controller positions; they completed the questionnaire on-line in the presence of the researcher. This final pre-test resulted in minor modifications to one of the questions (see Revision #3 in Figure 3.1). The completed survey was saved as an HTML file and the link was sent to CMA Canada in September 2004.

The multi-step survey development process helped greatly in ensuring that the questionnaire was well designed and addressed the issue of validity. For example, specific terms were carefully defined to minimize potential confusion. Capitalized letters were used to draw the attention of respondents to important distinctions in the survey. Other additional steps were also taken to address validity. Necessary instructions were placed at the appropriate spot in the questionnaire rather than placing them at the start (Dillman 2000). Moreover, in following Dillman's (2000) suggestions for questionnaire design, questions were grouped into similar topics to encourage well thought out responses.

### **3.3 Alignment of the Questionnaire With the Balanced Scorecard Pyramid**

Specific survey questions were used to align the questionnaire with the balanced scorecard pyramid developed in the previous chapter (see Figure 3.2).

#### **3.3.1 Level 1 BSC**

Questions 2 and 5 examined the relationship of the performance measures to strategy; respondents had to 'agree' or 'strongly agree' with both questions in order for their organization to be classified as a BSC organization. More specifically, the researcher classified them as Level 1 BSC organization (i.e., meeting the minimum

requirements).<sup>2</sup> As indicated in Section 2.5, organizations not meeting these criteria were considered not to have a balanced scorecard and were labelled non-BSC organizations.

### **3.3.2 Levels 2a, 2b, and Level 3 BSC**

Questions 24 and 25 assessed the notion of balance. A Level 1 organization's performance measurement system was considered to have balance if the respondent indicated that their performance measurement system contained some combination of financial and non-financial measures (question 24), and some combination of driver (leading) measures and outcome (lagging measures) (question 25). These organizations were classified as Level 2a BSC organizations. Those organizations whose performance measurement systems contained only one type of measure (e.g., just financial), were deemed not to have balance among their measures. Furthermore, questions 7 and 8 assessed the notion of cause-effect relationships (causal linkages). A Level 1 organization's performance measurement system was considered to have causal linkages if the respondent 'agreed' or 'strongly agreed' to both these questions; they were classified as Level 2B BSC organizations. An organization whose respondent 'agreed' or 'strongly' agreed to all the above referred questions (2, 5, 7, 8, 24 and 25) was classified as a Level 3 BSC organization.

### **3.3.3 Level 4 BSC**

Finally, use of the performance measurement system was assessed using questions 9 and 13; while the former focused on the use of the system for the purposes of double loop learning, the latter focused on its use for compensation. As explained in the previous chapter, Kaplan & Norton (1996, 2001) consider these as important uses of a performance measurement system. All Level 3 organizations whose respondents 'agreed' or 'strongly agreed' to question 9 and answered 'yes' to question 13 were classified as Level 4 BSC organizations. Figure 3.2 outlines the alignment of survey questions to the BSC pyramid.

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<sup>2</sup> Many of them were later reclassified as Level 2a, 2b, 3 or 4 BSC organizations.

**Figure 3.2 Alignment of Survey Questions to the Balanced Scorecard Pyramid**

BSC Level			Attribute	Survey Question(s)
L E V E L  4	L E V E L  3	L E V E L  2a	Level 1	Derived From Strategy 2. Our unit’s business strategy is well defined. 5. Our unit’s performance measurement system is derived from the unit’s business strategy.
			Balance	The following questions attempt to assess the trade-offs that are made in your business unit with respect to REPORTING performance measures. Please indicate the appropriate response for each of the following items. 24. Financial measures vs. non-financial measures (select only one) <ul style="list-style-type: none"> <li>• Only financial measures are reported</li> <li>• Financial measures are reported somewhat more than non-financial measures.</li> <li>• Financial measures and non-financial measures are equally reported.</li> <li>• Non-financial measures are reported somewhat more than financial measures.</li> <li>• Only non-financial measures are reported.</li> </ul> 25. Outcome measures vs. driver measures (select only one) <ul style="list-style-type: none"> <li>• Only outcome measures are reported</li> <li>• Outcome measures are reported somewhat more than driver measures.</li> <li>• Outcome measures and driver measures are equally reported.</li> <li>• Driver measures are reported somewhat more than outcome measures.</li> <li>• Only driver measures are reported.</li> </ul>
	LEVEL 2b	Causal Linkages	7. Our performance measurement system has measures that are linked through driver-outcome relationships. 8. Our business unit understands the potential driver-outcome relationship among individual measures.	
	Use	Double Loop Learning  Tied to Compensation	9. Deviations from expected or planned results causes the business unit’s management to question the unit’s business strategy. 13. Does your business unit use the performance measurement system to compensate/reward some/all of your unit’s employees?	

### 3.4 Sample Selection

The sample was derived using the following criteria: Potential respondents were required to:

- be CMAs,
- be working in for-profit organizations employing at least 51 people,
- hold the title of Supervisor, Assistant Controller, Controller, Chief Accountant, Treasurer, Chief Financial Officer, Consultant, Manager, General Manager, Director, Executive, Vice President, President, Principal, or Chief Executive Officer (CEO), and
- have an e-mail address registered on CMA Canada's member database.

The above criteria were sent to CMA Canada, who used it to generate the sample used in this study. CMAs were chosen for two reasons. First and foremost, the CMA Strategic Leadership Program focuses extensively on performance measurement, which means that CMAs can be considered knowledgeable enough to complete the survey questionnaire. As stated on CMA Canada's website<sup>3</sup>,

“CMAs have unique competencies in cost management, strategic performance measurement, process management, risk management and assurance services, and stakeholder reporting, coupled with the ability to connect strategy with operations and anticipate customer and supplier needs.”

Performance measurement is part of the Strategic Leadership Program that CMA candidates are required to complete before receiving their CMA designation. The leadership program has been in place since 1994; consequently many of today's CMAs would have been exposed to the more recent concepts of performance measurement and thus be familiar with the terms used in the survey. Many of the more senior CMAs who received their qualifications prior to 1994 will also likely be aware of the recent developments in performance measurement through professional development/continuing education programs. Secondly, the researcher is also a CMA and it is

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<sup>3</sup> [www.cma-canada.org](http://www.cma-canada.org)

believed that it might be easier to obtain the support of CMA Canada to conduct this study.

The minimum firm size of 51 employees was used on the basis of suggestions in research that larger organizations typically have more formal management control and performance measurement systems in place. For example, Hoque & James (2000) found that larger organizations were more inclined to have a balanced scorecard.

The third criterion focuses on the potential respondent's title (or position) in the organization. The study targeted individuals in senior positions because it was felt that employees holding senior level positions would have enough organizational knowledge as well as specific knowledge of their organization's performance measurement system to answer the survey questions. Finally, potential respondents were required to have an e-mail address available on CMA Canada's member database. This was crucial because the survey was administered electronically as explained later in this chapter.

### **3.5 Survey Administration**

The survey was administered by CMA Canada on behalf of the researcher to 2,297 CMAs who met the criteria specified above. CMA Canada sent an e-mail to the sample outlining their support of the study and providing web links to the researcher's cover letter as well as the survey questionnaire (see Appendix A for CMA Canada's letter of support and the researcher's cover letter). CMA Canada also sent two follow-up (reminder) e-mails to encourage its members to respond to the survey. The researcher hoped that CMA Canada's support would generate interest among the potential respondents and result in a higher response rate.

Potential respondents could access the survey by clicking on the link provided in the cover letter from CMA Canada. Potential respondents were expected to complete the survey on-line. The completed questionnaires were automatically sent to the software company's database from which the researcher could download the data and store it on the university's system.

A web-based on-line survey was used primarily for three reasons: (1) it was very economical – the only cost incurred was to purchase the SurveyGold software, (2) it minimized communication time and avoided any issues of surveys being lost in the mail or being misplaced by potential respondents, and (3) it minimized the data entry time

because the responses could be directly downloaded from the software company's database in a usable format.

In cases where multiple CMAs meeting the researcher's criteria worked in the same organization, the individual in a more senior level was selected to receive the e-mail from CMA Canada. This step was taken to minimize the possibility of more than one response from each business unit.

### 3.6 Statistical Methods

Two statistical methods were used in the analysis of the results: a test of proportions and a Pearson Correlation Coefficient. The test of proportions (Johnson, 1984) was used to test for significant differences between two percentages using the following formula:

$$z \cong \frac{(p_{s1} - p_{s2}) - (p_1 - p_2)}{\sqrt{\bar{p}(1 - \bar{p})\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \quad \text{with } p = \frac{x_1 + x_2}{n_1 + n_2}; p_{s1} = \frac{x_1}{n_1}; p_{s2} = \frac{x_2}{n_2}$$

Where  $p_{s1}$  = sample proportion obtained from population 1

$p_{s2}$  = sample proportion obtained from population 2

$x_1$  = numerator in sample 1

$x_2$  = numerator in sample 2

$n_1$  = size of sample taken from population 1

$n_2$  = size of sample taken from population 2

$\bar{p}$  = pooled estimate of the population proportion

$$\bar{p} = \frac{x_1 + x_2}{n_1 + n_2}$$

The null and alternative hypotheses are:

$$H_0 : p_A = p_B \quad H_1 : p_A \neq p_B$$

The critical values and their appropriate levels of significance are:

Level of Significance	0.02	0.05	0.10	0.15
Critical Z	2.05	1.65	1.28	1.04

This test was used to test for significant differences between the BSC levels in answering RQ2. As this is an exploratory study, significance levels as high as 0.10 were

reported, therefore, a Zscore as low as 1.28 was enough to reject the null hypothesis that the two groups were the same.

The Pearson Correlation Coefficient was used to determine if there was any correlation between balanced scorecard levels and the percentages of respondents in each level (Sec. 4.3.9). A value approaching 1 indicates that there is a positive correlation between the two variables while a value approaching -1 indicates there is a negative correlation between the two variables. A value approaching 0 indicates there is no correlation between the two variables. The calculation for the r value was done using the Pearson function in Excel.

### 3.7 Survey Responses

As mentioned earlier, e-mails were sent to a sample of 2,297 CMAs. Of these, 79 mails were undeliverable, thereby resulting in 2,218 potential respondents. A total of 152 responses were received of which three were unusable because they were from CMAs working in not-for-profit organizations. This resulted in 149 usable responses amounting to a response rate of 6.7%. Completed surveys were received in three batches in response to three sets of e-mails (including two reminders). The first e-mail asking for participation was sent November 15, 2004; 26 responses were received. A second e-mail sent on December 6, 2004 elicited another 92 responses. The third reminder e-mail was sent on January 11, 2005.<sup>4</sup> This final notice resulted in 34 responses for a total response of 152; Figure 3.3 summarizes the responses.

**Figure 3.3 Summary of Survey Responses**

<b>Activity</b>	<b>Date</b>	<b>Comments</b>
First e-mail asking for participation in the survey	Nov 15, 2004	26 Responses
Second e-mail sent	Dec 6, 2004	92 Responses
Third e-mail sent	Jan 11, 2005	34 Responses
Survey Cut-off	Jan 29, 2005	152 Total Responses

<sup>4</sup> The three e-mails were sent to all 2,297 CMAs in the sample because the on-line nature of the survey and the anonymity of the responses did not allow CMA Canada and the researcher to identify the non-respondents.

Comparing the early, mid and late responders in terms of the number of employees and annual revenues did not show any major differences between the groups which helps to allay the issue of late responders, and non-responders, answering differently than the earlier responders.

The low response rate was rather surprising. However, due to the anonymity of the survey, non-respondents could not be identified and therefore could not be contacted either to encourage them to participate or to ask why they did not respond. The researcher can attribute the low response rate to general factors such as accountants being busy (particularly given the timing of the survey), being bombarded with too many surveys, lack of interest, or perhaps company policy of not responding to surveys. According to Dillman (2000), offering some type of a tangible reward can result in a higher response rate. No such rewards were offered in this study. Despite the low response rate, the actual number of responses (149) is higher compared to other recent surveys examining the balanced scorecard (Chan & Ho 2000; Hoque & James 2000; Stemsrudhagen 2004). Nonetheless, given the low response rate, the results of this study should be interpreted with caution.

Controllers comprised the greatest percentage of respondents (Figure 3.4). Compared to the rest of the sample, almost twice as many Controllers responded which could indicate that Controllers, as a group, were more interested in performance measurement and thus more likely to respond. This could be because controllers may be the “guardians” of the performance measurement process in many organizations. The difference between the sample of Controllers and the Controllers responding was significant ( $Z$  score = 5.30,  $p=0.000$ ). On the other hand, a lower percentage of managers and supervisors responded compared to the sample ( $Z = 1.71$ ,  $p=0.09$ ;  $Z=2.82$ ,  $p=0.005$ ). These results indicate the existence of a potential bias in the respondent group. The interest among controllers is supported by the fact that over 75% of the respondents indicated the involvement of the Accounting/Finance function in the development of the performance measurement system within their organization.

**Figure 3.4 Comparison of Position Responses: Population vs. Respondents**

Supervisor		178	7.7%		2	1.4%
Assistant Controller		67	2.9%		5	3.5%
Controller		505	22.0%		59	41.3%
Chief Accountant		20	0.9%		2	1.4%
Treasurer		56	2.4%		3	2.1%
CFO		105	4.6%		7	4.9%
Consultant		26	1.1%		0	0.0%
Manager		545	23.7%		25	17.5%
General Manager		75	3.3%		0	0.0%
Director		420	18.3%		23	16.1%
Executive		1	0.0%		0	0.0%
VP		285	12.4%		16	11.2%
President		10	0.4%		0	0.0%
Principal		3	0.1%		1	0.7%
CEO		1	0.0%		0	0.0%
Totals		2,297	100.0%		143	100.0%

Figure 3.5 provides a comparison of the sample and respondent groups based on industry classification. According to the table, it appears that respondents belonging to the manufacturing industry classification were significantly biased towards responding to the survey ( $Z=3.41$ ;  $p=0.001$ ). There may be some non-response bias from the following industry types: Communications, Finance and Services. These potential biases in the respondent group may limit the generalizability of the findings to the larger group.

