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PERFORMANCE INFORMATION USE IN THE CANADIAN HIGHER EDUCATION SECTOR

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Abstract

The problem with many performance management (PM) systems is that organizational members do not always use performance information, the result of performance measurement, in a rational manner to improve the decision-making process. In other words, scholars have found that the adoption, design and implementation of PM systems, all of which can consume significant resources, will not automatically result in the use of performance data to inform organizational decision-making. A number of PM academics assert that research in the area of performance information (PI) use is key in order to understand why PM systems sometimes fail. As a result, there is a growing body of empirical studies that focus on identifying variables that foster or constrain PI use. This mixed methods study, set in the Canadian higher education sector, continues in the same vein. Faced with difficult financial constraints and growing demands for accountability universities around the globe are increasingly introducing PM systems and using the data derived from these systems to make a variety of institutional decisions.

Specifically, this study investigates the use of performance information (PI) to inform the decision-making process, stakeholder characteristics that may influence PI use and the strategies used to create a data driven culture.

The findings show that Canadian university leaders have an above-average level of PI use. As well, the qualitative data indicate that a desire to demonstrate accountability and respond to accountability demands are the main factors driving PI

use. However, the regression results are surprising. That is, even though faculty stakeholders are perceived to be very salient, there is no significant relationship between perceived faculty salience and PI use by university leaders. The only significant stakeholder relationship is between perceived staff salience and PI use. The findings also reveal a significant relationship between organizational size and PI use. As well, the predominant stakeholder management strategies regarding PM and PI use are involvement, collaboration, and monitoring, and peer influence is used to encourage non-supportive members to become supportive of PM and PI use.

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CHAPTER 1: INTRODUCTION TO THE STUDY

Introduction

In broad terms, this study examines performance management (PM) in the Canadian higher education sector. Specifically, it investigates the use of performance information (PI) to inform the decision-making process, stakeholder characteristics that may influence PI use and the strategies used to create a data driven culture. To do so, this project focuses on three main areas. First, it measures the extent to which senior university leaders across Canada use PI in the course of their work and identifies the main factors perceived by university stakeholders for PI use. Second, it examines the relationship between university leaders' levels of PI use and their perceptions of stakeholder salience. Third, this study investigates the strategies used by senior university leaders to manage stakeholder reactions to PM and PI use.

This first chapter introduces PM and discusses why it is important. This is followed by the problem statement, an overview of previous research conducted in this area and my perspectives on PM. The final section of this chapter discusses gaps in the literature, why these gaps need to be examined and the three research questions that would help close the gap. The chapter concludes with a discussion of the importance of this study to the field of PM.

Performance Management in The Public Sector

Measuring performance in the public sector is widespread (Politt, 2006; Speklé &Verbeeten, 2014). One reason for the focus is the belief that the public sector suffers from a performance deficit that can best be overcome by measuring the efficiency and effectiveness of a range of activities (Berman & Wang, 2000; Moynihan & Pandey, 2010). This has resulted in a significant

transformation in the way many public institutions are now managed (Groot & Budding, 2008; Hood, 1995; Pollitt, 2002). Although reforms vary, they share a number of common traits, including the ideas of economic rationality, efficiency and effectiveness as overarching principles in how public institutions should be managed, and the belief that the public sector can benefit from private sector practices (Hood, 1995; Pollitt, 2002; Ter Bogt, 2008).

PM is essentially a system and philosophy that includes a shared vision, teamwork, training and incentives that are linked to performance measurement (Lebas, 1995). In turn, performance measurement is defined as a set of metrics that quantify the efficiency and effectiveness of actions and are designed to support PM (Bourne, Neely, Mills, & Platts, 2003). Performance information, sometimes referred to as indicators or key performance indicators, is the result of performance measurement.

PM systems come in a variety of forms that cover a range of techniques. Some of these include strategic management, performance-based budgeting, balanced-scorecard, results-based management, entrepreneurial budgeting, public-expenditure management and governing for results (Hammerschmid, Van de Walle, & Stimac, 2013; Moynihan & Ingraham, 2004). Even though each approach is different from the others, their overall goals are similar: at the core of each initiative is the idea of measuring performance and then using the results to inform decision-making (Hammerschmid et al., 2013). Figure 1.1 illustrates how a typical PM system would function. It must be noted that the process of performance management is not a simple linear progression from the design to the use of performance measures. That is, a performance management system should include a mechanism for reviewing and revising the complete set of measures in use as organizational situations change (Bourne, Mills, Wilcox, Neely and Platts, 2000).