**Figure 3.5 Comparison of the Sample and Respondent Groups by Industry Type**

<b>Industry Type</b>	<b>Sample Total</b>	<b>% of Sample</b>	<b>Respondent Totals</b>	<b>% of Respondents</b>
Agriculture Forestry & Fisheries	98	4.3%	6	4.0%
Communications	167	7.3%	4	2.7%
Construction	92	4.0%	5	3.4%
Engineering & Research Development	91	4.0%	6	4.0%
Entertainment	36	1.6%	-	0.0%
Finance, Insurance & Real Estate	288	12.5%	11	7.4%
Manufacturing	614	26.7%	59	39.6%
Mining	171	7.4%	2	1.3%
Retail Trade	143	6.2%	10	6.7%
Services	317	13.8%	11	7.4%
Transportation	127	5.5%	4	2.7%
Utilities & Energy	153	6.7%	14	9.4%
Wholesale Trade		0.0%	7	4.7%
Other		0.0%	10	6.7%
<b>Total</b>	<b>2,297</b>	<b>100.0%</b>	<b>149</b>	<b>100.0%</b>

### **3.8 Summary**

This chapter discussed the research methodology, the survey development process, sample selection, survey administration, and survey validity, and presented a summary of the survey responses. The following chapter presents the survey results and attempts to answer RQ1 and RQ2.

## **CHAPTER 4**

### **RESULTS**

#### **4.1 Introduction**

This chapter discusses the findings of the study. The results are presented using the Balanced Scorecard pyramid (Figure 2.2; Figure 4.1). Section 4.2 discusses the survey results with respect to RQ1: What attributes of a Kaplan & Norton Balanced Scorecard are present in the performance measurement systems of Canadian organizations? Section 4.3 discusses the results with respect to RQ2: What are the differences between organizations with different levels of Balanced Scorecard adoption. Section 4.4 discusses demographics in terms of annual sales and the number of employees. Section 4.5 provides a brief summary of the chapter.

#### **4.2 Results Pertaining to Research Question 1**

This section presents the results pertaining to RQ1. In doing so, it uses the BSC pyramid as a guide to structure the results.

##### **4.2.1 Level 1 Balanced Scorecard (Derived From Strategy)**

An organization with a well-defined strategy (question 2) and a performance measurement system derived from that strategy (question 5) was considered to have at least a Level 1 balanced scorecard. As discussed in Chapter 2.2.1, linking the scorecard's dimensions and measures with the organization's strategy is a key characteristic of the balanced scorecard. Organizations not meeting this criterion are deemed not to have a balanced scorecard and are referred to as non-BSC organizations.

Of the 149 respondents, 110 (73.8%) answered "agree" or "strongly agree" to both questions (2 and 5); therefore their performance measurement systems were considered to have met the requirements to be classified as BSC organizations. In other words, at the least they could be classified as Level 1 BSC organizations. However, the performance measurement systems of 95 of these 110 organizations (86.4%) contained additional attributes of the BSC which means they could be classified as Level 2a, 2b, 3 or 4 BSC organizations.

The performance measurement systems of 15 organizations (13.6%) met only the strategy requirement for the balanced scorecard; these organizations remained classified as Level 1 organizations.

#### **4.2.2 No Balanced Scorecard**

The performance measurement systems of 39 organizations (26.2%) did not meet the strategy requirement; these 39 organizations were deemed not to have a balanced scorecard and are therefore classified as non-BSC organizations. In an attempt to understand the non-BSC organizations, their responses to questions 2 and 5 were examined separately.

Sixteen of the 39 non-BSC respondents stated they had a well-defined strategy (Question 2) but they did not derive their performance measurement system from their strategy (Question 5). Twelve of the 39 non-BSC respondents derived their measurement system from their strategy but their strategy was not well defined. The remaining 11 respondents indicated that their organization neither had a well-defined strategy nor did they derive their performance measurement system from their strategy. None of the 39 respondents had a well-defined strategy that was well understood by employees (Questions 2 and 3).

#### **4.2.3 Level 2a BSC (Level 1 BSC with Balance)**

The notion of balance was assessed based on responses to questions 24 and 25. Seventy-five (68.2%) of the 110 BSC respondents indicated that they used some combination of both financial and non-financial measures and outcome and driver measures. These could be classified as Level 2a BSC organizations. However, 59 of these respondents indicated the presence of other BSC attributes in their PM system. Consequently, they can potentially be reclassified as Levels 2b, 3, or Level 4 BSC organizations. The final result is that 14 out of 110 BSC organizations (12.7%) are classified as Level 2a organizations.

The Level 2a classification is similar to the Speckbacher et al. (2003) Type 1 BSC. Speckbacher et al. (2003) found that 21 of the 42 BSC organizations (50%) met their definition of a Type 1 BSC and did not meet the additional criteria for further BSC adoption. Speckbacher et al. (2003) specifically asked if the organization had a Balanced

Scorecard while this study assessed the balanced scorecard attributes present in the performance measurement systems used by organizations and then placed the organizations on the balanced scorecard pyramid (Figures 4.1 & 4.2).

#### **4.2.4 Level 2b BSC (Level 1 BSC with Causal Linkages)**

Eighty-one (73.6 %) of the BSC respondents indicated they had incorporated causal linkages into their performance measurement system; their organizations could therefore be classified as Level 2 BSC organizations. However, 61 of these respondents also indicated the presence of other BSC attributes in their performance measurement systems, and could potentially be classified as Level 2a, 3 or Level 4 BSC organizations. This means that only 20 organizations out of 110 (18.2%) are classified as Level 2b organizations.

Ittner & Larcker (2003) found that fewer than 30% of the companies they surveyed developed causal models. They define causal models as “models which show what areas are expected to improve as the result of commitments to particular courses of action, and then show how those improvements should affect long-term economic performance” (p. 3). Speckbacher et al. (2003) found that 21 firms (50% of the total BSC firms or 12% of the total) employed cause-and-effect relationships.

One possible explanation for the difference between the results of this study and the other two studies is that this study’s determination of causal linkages was less stringent and so more companies appeared to have causal linkages. Another possible explanation may be that the surveyed companies in this study actually do have causal linkages.

#### **4.2.5 Level 3 Balanced Scorecard**

As previously mentioned, a Level 3 Balanced Scorecard incorporates all three of the previous attributes: Derived from Strategy, Balance and Causal Linkages. Sixty-one (55.5%) of the respondents incorporated all three attributes into their performance measurement system; their organizations could be classified as Level 3 BSC organizations. Of these, 36 organizations indicated the presence of the “Use” attribute, which means that 25 organizations out of 110 (22.7%) are classified as Level 3 BSC organizations.

Speckbacher et al. (2003) defined their Type 2 BSC as a strategic performance measurement system that describes strategy via cause-and-effect relationships or a Type 1 BSC that additionally describes strategy by using cause-and-effect relationships. Speckbacher's Type 2 BSC is similar to this study's Level 3 BSC.

Twenty-one percent of Speckbacher's BSC users were classified as a Type 2 BSC.

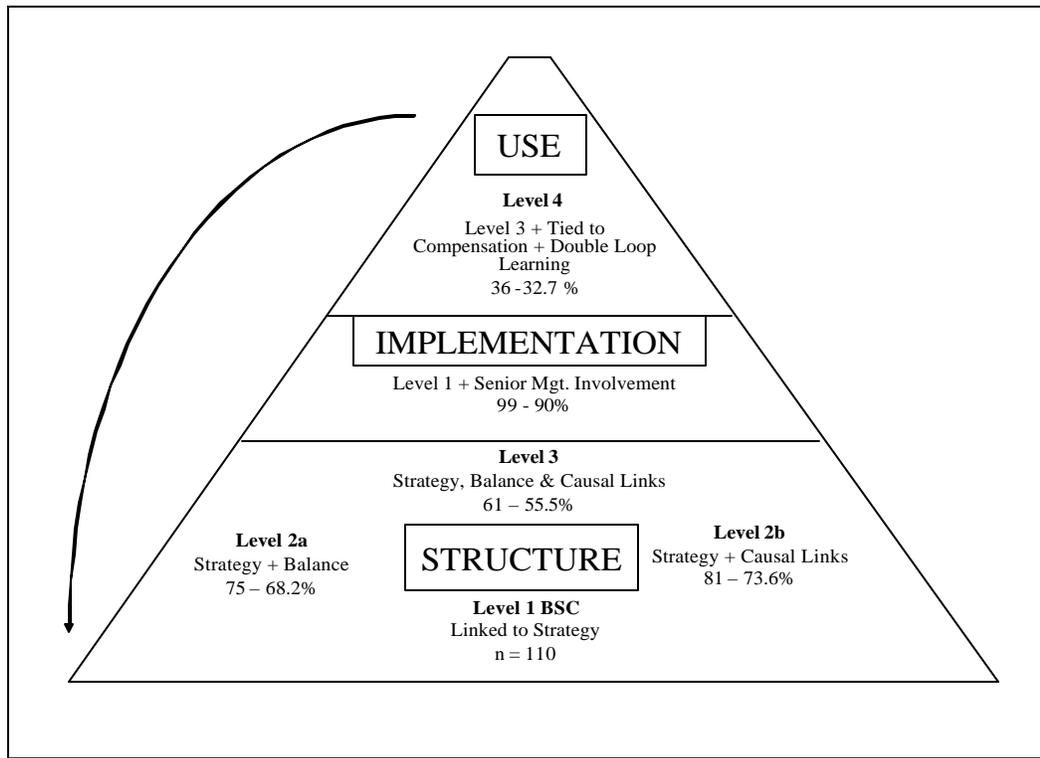
#### **4.2.6 Level 4 Balanced Scorecard**

A Level 4 BSC differs from a Level 3 in the way the performance measurement system is used. Linking compensation to the performance measurement system and engaging in "double-loop" learning were the two processes that differentiated Level 4 BSCs from Level 3 BSCs. Thirty-six of the 110 BSC organizations (32.7%) met the criteria to be classified as Level 4 BSC organizations.

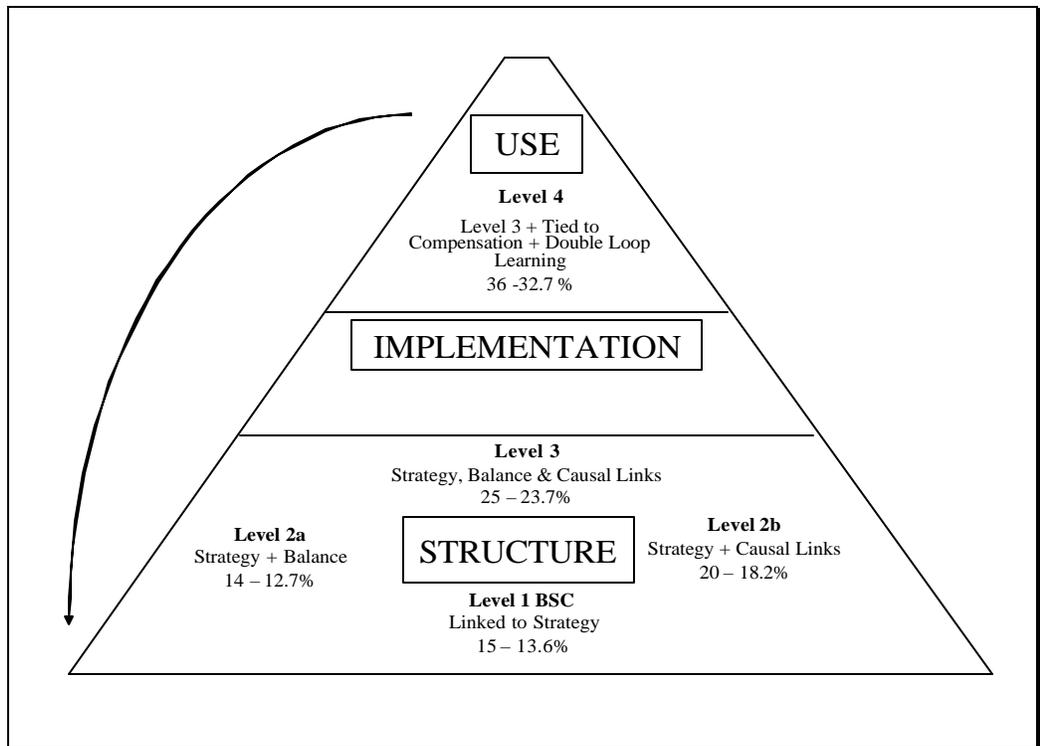
#### **4.2.7 Summary of Research Question 1 Results**

Figures 4.1 and 4.2 summarize the findings pertaining to RQ1. Based on the classification scheme used in this study 110 of 149 organizations (73.8%) are deemed to be BSC organizations. Over 55% of these organizations had structurally well-developed BSCs in terms of balance and causal linkages. Although it is difficult to conclude whether this result is good or bad, it compares favourably to the findings in previous studies (Speckbacher et al. 2003; Ittner and Larcker 2003). Thirty-six organizations (32.7% of the BSC organizations and 24.2% of the respondent group) are deemed to have a fully developed BSC in terms of structure and use; they are classified as Level 4 BSC organizations. The next section presents the findings pertaining to RQ2.

**Figure 4.1 Balanced Scorecard Levels – Cumulative Levels**



**Figure 4.2 Balanced Scorecard Levels – Absolute Levels**



### **4.3 Results Pertaining to Research Question 2**

This section presents the responses to various questions (questions that were not used in the construction of the BSC model) in a stratified format based on the level of BSC adoption. It attempts to address RQ2: What are the differences between organizations with different levels of Balanced Scorecard adoption? The differences are examined along the following factors: strategy, performance measurement system implementation, deficiencies of the performance measurement system, budgeting, performance dimensions, goals of the performance measurement system, performance, link to compensation, and demographics. The analysis consists of comparing the 39 non-BSC organizations along with the 110 BSC organizations, as well as the organizations within the BSC groups (i.e., Level 1 versus 2a versus 2b versus 3 versus 4).

#### **4.3.1 Strategy**

Eighty-two percent of the BSC organizations versus 26% of the non-BSC organizations agreed or strongly agreed to the statement that their unit's business strategy is well understood by employees (Question 3) (Chart 4.1). This difference between non-BSC organizations and BSC organizations could be potentially be attributed to the ability of the Balanced Scorecard to enable management to educate the employees about the business unit's strategy. Kaplan and Norton (2001) state that the organization should use the Balanced Scorecard to communicate and educate the organization about the strategy. Within the BSC group, a somewhat lower percentage of the Level 2a and 2b organizations agreed or strongly agreed to the statement, compared to the Level 1, 3 and 4 organizations.