Figure 1.1 Performance management process.
Source: Horizon Management Group. Downloaded from http://www.horizonmg.com/Key-Steps-to-Implementing-a-Performance-Management-Process/pd/295/.

Why PM Research is Important

Melynk, Bitici, Platts, Tobias and Andersen (2013) stated that measuring performance has long been recognized as essential for the effective and efficient management of any organization. They proposed that PM facilitates effective control and correction by reporting on current levels of performance and then comparing it to desired levels of performance. The use of PM is frequently recommended for facilitating strategy implementation and enhancing organizational performance (see Davis & Albright, 2004). PM is sometimes viewed as the business equivalent of the body's nervous system in that it connects an organization's mission to what it is trying to achieve, while at the same time assessing the environment and allowing the organization to adapt along the way (Melynk, Bitici, Platts, Tobias & Andersen, 2013). However, although many academics and

practitioners endorse PM, it has also attracted critics (Pidd, 2005). These critics can be grouped into two broad categories: the first is concerned with how PM systems are designed and used and with the negative consequences of these systems, while the second questions the most fundamental issue, whether PM improves organizational performance. For example, in their discussion of the desirability and necessity of measuring public sector performance, Bouckaert and Balk (1991) stated, "government is efficient, because if it is not, why hasn't it changed already?" They identified thirteen areas of concern in public sector measurement, some of which include wrong assumptions underlying measurement, measurement errors and problems concerning the content, position and amount of measures. Likewise, Smith (1995) identified eight consequences of monitoring and investigating performance, contending that PM inhibits innovation and leads to tunnel vision and organizational paralysis. Others have argued that PM is not suitable for the public sector, in part because it consumes vast amounts of resources, leads to an audit culture and increases bureaucracy (Van Thiel & Leeuw, 2002). Similarly, Radnor and McGuire (2004) concluded that public sector managers often ignore PI because of information overload.

One of the most fundamental criticisms of PM is based on its key assumption, that it can make a positive difference in organizational performance. Put simply, does PM work? Research answering this question is scant (Poister, Pasha & Edwards, 2013), and a very small number of studies, discussed in detail in Chapter 3, show mixed results. In other words, some studies do indicate that PM works, while other studies provide evidence that it does not improve performance. There is no question that PM systems come in all shapes and sizes. Furthermore, poorly designed PM systems can not only be ineffective but also potentially harmful and destructive (Perera, Harrison & Poole, 1997). However, there is empirical evidence that PM improves not only perceived

performance but also actual performance as measured by increased effectiveness, outputs and outcomes, if done correctly and under certain conditions. Therefore, additional research in the area of PM is essential to understand under which specific conditions PM practices can produce improved performance (Micheli & Mara, 2013).

Statement of the PM Problem

As discussed above, several studies have shown that despite their pervasiveness in the public sector, PM systems do not always succeed. Indeed, McCunn (1998) claimed that 70 percent of all PM initiatives fail. The problem is that organizational members do not always use PI in a rational manner to improve decision-making (see Julnes & Holzer, 2001; Moynihan & Pandey, 2010; Taylor, 2011). In other words, scholars have found that the adoption, design and implementation of PM systems, all of which can consume significant resources, will not automatically result in PI use. As well, PM system failures can be costly. Data on how much is spent on PM systems are very rare, but a 2003 study by the Hackett Group found that the average billion-dollar company spent as many as 25,000 person-days per billion dollars of revenue putting together the annual budget (Wolf, n.d.). Even so, high-quality integrated PM systems, such as enterprise resource planning systems, which generate relevant and timely information derived from goals, may facilitate PI use. However, a high quality PM system is not enough. As will be discussed in Chapter 3, empirical research shows that other factors unrelated to the quality of PM systems also strongly influence PI use.

Why PM Systems Fail and Potential Solutions

Many scholars have asserted that research in the area of PI use is important to understand why PM systems sometimes fail. For example, Hatry (2006) suggested that the best indicator of whether PM is worth the effort is purposeful use, or lack thereof, of PI by public managers. As well, Van Dooren and Wouter (2008, 26) argued, "If we want to study the successes and failures of performance movements, we have to study the use of performance information." Moynihan and Pandey (2010) reinforced this view by asking the most important question relating to performance management: Why do managers use performance information?

Over the past decade, approximately 30 empirical studies on PI use have been conducted, with the majority (70 percent) of these studies conducted in 2007 and afterward. The focus of these projects has been, and continues to be, on identifying variables that foster or constrain PI use (Kroll, 2014; Rabovsky, 2014). In all, a total of 23 types of variables have been tested (these are discussed in detail in Chapter 2), which, according to Kroll (2014), can be classified as environmental, organizational or individual variables. Some examples of environmental variables include political and stakeholder support. The largest category is organizational variables, some examples of which include quality of the PM system, level of PM training, organizational culture, goal clarity, financial situation, level of unionization and organization size. Individual variables include attitude towards performance management, level of public service motivation, ideology and prior experience with PI use. Table 1.1 lists each variable type, the level of influence on PI use, the number of studies that examined this variable and the category – environmental, organizational or individual – to which it belongs. As demonstrated in Table 1.1, a majority of the variables tested fall into the organizational category. Several studies have proposed middle- range theories or

models and these are presented in Chapter 3. Although these empirical studies have advanced our understanding of PI use, there is not yet, as far as I am aware, any comprehensive model or theory incorporating all, or most, of the variables listed in Table 1.1.

Table 1.1

PI Use Variables Tested in Empirical Studies

Variable name	Level of influence on PI use	No. of studies testing this variable	Variable type
Goal clarity	Strong	3	Organizational
Leadership support	Strong	13	Organizational
Organizational culture	Strong	10	Organizational
Organizational support	Strong	5	Organizational
Positive attitude	Strong	7	Individual
Public service motivation	Strong	3	Individual
Quality of PM system	Strong	20	Organizational
Stakeholder support	Strong	11	Environmental
Unionization	Strong	2	Organizational
Financial situation	Mixed	6	Organizational
Ideology	Mixed	4	Individual
Political competition	Mixed	5	Environmental
Prior experience with PM	Mixed	3	Individual
Publication of PI	Mixed	2	Organizational
Reason for adoption of PM	Mixed	3	Organizational
Size	Mixed	8	Organizational
Collaboration with external organizations	Weak	3	Organizational
External demand for PI	Weak	2	Environmental
Professionalism	Weak	1	Individual
Sector type (e.g. health, education)	Weak	3	Organizational
Socio-demographic	Weak	23	Individual
Extrinsic rewards	None	2	Organizational
Leadership stability	None	1	Organizational

Source: Based on author`s tabulation of studies and calculations
Strong influence: approximately more than 80 percent of the studies found this variable to be significant
Mixed influence: approximately 50 percent of the studies found this variable to be significant
Weak influence: approximately less than 33 percent of the studies found this variable to be significant
No influence: approximately less than 10 percent of the studies found this variable to be significant

Researcher's Perspective

Even with a mixed record, the adoption of PM systems in the public sector endures (Moynihan, 2008; Boyne, 2006). As discussed in the previous section some scholars have been extremely critical of PM systems in the public sector, while others consider PM a fad, albeit one that

has existed for over 30 years. Others, such as myself, acknowledge that PM systems can be dysfunctional, but believe that results from performance measurement can be used to inform a host of organizational decisions and activities. As such, we examine PM system successes and failures in order to propose solutions to improve how, and the extent to which, PM systems are used to improve organizational performance.

Gaps in the Literature

In 2010, Moynihan and Pandey stated that despite the number of existing empirical studies on PI use, it was fair to assert that this body of research had not yet produced an overarching theory of PI use. Since their study appeared, over 12 empirical studies on PI use have been conducted. Many of these studies have examined previously tested variables, but at a deeper level or in a different setting. For example, different types of leadership styles, managerial involvement, organizational cultures and system quality issues were examined in more detail (see Kroll & Vogel, 2014; Taylor, 2011). Other studies have examined previously tested variables in different settings; among these studies are Saliterer and Korac (2013) and Taylor (2011), who studied PI use in Austrian and Australian local governments, respectively, and Rabovsky (2014), who examined PI use in US public universities. Recently, some studies have focused on individual level variables with significant results. For example, a positive attitude towards PM (see Kroll, 2013b; Kroll, 2014, Taylor, 2011) and a strong motivation to serve the public (see Kroll, 2014; Kroll & Vogel, 2014; Moynihan, Pandey, & Wright, 2012b) have both been identified as strong predictors of PI use.