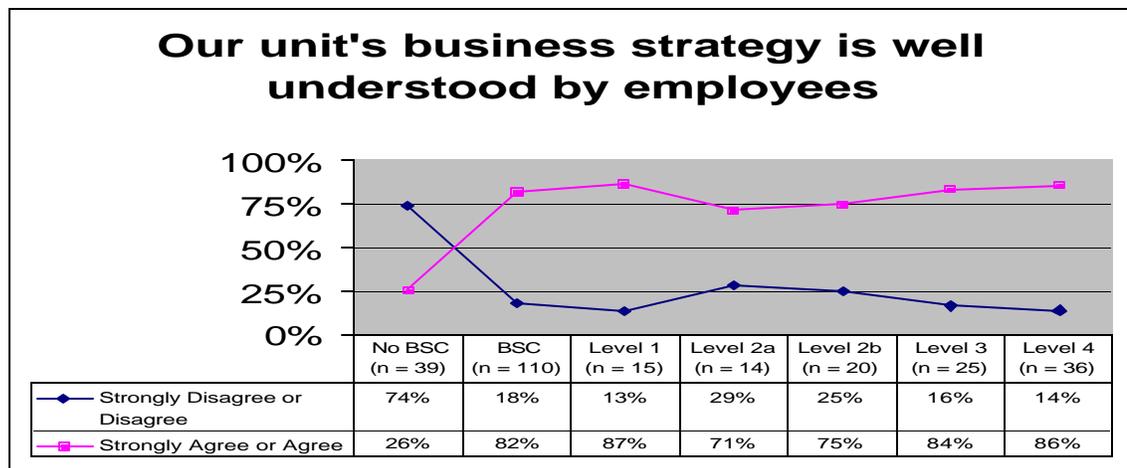
Ninety-two percent of the BSC organizations versus 69% of the non-BSC organizations disagreed or strongly disagreed to the statement that their unit's business strategy is not influenced by corporate strategy (Chart 4.2). Within the BSC group, a lower percentage of Level 4 organizations compared to Level 1 and 2a organizations disagreed or strongly disagreed. Finally, eighty-one percent (33%) of the BSC (non-BSC) organizations agreed or strongly agreed that they review and reassess the measures used by their performance measurement system whenever their unit's business strategy changes (Chart 4.3). Within the BSC group, a somewhat lower percentage of the Level 1 and 2a organizations agreed or strongly agreed with the statement compared to Level 2b,

3 and 4 organizations. That a greater percentage of Level 4 BSC organizations (83%) versus Level 1 organizations (67%) review their measures should not be surprising because Level 4 organizations are classified as such because they practice the process of double-loop learning.

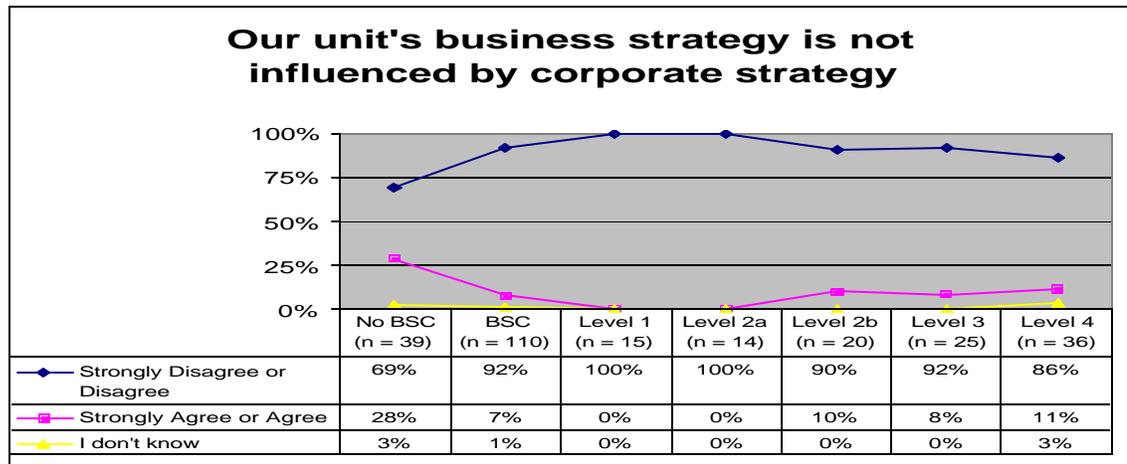
Using a test of proportions (Johnson 1984), the null hypothesis that the two groups (non-BSC vs BSC organizations) are the same can be rejected for all three statements at or below the 0.05 level of significance. The difference may be because the majority (23 of the 39) of non-BSC organizations did not have a strategy.

Kaplan and Norton (2001) state that strategy focused organizations require all employees to understand the strategy and conduct their day to day business in a way that contributes to the success of that strategy. The high percentage of employees understanding the strategy in the BSC organizations (Levels 1-4) is in line with this.

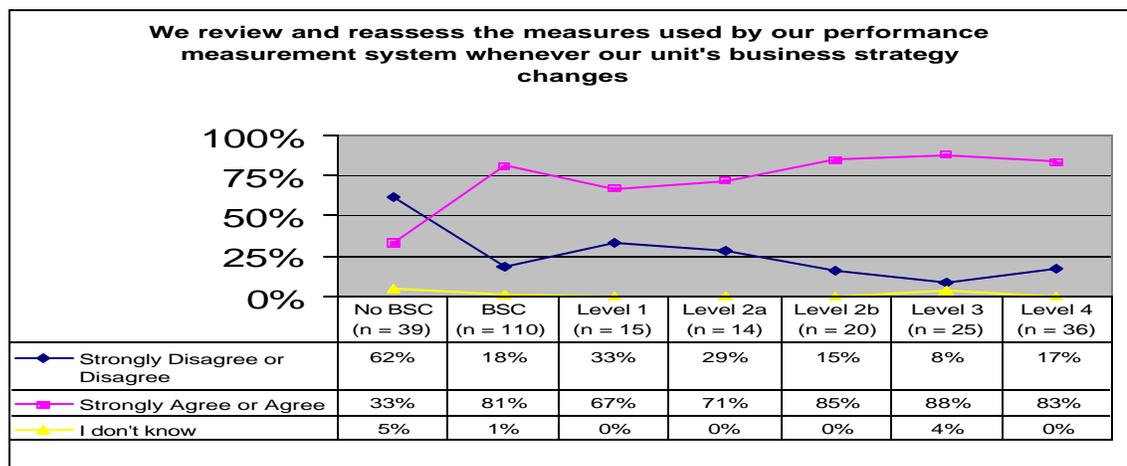
**Chart 4.1 Strategy Well Understood by Employees**



**Chart 4.2 Business Strategy not Influenced by Corporate Strategy.**



**Chart 4.3 Review Measures When Strategy Changes**



### 4.3.2 Performance Measurement System Implementation

As mentioned in Section 2.2 this study deals mainly with the structure and use of performance measurement systems in Canadian organizations and briefly with implementation. This section will look at implementation in terms of senior management's involvement in the implementation of the performance measurement system and the functional areas that participated in its development.

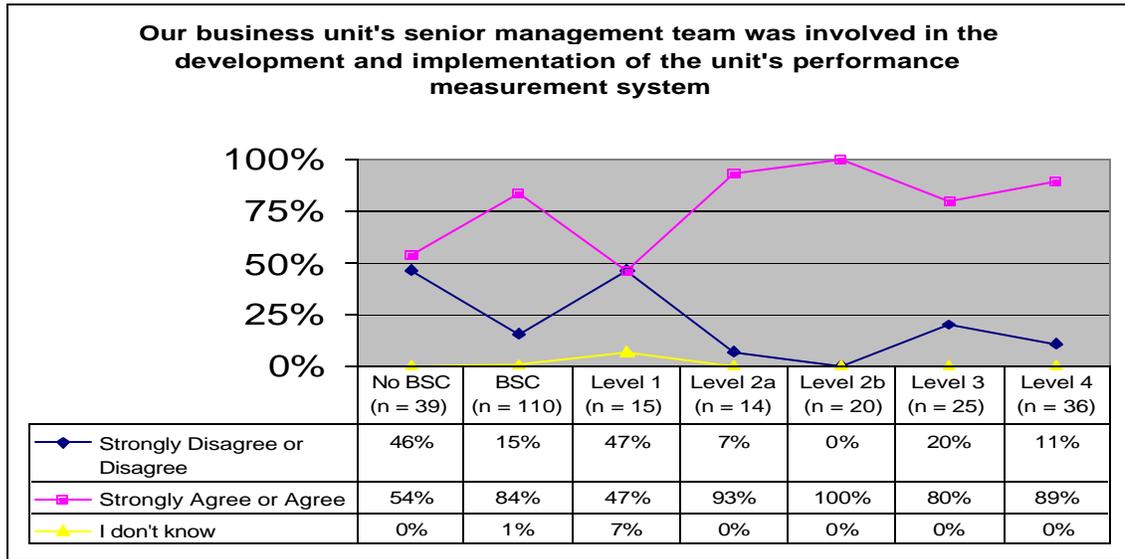
Eighty-four percent of the BSC organizations versus 54% of the non-BSC organizations agreed or strongly agreed to the statement that their business unit's senior management was involved in the development and implementation of the unit's performance measurement system (Chart 4.4). However, within the BSC group, a

considerably lower percentage of Level 1 organizations (47%) agreed or strongly agreed with the statement. In fact, a lower percentage of Level 1 BSC organizations than the non-BSC organizations agreed or strongly agreed with the statement, which is surprising. The response from the Level 1 BSC organizations strongly contrasts the response from all other BSC organizations (Levels 2a, 2b, 3 and 4). Becoming a Level 1 firm requires deriving the performance measurement system from the business unit's strategy. Perhaps deriving measures from strategy is a relatively minor task, from the point of view of implementation, and therefore may not need senior management's participation to make it happen. However, if strategy formulation is a senior management responsibility, it would seem logical that they would want to be involved in developing the measurement system with respect to that strategy.

The null hypotheses that the BSC and non-BSC groups are the same and that the Level 1 BSC and Level 2a, 2b, 3 and 4 BSC organizations are the same with respect to senior management involvement were rejected at the 0.02 level of significance.

Perhaps senior management views developing and implementing a more complicated performance measurement system (by adding causal linkages or balance) as being important and therefore spend more time on it. Alternatively, the development and implementation of a more sophisticated performance measurement system requires the involvement of senior management.

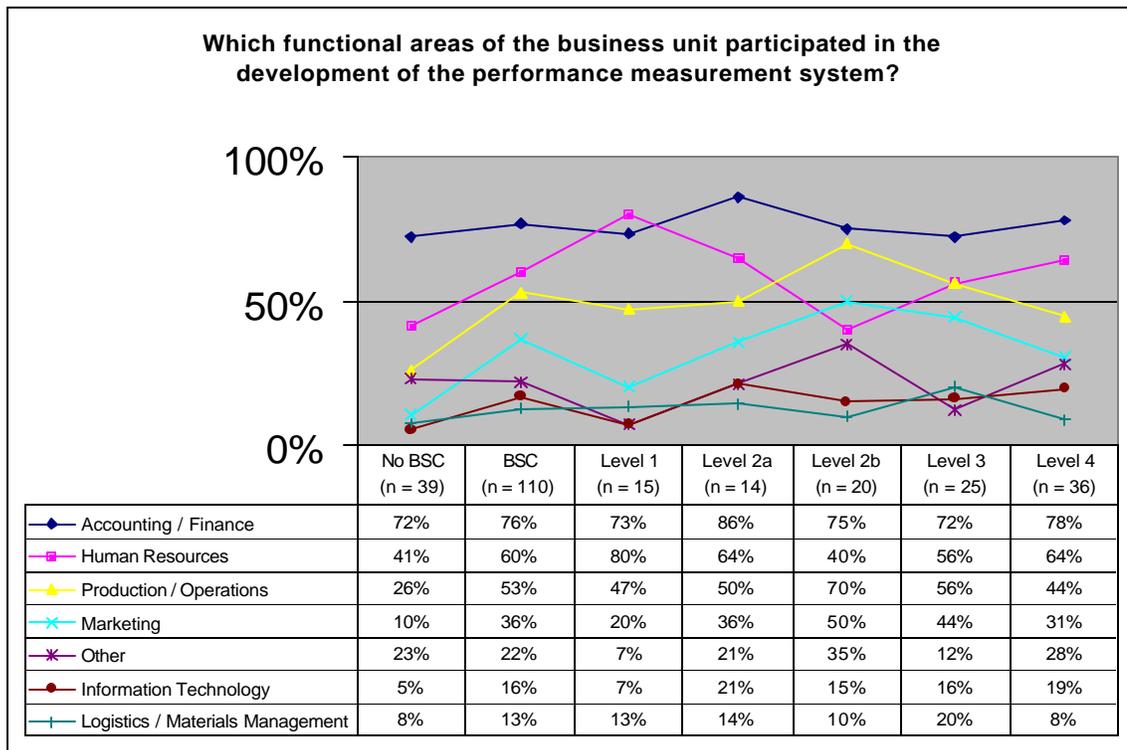
**Chart 4.4 Senior Management Involvement in Performance Measurement System Implementation**



When looking at the functional areas of the business unit that participated in the development of the performance measurement system, several differences were apparent between non-BSC and BSC organizations. For all of the levels, including the non-BSC firms, 72% to 86% reported that accounting/finance area participated in the development of the performance measurement system (Chart 4.5).

Sixty percent of BSC organizations, versus 41% of non-BSC organizations, indicated that Human Resources participated in the development of the performance measurement system. The null hypothesis that the two groups are the same was rejected at the 0.05 level of significance. Fifty-three percent of BSC organizations, versus 26% of non-BSC organizations, indicated that Productions/Operations participated in the development of the performance measurement system. The null hypothesis that the two groups are the same was rejected at the 0.02 level of significance. There was no discernable pattern in the differences among organizations at different levels within the BSC group.

**Chart 4.5 Functional Areas of Participation**



### 4.3.3 Deficiencies

Kaplan and Norton (2001) discuss several “pitfalls” of Balanced Scorecard implementation. They identified three categories of problems: transitional issues, design issues and process issues. Transitional issues involve organizational changes such as new owners or management. Design failures are caused by organizations building poor Balanced Scorecards and included issues such as using too few or too many measures, or not using the correct drivers for the desired organizational outcomes. Process failures are the result of poor organizational processes such as lack of senior management involvement.

This study included one survey question addressing design failures (Question 23). Twenty six percent of both the non-BSC and BSC organizations reported that their performance measurement system contained measures that were not linked in driver-outcome relationships (Chart 4.6). Moreover, there were no differences in how respondents belonging to the different levels of BSC organizations answered this question.

The most common deficiency reported by non-BSC organizations was that their performance measurement system did not contain the appropriate measures. Thirty-one percent of the non-BSC organizations, versus 13% of BSC organizations, reported that their performance measurement system did not contain the appropriate measures. The null hypothesis that the two groups are the same was rejected at the 0.02 level of significance. There were no significant differences among the organizations at different levels within the BSC group.

Fifteen percent of the non-BSC organizations, versus 9% of the BSC organizations, stated that they had too few measures. The null hypothesis that the two groups were the same could not be rejected.