Examination of the literature post-2010 also revealed significant progress in developing a theory of evidence-based decision-making (EBDM), a field that is very closely related to PI use. This conceptual theory of EBDM, developed by Baba and HakemZadeh (2012), hypothesizes that certain

factors will influence 1) the type of evidence a manager will use, 2) whether the evidence is incorporated into the decision alternatives, and 3) the final decision. However, based on my literature search, this theory (or components thereof) has not yet been tested.

Overall, although some important progress has been made in the area of research on PI use, this review indicates several gaps in the literature. This study focuses on three such gaps, which are discussed below and which form the basis for the justification of the research questions this study addresses.

Gap # 1 – Need to Study PI Use in Canadian Universities and Establish Baseline Data

The first gap in the PI use literature is setting. My literature search revealed that many PI use studies are of federal, state and local government units located in the US. I found one study on PI use in higher education outside Canada (Rabovsky, 2014). There is one Canadian study, an exploratory and descriptive doctoral dissertation (Chan, 2014) on the history of why and how key performance indicators were introduced for Ontario universities and the perception of key informants regarding the efficacy and impact of key performance indicators. Thus, based on my review of the literature, we still know very little about PI use in higher education in general and the Canadian higher education sector specifically, even though increasing numbers of Canadian universities have adopted some form of PM due to increased stakeholder demands for improvements in performance and accountability (LeRoux & Wright, 2010).

Higher education is an important sector in the Canadian economy. In 2016, Canadian universities generated over $35 billion in revenues, had over 1.7 million students registered and employed over 250,000 people (UNIVCAN, 2016). Moreover, baseline data on the extent of PI use in the Canadian higher education sector is essential to examining this phenomenon. Therefore, the

importance of this sector, the lack of data concerning PI use and evidence of improved organizational performance in certain instances of PI use leads to, and justifies, the first research question: To what extent do Canadian university leaders engage in PI use?

Gap # 2 – Perceived Stakeholder Salience and PI Use

Stakeholders are defined as any person or group that can affect, or be affected, by an organization (Freeman, 2010). There is also general agreement that it is important to devote appropriate attention to all legitimate stakeholders to achieve superior performance (Donaldson & Preston, 1995; Hillman & Keim, 2001). As well, in the long term, stakeholders can contribute to an organization's competitive advantage (Verbeke & Tung, 2013).

As indicated in Table 1.1, several studies have identified stakeholder support as a crucial factor in the success of PM and the extent to which an organization uses PI. To be clear, some stakeholders, such as unions, may not support PI use while others, such as funding agencies, may support it. Thus, do these opposing views influence whether a manager chooses to use PI? If so, will management pay more attention to those stakeholders who support PI or those who do not?

There are concrete examples of how stakeholders can affect decision-making in the Canadian higher education sector. For example, in Quebec, widespread student opposition to a tuition fee increase resulted in massive student strikes in 2012, a call for provincial elections and an eventual rollback of fee increases. The case of the University of Manitoba provides a more focused example of how opposition to PM and the use of indicators can mobilize employees to take action against a university. In 2013, on the verge of a strike, the University of Manitoba Faculty Association (UMFA) wrote a letter to the students of the University of Manitoba explaining their concerns (Dehaas, 2013):

> The administration has said that it is not attempting to reduce rights under the UMFA Collective Agreement. But the truth is that this administration is taking new initiatives outside the collective bargaining process that undermine academic freedom. It has proposed what it calls ***"performance management systems"*** that would control what research a professor could do, where that research could be published, and how it could be funded. Researchers would have to meet targets set by administrators, instead of having the academic freedom to choose research projects according to their best professional judgment. (Dehaas, 2013)

As result of mediation, the strike was averted and a three-year agreement was formulated for all the major issues, with both parties agreeing to have the remaining issues arbitrated (CBC News, 2013). However, in 2016, after the three-year agreement expired, the faculty at the University of Manitoba went on strike after, according to the UMFA, the university "failed to make a single meaningful, acceptable offer on UMFA's main priorities of job security for librarians and instructors, workload protection, *protection from performance indicators* and closing the salary gap" (CBC News, 2016). After three weeks, a deal was reached in which one of the issues that was agreed upon was a *limitation on the use of performance metrics* in assessing performance (McGuckin, 2016).