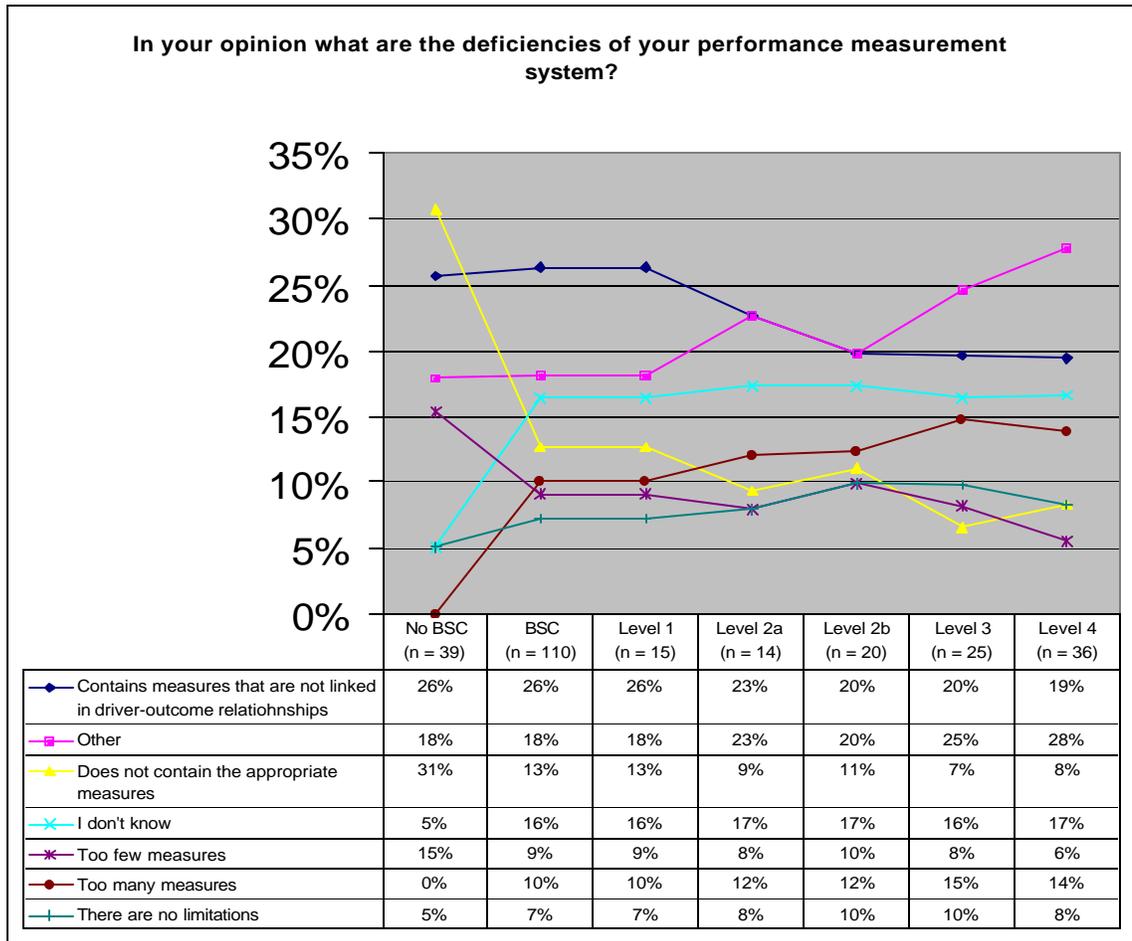
Twenty-seven respondents selected the “Other” category for this question. They were able to provide a written response if they selected “Other”. The responses were varied and included:

- Upper management needs to be on board.
- Issues with setting the targets (trust, unrealistic, unattainable)
- Not focused on the long-term.
- Higher weighting on the financial perspective results in an un-balanced scorecard.
- Needs profit sharing or link to corporate performance.

#### **4.3.4 Budgeting**

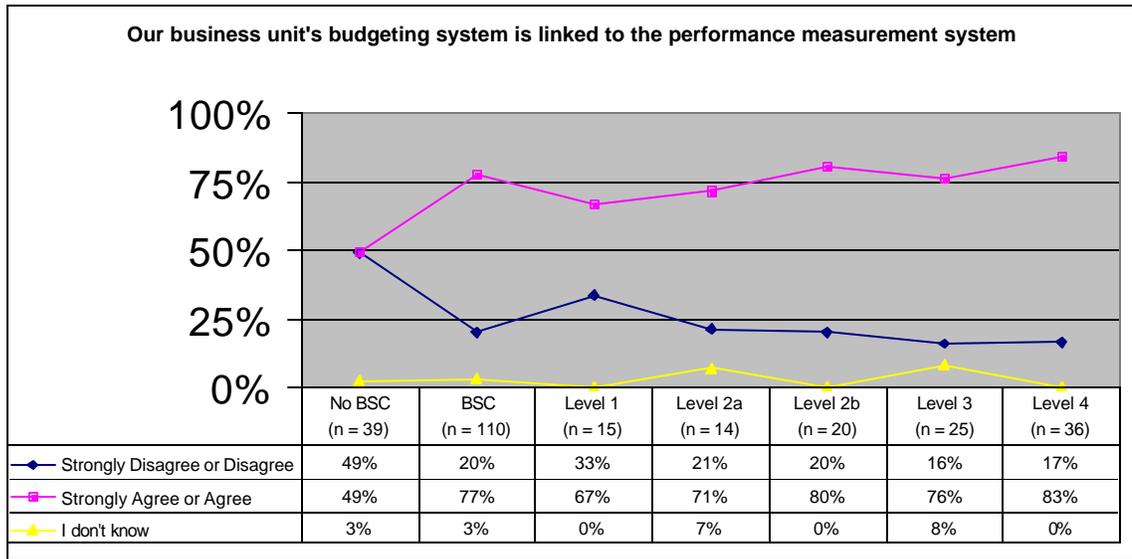
Kaplan and Norton (2001) stated that the Balanced Scorecard must be linked to the budget for managing tactics (day to day steps for implementing the strategy). They also stated that this has yet to happen in most implementations. This study considered an investigation of the state of affairs in Canada with respect to this issue an interesting question.

**Chart 4.6 Deficiencies of the Performance Measurement System**



Forty-nine percent of the non-BSC organizations, versus 77% of the BSC organizations, stated that their budgeting system was linked to their performance measurement system (Chart 4.7). The null hypothesis that these two groups are the same was rejected at the 0.02 level of significance. The percentage increased to 83% for Level 4 organizations. The null hypothesis that the Level 1 BSC and Level 4 BSC organizations are the same could not be rejected. It would appear that the situation in Canada at this time is different than Kaplan and Norton's (2001) statement.

**Chart 4.7 Budgeting Linked to the Performance Measurement System**



#### 4.3.5 Performance Dimensions

As discussed in section 2.2.2, Kaplan and Norton (1996, 2001) suggest that an organization's scorecard should consist of measures along four perspectives or dimensions: (1) financial, (2) customer, (3) internal business process and (4) learning and growth.

This study examined the use of performance dimensions by asking respondents which dimensions their performance measurement system reported on (Question 20). Not surprisingly, a high percentage of the respondents in both BSC and non-BSC organizations (95%) indicated that they reported measures along the financial dimension. Somewhat surprisingly, only 80% of the Level 1 BSC organizations indicated that they reported along this dimension. Interestingly, eight organizations did not report that they used the financial dimension. There were no similarities between these eight organizations other than they all said that they did not think their performance measurement system was a balanced scorecard. They were in different industries, the respondents had different positions and their revenues ranged from under 20 million to over 1 billion. All of them indicated that they reported measures along at least one dimension.

Seventy-four percent of the BSC organizations, versus 51% of the non-BSC organizations, reported measures along the Operation/Business Process dimension

(Chart 4.8). Seventy-two percent of the Level 4 organizations reported using this dimension. The null hypothesis that the non-BSC organizations were the same as the BSC organizations was rejected at the 0.02 level of significance. There were no significant differences among organizations at different levels within the BSC group.

Seventy-four percent of the BSC organizations, versus 49% of non-BSC organizations, reported using a Customer dimension. Sixty-nine percent of the Level 4 BSC organizations reported using a Customer dimension. The null hypothesis that the non-BSC organizations were the same as the BSC organizations was rejected at the 0.10 level of significance. There were no significant differences among organizations at different levels within the BSC group.

Forty-two percent of the BSC organizations, versus 28% of the non-BSC firms, reported using an Employee and/or Organizational Learning dimension. Fifty-three percent of the Level 4 reported using this dimension. The null hypothesis that the non-BSC and BSC organizations are the same was rejected at the 0.10 level of significance. The null hypothesis that the Level 3 and 4 BSC organizations are the same was rejected at the 0.05 level of significance.

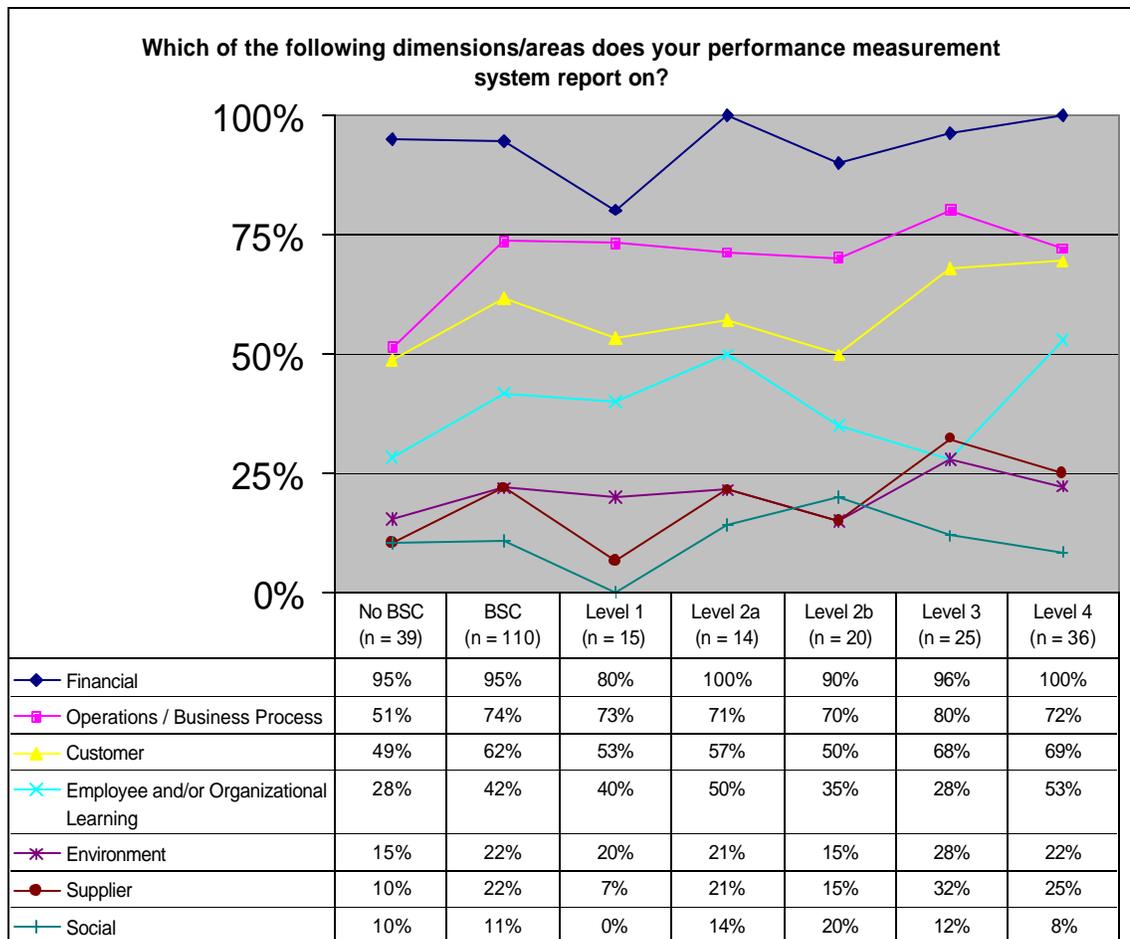
Ten percent of the non-BSC organizations, versus 22% of the BSC organizations, reported using a Supplier dimension. The null hypothesis that the non-BSC organizations are the same as the BSC organizations was rejected at the 0.10 level of significance. The null hypotheses that the Level 1 versus Level 4 BSC organizations are the same and that the Level 1 versus Level 3 BSC organizations are the same were rejected at the 0.10 and 0.05 levels of significance respectively.

The Environment and Social dimensions were reported less than the other dimensions. The null hypotheses that the non-BSC and the BSC organizations were the same, with respect to these dimensions, could not be rejected.

The four traditional Kaplan and Norton (1992, 1996, 2001) dimensions, Financial, Business Process, Customer and Organizational Learning, were the most common. The differences between non-BSC and BSC organizations were significant for three of these dimensions: Business Process, Customer and Organizational Learning. There were no discernable patterns in the differences in the responses from

organizations at different levels within the BSC group with respect to the dimensions reported to be used.

**Chart 4.8 Dimensions Used in the Performance Measurement System**

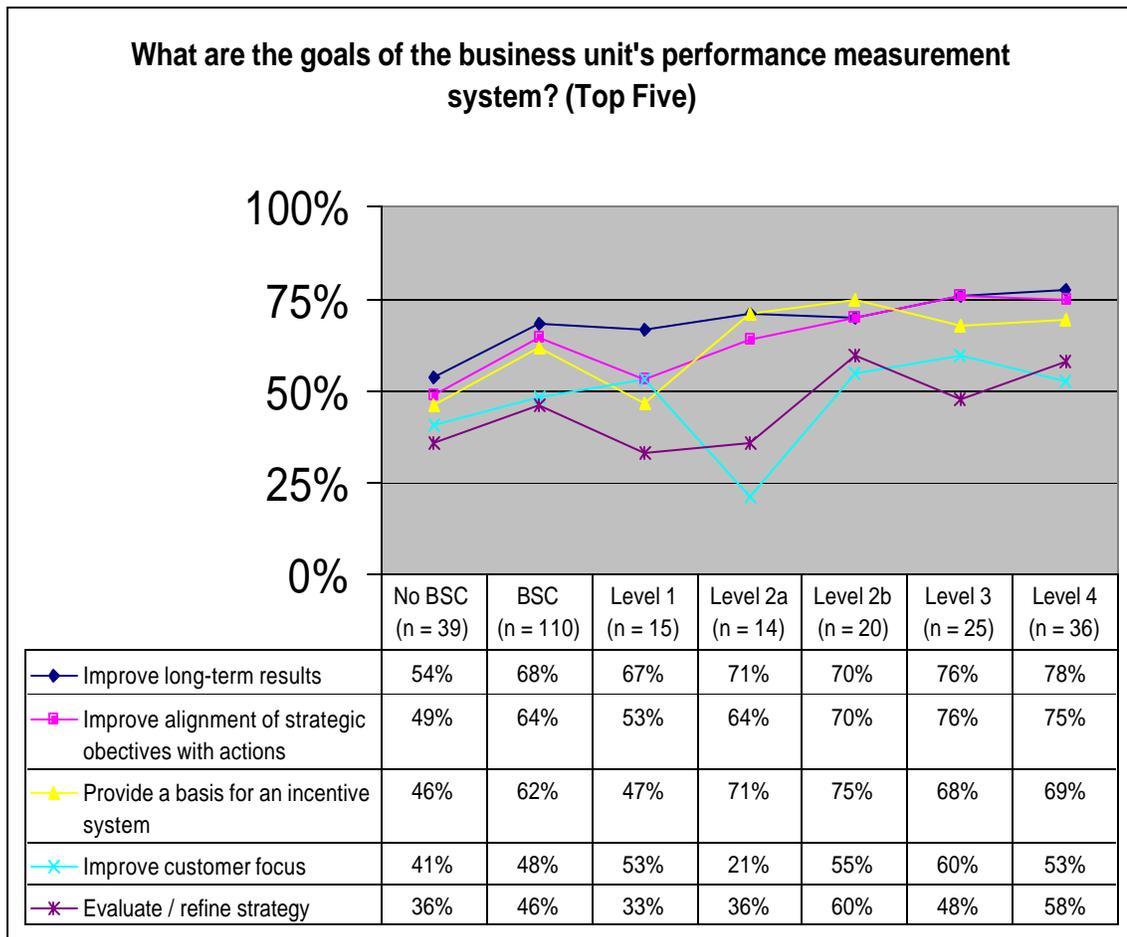


#### 4.3.6 Goals of the Performance Measurement System

The survey asked respondents to select the goals of their business unit's performance measurement system in an attempt to determine what organizations were hoping to achieve with their performance measurement system. The results are presented in two charts (Chart 4.9 & 4.10).

The most common goal (Chart 4.9), selected by 68% of the BSC organizations and 54% of the non-BSC organizations, was "Improving long-term results". The null hypothesis that these two groups are the same was rejected at the 0.10 level of significance. Seventy-eight percent of the Level 4, and 76% of the Level 3 organizations, reported this as a goal of their performance measurement system.

**Chart 4.9 Goals of the Performance Measurement System (Top Five)**

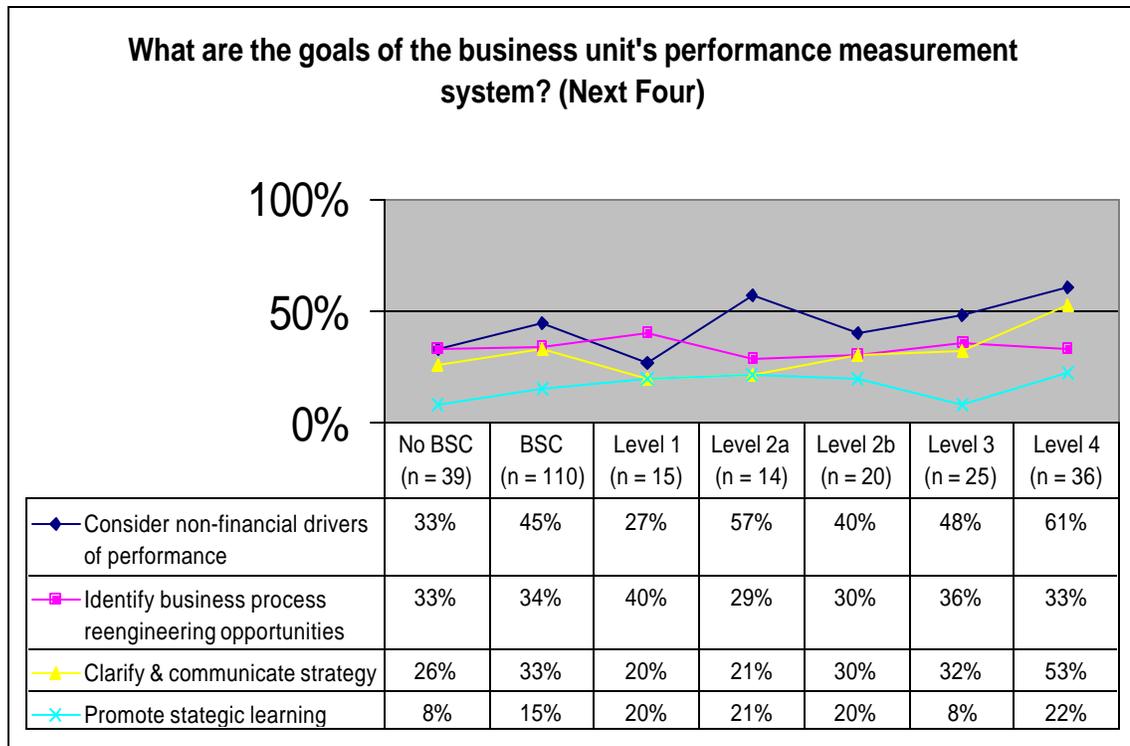


Improving alignment of strategic objectives with actions was reported as a goal by 64% (49%) of the BSC (non-BSC) organizations and by 75% of the Level 4 organizations. The null hypotheses that the BSC and non-BSC organizations are the same, and that the Level 1 and the Level 4 BSC organizations are the same, were rejected at the 0.10 level of significance.

Sixty-two percent of BSC (46% of non-BSC) organizations reported that “Providing a basis for an incentive system” was a goal for their performance measurement system. Sixty-nine percent of Level 4 organizations reported this. Kaplan and Norton (2001) stated that many organizations delay linking compensation to the scorecard until they feel confident with it. Perhaps a greater percentage of Level 4 BSC organizations reported “providing a basis for an incentive system” as a goal, than did Level 1 and non-BSC organizations because they had a more developed performance

measurement system and therefore felt more confident with it. The null hypothesis that the non-BSC organizations are the same as the BSC organizations was rejected at the 0.05 level of significance. The null hypotheses that the Level 1 BSC organizations were the same as the Level 2a and the Level 4 BSC organizations were rejected at the 0.10 level of significance.

**Chart 4.10 Goals of the Performance Measurement System (Next Four)**



Improving customer focus was similar for all groups (including the BSC and non-BSC organizations) except for the Level 2a BSC organizations. Twenty-one percent of Level 2a organizations, versus 41%-60% for the remaining groups, reported this as a goal. This result seems strange especially when compared to the dimensions (Chart 4.8) that each group reported using. Fifty-three percent of Level 2a organizations stated that they reported on a customer dimension yet only 21% stated that improving customer focus was a goal (Table 4.1). Such a gap between the percentages of organizations having a customer focus goal and reporting customer dimension measures did not exist for the other organizations (non-BSC, Level 1, 2b, 3 and 4 BSC). The null hypothesis that the non-BSC and BSC organizations are the same could not be rejected.

<b>Table 4.1 Comparison of Customer Dimension Reporting with Customer Focus Goal</b>						
	<b>No BSC</b>	<b>Level 1</b>	<b>Level 2a</b>	<b>Level 2b</b>	<b>Level 3</b>	<b>Level 4</b>
Customer Dimension	49%	53%	57%	50%	68%	69%
Improve Customer Focus	41%	53%	21%	55%	60%	53%

Forty-six percent of the BSC organizations versus 36% of non-BSC organizations stated that “evaluating/refining strategy” was a goal. Thirty-three percent of the Level 1 BSC organizations versus 58% of the Level 4 BSC organizations reported this as a goal; the null hypothesis that the organizations belonging to the two levels are the same was rejected at the 0.10 level of significance.

Thirty-three percent of the BSC organizations, versus 26% of the non-BSC organizations, stated that “Clarifying and communicating strategy” was a goal (Chart 4.10). Twenty percent of Level 1 BSC organizations versus 53% of Level 4 organizations reported this as a goal. The null hypothesis that the organizations belonging to the two levels are the same was rejected at the 0.02 level of significance.

Forty-five percent of the BSC organizations versus 33% of the non-BSC organizations reported that “considering non-financial drivers of performance” was a goal. The null hypothesis that these two groups are the same was rejected at the 0.10 level of significance. Sixty-one percent of the Level 4 organizations, versus 27% of the Level 1 BSC organizations, stated that “Consider non-financial drivers of performance” was a goal. The null hypothesis that the organizations belonging to these two levels are the same was rejected at the 0.02 level of significance. This goal is reported by a greater percentage of respondents as the level of BSC adoption increases.

Eight percent of the non-BSC organizations, versus 15% of the BSC organizations, stated that promoting strategic learning was a goal. The null hypothesis that the two groups are the same could not be rejected.

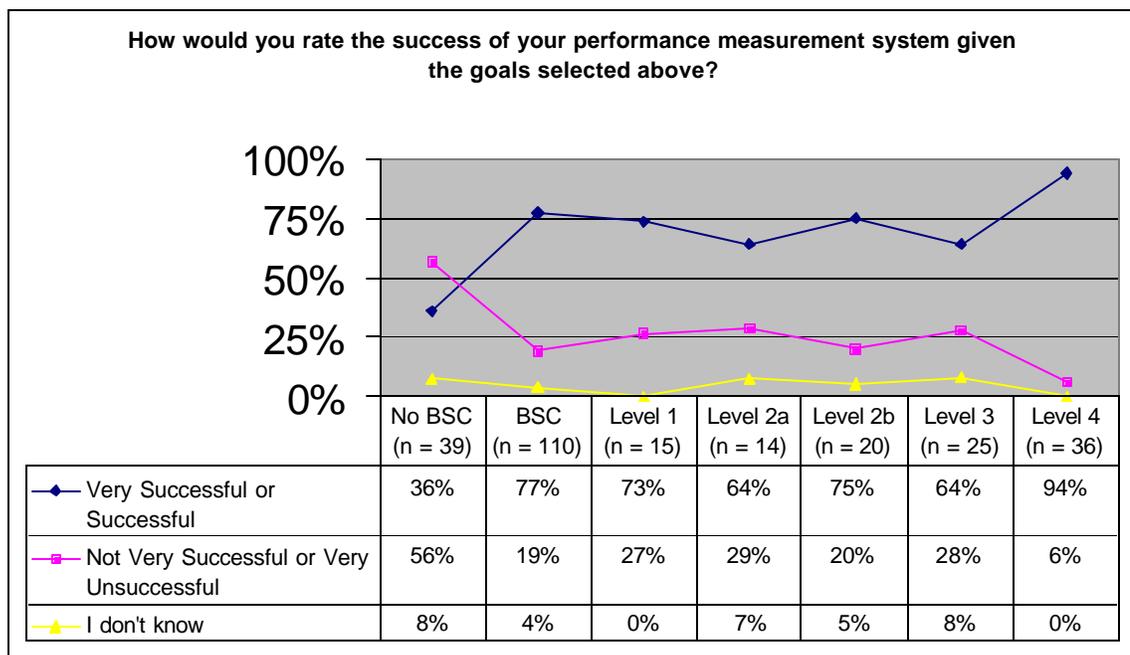
#### **4.3.7 Performance**

The study addressed performance in two ways. First it asked the respondents to rate the success of their performance measurement system against the goals of the

performance measurement system that they had selected (as reported in the previous section). This question provided some interesting results. Next, respondents were asked to compare themselves to their competitors along several measures: return on investment, sales margin, customer satisfaction, market share and product/service quality.

When asked to rate the success of their performance measurement system against the goals they had selected previously, 77% of the BSC organizations, versus 36% of the non-BSC organizations, rated their performance measurement system as very successful or successful (Chart 4.11). Ninety-four percent of the Level 4 BSC organizations versus 73% of the Level 1 BSC organizations stated that their performance measurement system was very successful or successful. The null hypotheses that the BSC organizations are the same as the non-BSC organizations, and that the Level 1 BSC organizations are the same as Level 4 BSC organizations, were rejected at the 0.02 level of significance.

**Chart 4.11 Success of Performance Measurement System**



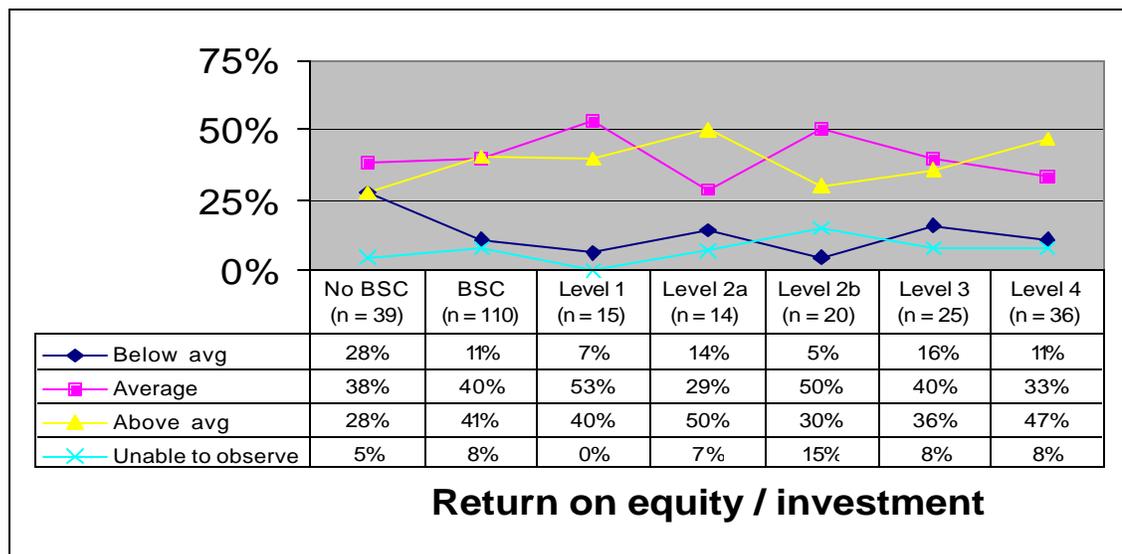
When asked to compare specific measures against their competitors, most of the respondents rated themselves as average or above average (Table 4.2). With respect to Return on Equity/Investment (Chart 4.12), 28% of the non-BSC organizations, versus 11% of the BSC organizations, reported below average performance compared to their

competitors. The null hypothesis that these two groups are the same was rejected at the 0.02 level of significance. There were no significant differences between responses from the organizations within the BSC group. Assuming that respondents are less likely to self-rate themselves as below average, this result appears to indicate that even a basic type of balanced scorecard may have a positive impact on financial performance.

**Table 4.2 Summary of Self-Rated Performance Measures**

Self-Ratings: Average or Above Average	No BSC	Level 1	Level 2a	Level 2b	Level 3	Level 4
Customer Satisfaction	93%	87%	93%	95%	88%	94%
Product/Service Quality	93%	94%	85%	95%	88%	95%
Return on Equity	66%	93%	79%	80%	76%	80%
Sales Margin	85%	74%	93%	80%	68%	86%
Market Share	80%	67%	93%	80%	76%	81%

**Chart 4.12 Self Assessed Performance Based on Return on Equity**



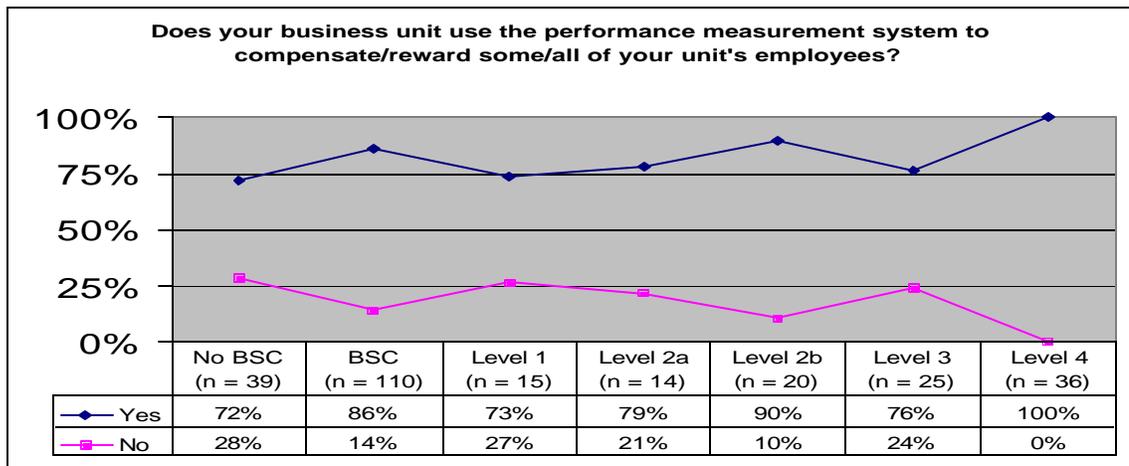
#### 4.3.8 Link to Compensation

Kaplan and Norton (2001) state that “the only generalizable finding from all of the company experiences in linking compensation and reward to balanced scorecards is that they do it. An organization has either, or intends to, tie compensation to achievement of targets for BSC measures” (p. 265).

Eighty-six percent of the BSC organizations, versus 72% of the non-BSC organizations, reported that they use their performance measurement system to compensate some or all of their employees (Chart 4.13). The null hypothesis that these two groups are the same was rejected at the 0.02 level of significance. Ninety percent (100%) of Level 2b (4) organizations stated that they use their performance measurement system to compensate some or all of their unit's employees. That 100% of the Level 4 BSC organizations report a link to compensation is not surprising; they are classified as Level 4 based on their response to this question. A slightly lower percentage of Level 1, 2a and 3 BSC organizations reported the link to compensation. The null hypothesis that there is no difference between the Level 1 BSC and the Level 2b BSC organizations is rejected at the 0.10 level of significance.

Level 2b BSC organizations are characterized as having derived their performance measurement system from their strategy combined with measures that are linked through driver-outcome relationships. The high percentage of Level 2b BSC organizations reporting that they use their performance measurement system to compensate some or all of their employees could indicate that causal linkages provide more confidence in the performance measurement system and therefore the organizations using them are more comfortable linking their performance measurement system to compensation. However, if this were the case, we may expect more than 76% of Level 3 organizations to link their performance measurement systems to compensation. The null hypothesis that there is no difference between the Level 2b and Level 3 organizations cannot be rejected so it is possible that Level 3 organizations have the same level of confidence in their performance measurement system as do Level 2b organizations. There were no other significant differences among the other BSC levels. Speckbacher et al. (2003) reported that more than 70% of their Balanced Scorecard companies linked incentives to their Balanced Scorecard. This is very similar to the findings of this study (Chart 4.13).

**Chart 4.13 Performance Measurement System Linked to Compensation**

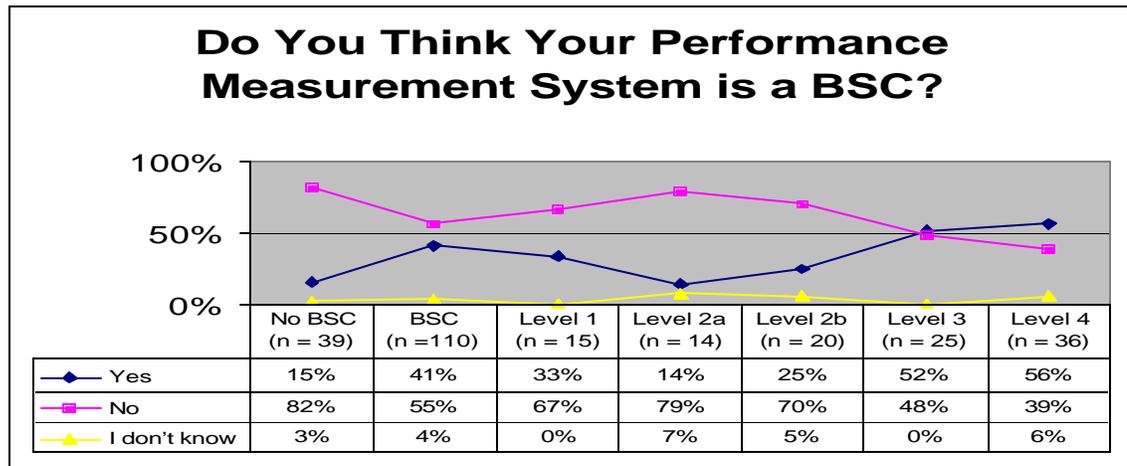


### 4.3.9 Do You Think Your Performance Measurement System is a Balanced Scorecard?

The survey was designed without mentioning the balanced scorecard and its terms such as causal linkages and perspectives so that the respondents would hopefully answer the questions without using the Balanced Scorecard as a reference. One of the last questions asked respondents if they thought their performance measurement system was a balanced scorecard.

Fifteen percent of the non-BSC organizations, versus 41% of the BSC organizations, stated that their performance measurement system was a balanced scorecard (Chart 4.14); this difference allows the null hypothesis that the two groups are similar to be rejected at the 0.02 level of significance. Within the group, fifty-six percent of the Level 4 BSC organizations versus 33% of the Level 1 organizations stated that their performance measurement system was a balanced scorecard; the null hypothesis that the two groups are the similar is rejected at the 0.10 level of significance. There is strong linear correlation ( $r = 0.80$ ) between balanced scorecard levels and the percentage of respondents agreeing to the question. This would seem to indicate that organizations whose performance measurement systems include the structural and use attributes of Kaplan and Norton's BSC, are consciously adopting the Balanced Scorecard. In other words, they understand the attributes of the BSC and are adopting them.

**Chart 4.14 Do You Think Your Performance Measurement System is a Balanced Scorecard?**



The fact that only 14% (25%) of the Level 2a (2b) BSC organizations stated that they believe their organization performance measurement system is a BSC is perplexing. The attributes of balance and causal linkages are important features of a BSC. These organizations indicate that their performance measurement systems have balance (or causal linkages), yet they do not have a BSC. Indeed, it is interesting that only 52% (56%) of the Level 3 (4) BSC organizations believe that their performance measurement system is a BSC. Is this merely a labelling issue? Do organizations care what their performance measurement systems are called? Or, do performance measurement systems evolve to look like Balanced Scorecards without the organization actually implementing a Balanced Scorecard.

Stemsrudhagen (2004) compared two contrasting views of performance measurement systems, Malmi (2001) and Simon (1990). Malmi (2001) suggests that for a measurement system to be a BSC, it needs to meet the following criteria: it should contain financial and non-financial measures, these measures should be derived from strategy, and the measurement framework should contain perspectives derived from the original four. Simon (1990) suggests that the structures of performance measurement systems are created through interaction between managers and a long series of widely disparate sources of information employed by managers. The resulting structures may have structures that are identical to those prescribed by the BSC, without the organization actually designing a BSC. The results of this study suggest that both views are likely. It appears that as organizations moved up the BSC pyramid, many made a

conscious decision to implement a BSC while almost as many did not. Either way, both groups ended up with the same attributes in their performance measurement system. This may indicate that studies relying on the respondent's determination of balanced scorecard use to compare to non-BSC users may be somewhat compromised.

#### **4.3.10 Summary of Research Question 2 Results**

Charts 4.1 to 4.14 summarized the findings pertaining to RQ2. Generally there was a significant difference between responses of the non-BSC organizations and the BSC organizations. Eighty-two percent of the BSC organizations versus 26% of the non-BSC organizations agreed or strongly agreed to the statement that their business unit's strategy is well understood by employees. Seventy-seven percent of the BSC organizations versus 49% of the non-BSC organizations reported that their budgeting system was linked to their performance measurement system. When asked to rate the success of their performance measurement system against the goals they had selected previously, 77% of the BSC organizations, versus 36% of the non-BSC organizations, rated their performance measurement system as very successful or successful. When asked if their performance measurement system is a Balanced Scorecard, 41% of BSC organizations, versus 15% of non-BSC organizations replied yes and 56% of Level 4 BSC organizations replied yes.

In some cases there were significant differences between the BSC levels, particularly with respect to the goals of the performance measurement system. Sixty-one percent of the Level 4 BSC organizations, versus 27% of the Level 1 BSC organizations, reported that considering non-financial drivers of performance was a goal of their performance measurement system. Clarifying and communicating strategy was selected as a goal by 53% of the Level 4 BSC organizations while 20% of the Level 1 BSC organizations selected it as a goal. When asked about the success of their performance measurement system as compared to their selected goals, 94% of the Level 4 BSC organizations reported successful or very successful versus 73% of the Level 1 BSC organizations. The next section presents the organizational demographics.

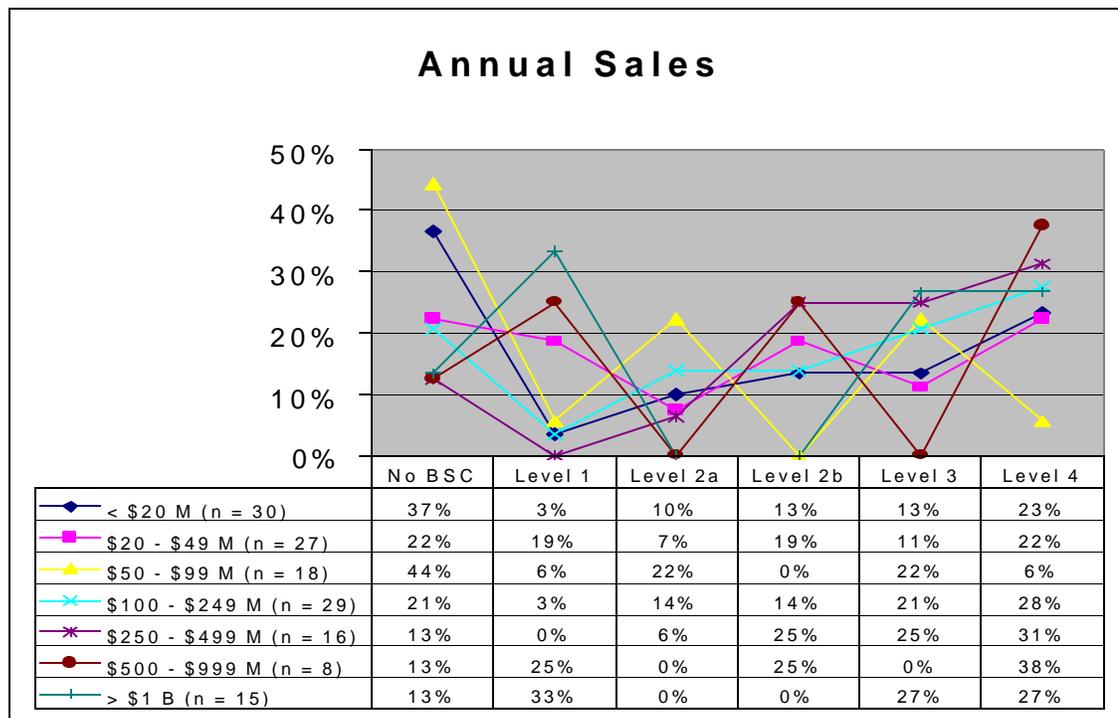
#### 4.4 Demographics

Annual sales and the number of employees were used for comparisons of organizational size and balanced scorecard adoption. For this section, the percentages are based on the number of respondents in each group (i.e., # of employees and annual sales) rather than the number of respondents in each balanced scorecard level.

##### 4.4.1 Annual Sales

Generally, the percentages of respondents at each level of sales were greatest for non-BSC organizations and the Level 4 BSC organizations, with smaller percentages distributed over the remaining organizations (Chart 4.15).

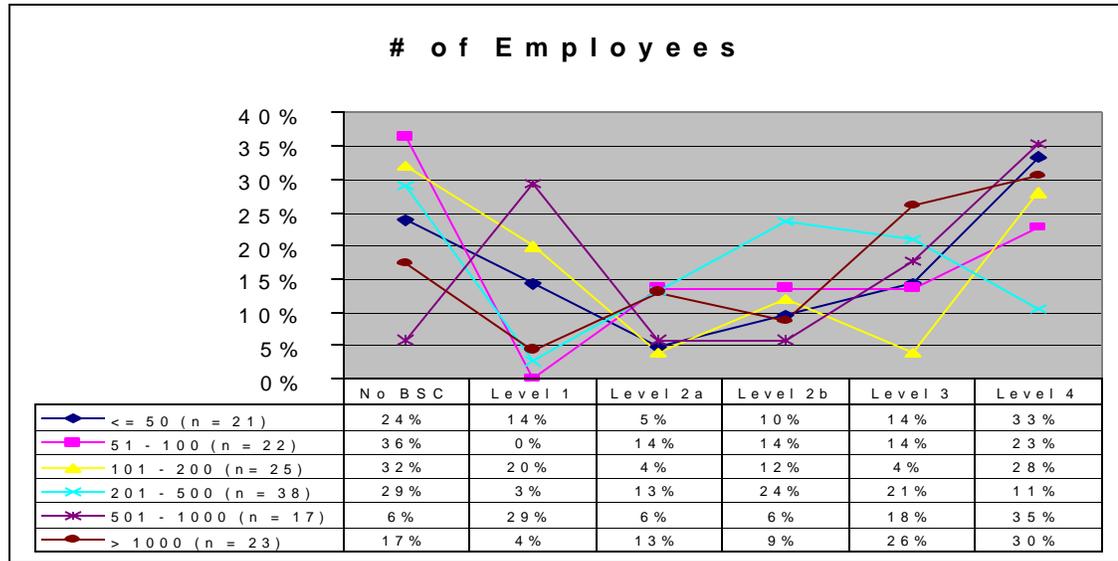
**Chart 4.15 Annual Sales vs BSC Level**



##### 4.4.2 Number of Employees

Generally, the distribution of organizations based on the number of employees was similar to the distribution based on annual sales: a greater percentage of the non-BSC and the Level 4 BSC organizations were represented at each level of the number of employees (Chart 4.16).

**Chart 4.16 Number of Employees vs BSC Level**



#### 4.5 Summary

This chapter discussed the findings of the study. Section 4.2 presented the findings pertaining to RQ1: What attributes of a Kaplan & Norton Balanced Scorecard are present in the performance measurement systems of Canadian organizations?

Section 4.3 addressed RQ2: What are the differences between organizations with different levels of Balanced Scorecard adoption? And finally, section 4.4 compared organizations based on two determinants of organizational size, annual sales and number of employees.

Chapter 5 will discuss the contributions of the study, list the limitations, and outline ideas for future research.

## CHAPTER 5 CONCLUSION

### **5.1. Introduction**

The previous chapter discussed the results of the study. This chapter discusses the contributions and limitations of the study. Future research areas are presented and a conclusion finishes the chapter.

### **5.2. Contributions of the Study**

This study has contributed to academic research by defining a Balanced Scorecard model that includes the necessary attributes and levels of adoption, developing a survey to determine the attributes used in performance measurement systems as well as the level of Balanced Scorecard adoption and by providing insight into the attributes present in the performance measurement systems of Canadian organizations. It also contributes to academics by comparing organizations with different levels of adoption.

Defining a Balanced Scorecard model provides a common denominator for future Balanced Scorecard studies. This is important because there appears to be many different ideas about what a Balanced Scorecard is. For example, several studies (Chan & Ho, 2000; Hoque & James, 2000; Speckbacher et al, 2003; Stemsrudhagen, 2004) have relied on the respondent to report whether or not they had implemented a balanced scorecard. This study has indicated that many organizations (55%) have some or all of the attributes of a balanced scorecard yet they report that they do not think their performance measurement system is a balanced scorecard.

Identifying the attributes present in a Balanced Scorecard will enable academics to compare the results of Balanced Scorecard studies more effectively by determining which attributes are present and which are not.

The study has provided a picture of the current performance measurement systems of some Canadian organizations which was not available prior to this study.

Comparing organizations with different levels of Balanced Scorecard adoption has indicated that there are differences between organizations with different levels of adoption. For example, there are significant differences between the percentage of BSC

organizations and non-BSC organizations with respect to: the goals of the business unit's performance measurement system, performance dimensions used, and whether or not the business unit's budgeting system is linked to the performance measurement system, to name a few. This indicates that the level of BSC adoption should be considered in future Balanced Scorecard studies. Future studies can develop testable hypotheses using the model developed in this study as a frame of reference.

This study has contributed to practitioners by identifying the attributes present in a Balanced Scorecard, indicating some of the issues of implementation and by comparing levels of Balanced Scorecard adoption to performance criteria.

The study has identified three attributes that are structurally necessary in a Balanced Scorecard: Measures that are derived from the business unit's strategy, balance among the measures and measures that are linked in a series of cause-effect relationships. Practitioners can evaluate their performance measurement systems against these attributes which may lead to improvements.

Implementation issues included the necessary support of the senior management team in the development and implementation of the performance measurement system. The study reported that the majority of BSC organizations (84%), versus 54% of non-BSC organizations, had a senior management team involved in the implementation of the unit's performance measurement system. Another implementation issue was the involvement of functional areas in the development of the performance measurement system. Typically, BSC organizations involved more functional areas than did non-BSC organizations.

Perhaps the biggest contribution to practitioners is the comparison of performance results to the BSC levels. When compared to the goals of business unit's performance measurement system, a much higher percentage of BSC organizations (77%) reported that their performance measurement system was very successful or successful versus only 36% of non-BSC organizations. In other words, a greater proportion of the BSC organizations felt that their performance measurement system successfully allowed them to discern performance against previously established goals. The percentage of Level 4 BSC organizations increased to 94% which seems to indicate that the success of the performance measurement system increases when an organization

moves from a Level 1 BSC to a Level 4 BSC. An increase in performance as measured by return on equity was somewhat evident as well. Twenty-eight percent of non-BSC organizations, versus 11% of BSC organizations, stated that their return on equity as compared to their competitors was below average. In other words, significantly fewer BSC organizations than non-BSC organizations stated that their return on equity was below average. This may indicate that there is a financial advantage in at least adopting a Level 1 BSC.

### **5.3. Limitations of the Study**

The study has several potential limitations. The questionnaire was answered by one person in the organization and their perceptions may or may not reflect the actual situation, whatever that may be. The survey link was not sent to possible respondents who worked in the same organization but it is possible that more than one person in an organization received and answered the survey. This could have occurred if a CMA had changed employers and not updated their member profile or if the person receiving the survey link forwarded it to one or more people in the organization. If so, then each response could not be considered to be an individual organization. The anonymity of the survey meant that the possibility of more than one response from an organization could not be verified.

Another possible limitation of the study may be that the determination of the casual linkages was not robust enough and hence organizations that did not have causal linkages were considered to have them.

The low response rate may limit the generalizability of the results, however as mentioned earlier, the absolute number of responses is high compared to other studies.

### **5.4. Future Research**

Future research comparing performance results and the structure of performance measurement systems could be done. It would be beneficial to know whether a more highly developed performance measurement system leads to better performance. It would also be beneficial to know if some attributes are more important than others with respect to organizational performance.

Future field research into causal linkages would also be useful to answer the following: (1) Do companies that say they have causal linkages really have them? (2) How important are they in terms of performance results?

In response to the large percentage of respondents that reported that their measurement system was not a Balanced Scorecard, it would be interesting to know how they developed their performance measurement system. Did they use some other model or did their performance measurement system evolve time due to widely disparate sources of information (Simon 1990).

### **5.5. Conclusion**

This chapter discussed the contributions of the study from both an academic and practitioner point of view. It then presented several possible weaknesses of the study and concluded with some areas of future research.

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## **Appendix A: CMA and Researcher Cover Letters**

### **Understanding Performance Measurement Systems**

The key element of performance measurement in recent times is the consideration of both financial and nonfinancial measures when assessing organizational performance. There is the belief that integrated performance measurement systems should be designed, implemented and used in a manner consistent with an organization's business context. Many organizations have implemented new performance measurement systems but there is a lack information about their design and effectiveness.

CMA Canada is supporting a study undertaken by a graduate student from the University of Saskatchewan who will examine whether such a consistency exists. The broad areas to be investigated are:

- Are the performance measurement systems related to strategy?
- Are performance measures used by organizations linked to drivers?
- Is there a mix of financial and nonfinancial measures?

This letter is an invitation to those of you who may wish to contribute to this study by completing this web-based questionnaire. More information about the study is available at the following link:

<http://www.commerce.usask.ca/special/performancesurvey/coverletter.html>

The survey can be directly accessed through the following link:

<http://www.commerce.usask.ca/special/performancesurvey/>

All responses will be kept confidential and all participants will receive a copy of the findings if they so wish. In addition, participants will have access to a number of articles written on the subject.

Thank you for considering this matter.

Best regards,

Steve Vieweg, MBA, CMA, FCMA  
President and CEO  
CMA Canada

Dear fellow CMAs:

I need your assistance. I am examining the design and use of performance measurement systems by Canadian firms. This study will provide useful insights into performance measurement systems and their contribution to success. I have selected CMAs from across Canada to participate in an internet-based "point-and-click" survey. This survey can be accessed through the following link: <http://www.commerce.usask.ca/special/performanceurvey/>. It will take approximately 12-15 minutes to complete. I assure you that your responses will be anonymous and I will not identify any individuals or organizations in any of the reports resulting from this research project. There will be no adverse effects for non-participation.

To participate in the study, simply click on the link (or copy and paste it into a web browser), fill out the survey, and click on "Submit your responses" when you are finished. Clicking on the "Submit your responses" link gives your consent to include the information you have provided in the study's database.

The final section of the survey asks for some personal contact information. **Completing this section is entirely optional. *In any case, the data you provide will remain confidential; the results will not identify individual respondents by name or their organization.***

Access to the data will be restricted; the survey data will be collected on the university's computer network, and will be password protected while it is on the network. Upon completion of the study (Spring 2005) the data will be archived and stored on my research supervisor's computer at the University of Saskatchewan. In addition to myself, my research supervisor will have access to the data to be able to conduct any further analyses and develop future studies in this area. I plan on disseminating the results of this study in my thesis and in publications such as *CMA Management* and other academic journals.

This research has been reviewed and approved on ethical grounds by the University of Saskatchewan's Behavioural Research Board. If you have any questions regarding your rights as a respondent, you may contact the above committee at (306) 966-2084. Out of town participants may call collect. If you have any questions about the study or require any clarifications, please do not hesitate to contact me by e-mail at [mjs680@mail.usask.ca](mailto:mjs680@mail.usask.ca) or by phone at (780) 988-2860. Alternately, you may contact my supervisor, Dr. Suresh S. Kalagnanam, CMA, by phone at (306) 966-8404 or by e-mail at [kalagnanam@commerce.usask.ca](mailto:kalagnanam@commerce.usask.ca).

Thank you very much. Your participation is greatly appreciated.

Sincerely, Marvin Soderberg, B. Comm., CMA

## APPENDIX B: SURVEY

### Instructions

The survey is attempting to determine some of the characteristics of performance management systems in use in Canadian organizations. Answer questions as they relate to the business unit you work in.

Check the boxes most applicable to you or fill in the blanks. Thank you for your assistance.

### Introduction

Use your response to this question to guide the rest of your responses in the survey.

#### 1. Your business unit is (check the most appropriate classification):

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> An entire company	71	48.3
<input type="checkbox"/> Branch/division	<u>76</u>	<u>51.7</u>
	147	100.0%

#### Section 1A

#### 2. Our unit's business strategy is well defined:

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Strongly disagree	2	1.3
<input type="checkbox"/> Disagree	21	14.1
<input type="checkbox"/> Agree	78	52.3
<input type="checkbox"/> Strongly agree	48	32.2
<input type="checkbox"/> I don't know	<u>0</u>	<u>0.0</u>
	149	100.0%

#### 3. Our unit's business strategy is well understood by employees.

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Strongly disagree	3	2.0
<input type="checkbox"/> Disagree	46	30.9
<input type="checkbox"/> Agree	82	55.0
<input type="checkbox"/> Strongly agree	18	12.1
<input type="checkbox"/> I don't know	<u>0</u>	<u>0.0</u>
	149	100.0%

#### 4. Our unit's business strategy is not influenced by corporate strategy:

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Strongly disagree	51	34.2
<input type="checkbox"/> Disagree	77	51.7
<input type="checkbox"/> Agree	16	10.7
<input type="checkbox"/> Strongly agree	3	2.0
<input type="checkbox"/> I don't know	<u>2</u>	<u>1.3</u>
	149	100.0%

**5. Our business unit's performance measurement system is derived from the unit's business strategy:**

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Strongly disagree	3	2.0
<input type="checkbox"/> Disagree	22	14.8
<input type="checkbox"/> Agree	91	61.1
<input type="checkbox"/> Strongly agree	31	20.8
<input type="checkbox"/> I don't know	<u>2</u>	<u>1.3</u>
	149	100.0%

**6. We review and reassess the measures used by our performance measurement system whenever our unit's business strategy changes:**

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Strongly disagree	5	3.4
<input type="checkbox"/> Disagree	39	26.2
<input type="checkbox"/> Agree	80	53.7
<input type="checkbox"/> Strongly agree	22	14.8
<input type="checkbox"/> I don't know	<u>3</u>	<u>2.0</u>
	149	100.0%

**Section 1B**

**DRIVER:** A measure whose changes lead to changes in another measure. For example, number of sales calls can be a determinant of revenues.

**OUTCOME:** The measure that changes when its corresponding driver measure changes.

**7. Our performance measurement system has measures that are linked through driver-outcome relationships: (eg, number of sales calls could be a driver for sales revenue)**

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Strongly disagree	4	2.7
<input type="checkbox"/> Disagree	31	20.8
<input type="checkbox"/> Agree	81	54.4
<input type="checkbox"/> Strongly agree	33	22.1
<input type="checkbox"/> I don't know	<u>0</u>	<u>0.0</u>
	149	100.0%

**8. Our business unit understands the potential driver-outcome relationships among individual measures:**

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Strongly disagree	4	2.7

<input type="checkbox"/>	Disagree	40	26.8
<input type="checkbox"/>	Agree	78	52.3
<input type="checkbox"/>	Strongly agree	26	17.4
<input type="checkbox"/>	I don't know	<u>1</u>	<u>0.7</u>
		149	100.0%

**9. Deviations from expected or planned results causes the business unit's management to question the unit's business strategy:**

<b>(Select only one.)</b>		<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/>	Strongly disagree	5	3.4
<input type="checkbox"/>	Disagree	49	32.9
<input type="checkbox"/>	Agree	76	51.0
<input type="checkbox"/>	Strongly agree	13	8.7
<input type="checkbox"/>	I don't know	<u>6</u>	<u>4.0</u>
		149	100.0

**10. Our business unit's senior management team was involved in the development and implementation of the unit's performance measurement system:**

<b>(Select only one.)</b>		<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/>	Strongly disagree	7	4.6
<input type="checkbox"/>	Disagree	28	18.8
<input type="checkbox"/>	Agree	64	43.0
<input type="checkbox"/>	Strongly agree	49	32.9
<input type="checkbox"/>	I don't know	<u>1</u>	<u>0.7</u>
		149	100.0%

**11. Our business unit's budgeting system is linked to the performance measurement system:**

<b>(Select only one.)</b>		<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/>	Strongly disagree	9	6.0
<input type="checkbox"/>	Disagree	32	21.5
<input type="checkbox"/>	Agree	67	45.0
<input type="checkbox"/>	Strongly agree	37	24.8
<input type="checkbox"/>	I don't know	<u>4</u>	<u>2.7</u>
		149	100.0%

<b>Section 2</b>
------------------

**12. Our business unit validates the potential driver-outcome relationships among individual measures using one or more of the following:**

(Select all that apply.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Statistical analysis (eg. regression, correlation)	58	38.2
<input type="checkbox"/> Qualitative analysis (such as interviews, personal observations)	84	55.3
<input type="checkbox"/> No validation of relationships between measures	49	32.2
<input type="checkbox"/> Other methods:	12	7.9

(Note: there were 149 respondents)

**13. Does your business unit use the performance measurement system to compensate/reward some/all of your unit's employees?**

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Yes (Skip to Q. 15)	123	82.6
<input type="checkbox"/> No (Skip to Q. 14)	26	17.4
<input type="checkbox"/> I don't know (Skip to Q. 17)	<u>0</u>	<u>0.0</u>
	149	100.0%

**14. Please indicate if your business unit intends to link compensation/reward to your performance measurement system within the next year or two.**

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Yes (Skip to Q. 17)	23	59.0
<input type="checkbox"/> No (Skip to Q. 17)	10	25.6
<input type="checkbox"/> I don't know (Skip to Q. 17)	<u>6</u>	<u>15.4</u>
	39	100.0%

**15. Please indicate which types of performance measures are used by your business unit to compensate/reward MANAGEMENT employees.**

(Select all that apply.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Quantitative financial measures (for example, net income, return on investment )	117	78.5
<input type="checkbox"/> Quantitative non-financial measures (for example, % of defects, on-time delivery)	68	45.6
<input type="checkbox"/> Qualitative measures (for example, employee appraisals)	87	58.4

(Note: there were 149 respondents)

**16. Please indicate which types of performance measures are used by your business unit to compensate/reward NON-MANAGEMENT employees.**

(Select all that apply.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Quantitative financial measures	79	53.0

	(for example, net income, return on investment )		
<input type="checkbox"/>	Quantitative non-financial measures (for example, % of defects, on-time delivery)	60	40.3
<input type="checkbox"/>	Qualitative measures (for example, employee appraisals)	89	59.7

(Note: there were 149 respondents)

**17. How did the business unit communicate the implementation of the performance measurement system to the employees of the unit?**

(Select all that apply.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Brochures	6	3.9
<input type="checkbox"/>	Newsletter	24	15.8
<input type="checkbox"/>	Memo	59	38.8
<input type="checkbox"/>	Information sessions	96	63.2
<input type="checkbox"/>	Did not communicate	11	7.2
<input type="checkbox"/>	I don't know	8	5.3
<input type="checkbox"/>	Other:	28	18.4

(Note: there were 149 respondents)

**18. Which functional areas of the business unit participated in the development of the performance measurement system?**

(Select all that apply.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Accounting/Finance	112	75.2
<input type="checkbox"/>	Research & Development	10	6.7
<input type="checkbox"/>	Marketing	43	28.9
<input type="checkbox"/>	Logistics / Materials Management	16	10.7
<input type="checkbox"/>	Human Resources	81	54.4
<input type="checkbox"/>	Production / Operations	65	43.6
<input type="checkbox"/>	Information Technology	20	13.4
<input type="checkbox"/>	I don't know	10	6.7
<input type="checkbox"/>	Other:	33	22.1

(Note: there were 149 respondents)

**19. Please list up to six performance measures that your management considers important.**

**20. Which of the following dimensions/areas does your performance measurement system report on?**

(Select all that apply.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Financial	141	94.6
<input type="checkbox"/>	Supplier	28	18.8

<input type="checkbox"/>	Employee and/or Organizational Learning	57	38.3
<input type="checkbox"/>	Customer	87	58.4
<input type="checkbox"/>	Environment	30	20.1
<input type="checkbox"/>	Social	16	10.7
<input type="checkbox"/>	Operations/Business Process	101	67.8
<input type="checkbox"/>	Other:	9	6.0

(Note: there were 149 respondents)

### 21. What are the goals of the business unit's performance measurement system?

<b>(Select all that apply.)</b>		<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/>	Evaluate/refine strategy	69	46.6%
<input type="checkbox"/>	Clarify and communicate strategy	49	33.1
<input type="checkbox"/>	Improve alignment of strategic objectives with actions	96	64.9
<input type="checkbox"/>	Consider non-financial drivers of performance	67	45.3
<input type="checkbox"/>	Improve long-term results	102	68.9
<input type="checkbox"/>	Promote strategic learning	23	15.5
<input type="checkbox"/>	Provide a basis for an incentive system	92	62.2
<input type="checkbox"/>	Improve customer focus	72	48.6
<input type="checkbox"/>	Identify business process reengineering opportunities	50	33.8
<input type="checkbox"/>	Other:	7	4.7

(Note: there were 148 respondents)

### 22. How would you rate the success of your performance measurement system given the goals selected above?

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Very successful	10	6.7
<input type="checkbox"/> Successful	89	59.7
<input type="checkbox"/> Not very successful	41	27.5
<input type="checkbox"/> Very unsuccessful	2	1.3
<input type="checkbox"/> I don't know	<u>7</u>	<u>4.7</u>
	149	100.0%

### 23. In your opinion what are the deficiencies of your performance measurement system?

<b>(Select only one.)</b>	<b><u>Respondents</u></b>	<b><u>%</u></b>
<input type="checkbox"/> Too many measures	11	7.4
<input type="checkbox"/> Too few measures	16	10.7
<input type="checkbox"/> Does not contain the appropriate measures	26	17.4
<input type="checkbox"/> Contains measures that are not linked in driver-outcome relationships	39	26.2
<input type="checkbox"/> There are no limitations	10	6.7
<input type="checkbox"/> I don't know	20	13.4

<input type="checkbox"/>	Other:	<u>27</u>	<u>18.1</u>
		149	100.0%

### Section 3

The following three questions attempt to assess the trade-offs that are made in your business unit with respect to REPORTING performance measures. Please indicate the appropriate response for each of the following items.

Definitions:

REPORTING: the measure is included in the performance measurement system.

#### 24. Financial measures vs non-financial measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only financial measures are REPORTED	19	12.8
<input type="checkbox"/> Financial measures are REPORTED somewhat more than non-financial measures	82	55.0
<input type="checkbox"/> Financial and non-financial measures are equally REPORTED	37	24.8
<input type="checkbox"/> Non-financial measures are REPORTED somewhat more than financial measures	7	4.7
<input type="checkbox"/> Only non-financial measures are REPORTED	<u>4</u>	<u>2.7</u>
	100.0	

#### 25. Outcome measures vs driver measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only outcome measures are REPORTED	55	36.9
<input type="checkbox"/> Outcome measures are REPORTED somewhat more than driver measures	65	43.6
<input type="checkbox"/> Outcome and driver measures are equally REPORTED	23	15.4
<input type="checkbox"/> Driver measures are REPORTED somewhat more than outcome measures	5	3.4
<input type="checkbox"/> Only driver measures are REPORTED	<u>1</u>	<u>0.7</u>
	149	100.0%

#### 4.1.1.1 26. Quantitative measures vs qualitative measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only quantitative measures are REPORTED	37	24.8
<input type="checkbox"/> Quantitative measures are REPORTED somewhat more than qualitative measures	75	50.3
<input type="checkbox"/> Quantitative and qualitative measures are equally REPORTED	24	16.1
<input type="checkbox"/> Qualitative measures are REPORTED somewhat more than quantitative measures	10	6.7
<input type="checkbox"/> Only qualitative measures are REPORTED	<u>3</u>	<u>2.0</u>
		100.0%

#### Section 4

The following three questions attempt to assess the trade-offs made in your business unit with respect to the USE of performance measures.

Definitions:

USE: the measure is included in the performance measurement system AND is used by someone.

#### 27. Financial measures vs non-financial measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only financial measures are USED	18	12.1
<input type="checkbox"/> Financial measures are USED somewhat more than non-financial measures	78	52.3
<input type="checkbox"/> Financial and non-financial measures are equally USED	38	25.5
<input type="checkbox"/> Non-financial measures are USED somewhat more than financial measures	10	6.7
<input type="checkbox"/> Only non-financial measures are USED	<u>5</u>	3.4
	149	

#### 28. Outcome measures vs driver measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only outcome measures are USED	39	26.2
<input type="checkbox"/> Outcome measures are USED somewhat more than driver measures	77	51.7
<input type="checkbox"/> Outcome and driver measures are equally USED	26	17.4
<input type="checkbox"/> Driver measures are USED somewhat more than outcome measures	5	3.4
<input type="checkbox"/> Only driver measures are USED	<u>2</u>	1.3
	149	

### 29. Quantitative measures vs qualitative measures

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Only quantitative measures are USED	33	22.1
<input type="checkbox"/> Quantitative measures are USED somewhat more than qualitative measures	79	53.0
<input type="checkbox"/> Quantitative and qualitative measures are equally USED	24	16.1
<input type="checkbox"/> Qualitative measures are USED somewhat more than quantitative measures	10	6.7
<input type="checkbox"/> Only qualitative measures are USED	<u>3</u>	2.0
	149	

### Section 5

What is your assessment of your business unit's performance in comparison to your competitors along the following dimensions:

### 30. Return on equity/investment

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Below average	23	15.4
<input type="checkbox"/> Average	59	39.6
<input type="checkbox"/> Above average	56	37.6
<input type="checkbox"/> Unable to observe	<u>11</u>	<u>7.4</u>
	149	100.0%

### 31. Sales margin

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Below average	16	10.7
<input type="checkbox"/> Average	76	51.0
<input type="checkbox"/> Above average	45	30.2
<input type="checkbox"/> Unable to observe	<u>12</u>	<u>8.1</u>
	149	100.0%

### 32. Customer satisfaction

(Select only one.)	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Below average	2	1.3
<input type="checkbox"/> Average	58	38.9
<input type="checkbox"/> Above average	79	53.0
<input type="checkbox"/> Unable to observe	<u>10</u>	<u>6.7</u>
	149	100.0%

### 33. Market share

(Select only one.)	<u>Respondents</u>	<u>%</u>
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<input type="checkbox"/>	Below average	14	9.4
<input type="checkbox"/>	Average	51	34.2
<input type="checkbox"/>	Above average	67	45.0
<input type="checkbox"/>	Unable to observe	<u>17</u>	<u>11.4</u>
		149	100.0%

#### 34. Product/Service quality

(Select only one.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Below average	3	2.0
<input type="checkbox"/>	Average	52	34.9
<input type="checkbox"/>	Above average	85	57.0
<input type="checkbox"/>	Unable to observe	<u>9</u>	<u>6.0</u>
		149	100.0%

#### Section 6

#### 35. Your business unit is:

(Select only one.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	A profit seeking organization	149	98.0
<input type="checkbox"/>	A not-for-profit organization	<u>3</u>	<u>2.0</u>
		152	100.0%

#### 36. What business/industry is your business unit in?

(Select only one.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Agriculture, Forestry & Fisheries	6	4.0
<input type="checkbox"/>	Communications	4	2.7
<input type="checkbox"/>	Construction	5	3.4
<input type="checkbox"/>	Engineering & Research Development	6	4.0
<input type="checkbox"/>	Entertainment	0	0.0
<input type="checkbox"/>	Finance, Insurance & Real Estate	11	7.4
<input type="checkbox"/>	Manufacturing	59	39.6
<input type="checkbox"/>	Mining	2	1.3
<input type="checkbox"/>	Retail Trade	10	6.7
<input type="checkbox"/>	Services	11	7.4
<input type="checkbox"/>	Transportation	4	2.7
<input type="checkbox"/>	Utilities & Energy	14	9.4
<input type="checkbox"/>	Wholesale Trade	7	4.7
<input type="checkbox"/>	Other:	<u>10</u>	<u>6.7</u>
		100.0%	

#### 37. Do you think your performance measurement system is a Balanced Scorecard?

(Select only one.)		<u>Respondents</u>	<u>%</u>
<input type="checkbox"/>	Yes	51	34.2
<input type="checkbox"/>	No	93	62.4
<input type="checkbox"/>	I don't know	<u>5</u>	<u>3.4</u>

**38. What is your position (formal title) within your business unit?****(Provide one response only.)****39. What are the main responsibilities of the business unit within which you work?****(Select all that apply.)**

	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Production	74	48.7
<input type="checkbox"/> Research & design	28	18.4
<input type="checkbox"/> Marketing / Sales	63	41.5
<input type="checkbox"/> Strategic planning	49	32.2
<input type="checkbox"/> Other:	<u>50</u>	<u>32.9</u>

(Note: there were 149 respondents)

**40. How is your business unit evaluated?****(Select only one.)**

	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Cost centre (evaluated based on expenses only)	21	14.1
<input type="checkbox"/> Profit centre (evaluated based on profit but excludes items beyond the business unit's control)	70	47.0
<input type="checkbox"/> Revenue centre (evaluation based on revenues only)	8	5.4
<input type="checkbox"/> Investment centre (evaluation based on revenues, expenses and capital investments)	36	24.2
<input type="checkbox"/> Other:	<u>14</u>	<u>9.4</u>
	100.0	

**41. How many people are employed by your business unit?****(Select only one.)**

	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> 50 and below	21	14.4
<input type="checkbox"/> 51 - 100	22	15.1
<input type="checkbox"/> 101 - 200	25	17.1
<input type="checkbox"/> 201 - 500	38	26.0
<input type="checkbox"/> 501 - 1000	17	11.6
<input type="checkbox"/> Over 1000	<u>23</u>	<u>15.8</u>
	146	100.0%

**42. What were the approximate annual sales of your business unit during the last fiscal year?****(Select only one.)**

	<u>Respondents</u>	<u>%</u>
<input type="checkbox"/> Under \$20 M	30	21.0
<input type="checkbox"/> \$20 - \$49 M	27	18.9
<input type="checkbox"/> \$50 - \$99 M	18	12.6

<input type="checkbox"/>	\$100 - 249 M	29	20.3
<input type="checkbox"/>	\$250 - \$499 M	16	11.2
<input type="checkbox"/>	\$500 - \$999 M	8	5.6
<input type="checkbox"/>	Over \$1 B	<u>15</u>	<u>10.5</u>
		143	100.0%

<b>Section 7 - Personal Information (OPTIONAL)</b>
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Please note that providing your personal contact information is entirely optional. However, this will allow us to follow-up with any questions that we may have regarding your responses, or to conduct a follow-up study.

**43. Location of your business unit:**

(Provide one response only.)

**44. Your telephone number:**

(Provide one response only.)

**45. Your e-mail:**

(Provide one response only.)

**46. Name of your organization**

(Provide one response only.)