The example of the University of Manitoba demonstrates that university stakeholders such as, in this case, faculty can indeed influence the extent to which a university engages in PI use. This example also demonstrates that PM, and the use of PI, is a contentious issue for some university stakeholders, and the extent of PI use by senior university leaders can be influenced by aggressive action such as strikes. Baba and HakemZadeh (2012) also pointed out that stakeholders might impose their will on the decision-making process. In particular, in their conceptual theory of evidence-based decision-making, they identified stakeholder preferences as a variable that could influence whether evidence (or PI) was incorporated into decision alternatives.

As stakeholders, faculty at the University of Manitoba were able to influence the senior administration to reduce their use of PI. However, not all stakeholders are able to influence the extent to which PI is incorporated into the decision-making process, and thus will not always have their demands or preferences met. Indeed, Mitchell, Agle and Wood (1997) developed a typology of stakeholder salience, predicting that stakeholders would receive varying levels of managerial attention depending on how salient managers perceived those stakeholders to be. The authors defined salience as the sum of three components: the power of stakeholders to impose their will on the organization; the legitimacy of the stakeholders; and the urgency of the stakeholders' claim or concern. A complete discussion of this typology is presented in Chapter 3.

There have been many studies of the effects of powerful stakeholders on organizations (see e.g. Loi & Pearce, 2012; Hart & Sharma, 2004; Fineman & Clark, 1996). However, this question has not yet been examined from the perspective of PI use in a university setting. Thus, given the evidence that university stakeholders can affect an institution's level of PI use, it is important to empirically examine the relationship between perceived salience and PI use. As well, it is also vital to test one aspect of the theory of evidence-based decision-making – that stakeholder preferences and values may influence whether evidence (or PI in this case) is incorporated into the final decision. All of this leads to and justifies the second research question: Do Canadian university leaders' perceptions of stakeholder salience (such as faculty, students, staff and donors) influence their level of PI use?

Gap # 3 – Stakeholder Management Strategies

As has been discussed earlier, the idea of performance management and measurement in the higher education sector can be a sensitive topic, as some stakeholder groups will support PI use while others may oppose it. Therefore, stakeholder management is essential to garnering support for PM and increasing the chances of PM success.

In general, stakeholder management in higher education is a complex undertaking. For example, it has been observed that senior university leaders may not always be successful at effective and assertive leadership because of their position in the middle of the hourglass (Policano & Fethke, 2012). That is, pressure from governing boards above and powerful stakeholders, such as faculty, unions and students, from below may make it difficult for university leaders to move their agendas forward.

Thus, if universities wish to promote PI use, an examination of stakeholder management strategies on the issue of PI use is warranted. However, there has been little, if any, examination of how university leaders manage varying stakeholder views on PI use. Specifically, how do university leaders support and promote the PI use agenda? How do they encourage uncooperative stakeholders to engage in more data driven decision-making? It may be that understanding how university leaders effectively manage stakeholders on this specific issue, particularly unsupportive ones, and then communicating this understanding to university leaders may encourage increased PI use throughout the university sector in Canada. As a result, this leads to, and justifies, the third research question: What strategies do university leaders use to manage stakeholder reactions to PI use?

To summarize, this study answers the following three questions:

1. To what extent do Canadian university leaders engage in PI use? This leads to the following sub-question:

    a) What do stakeholders perceive to be the main drivers of PI use?

2. Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use? The four hypotheses for this question are:

    a) Perceived salience of faculty members influences PI use;
    b) Perceived salience of students influences PI use;
    c) Perceived salience of non-academic staff influences PI use;
    d) Perceived salience of donors influences PI use.

3. What strategies do university leaders use to manage stakeholder reactions to PI use?

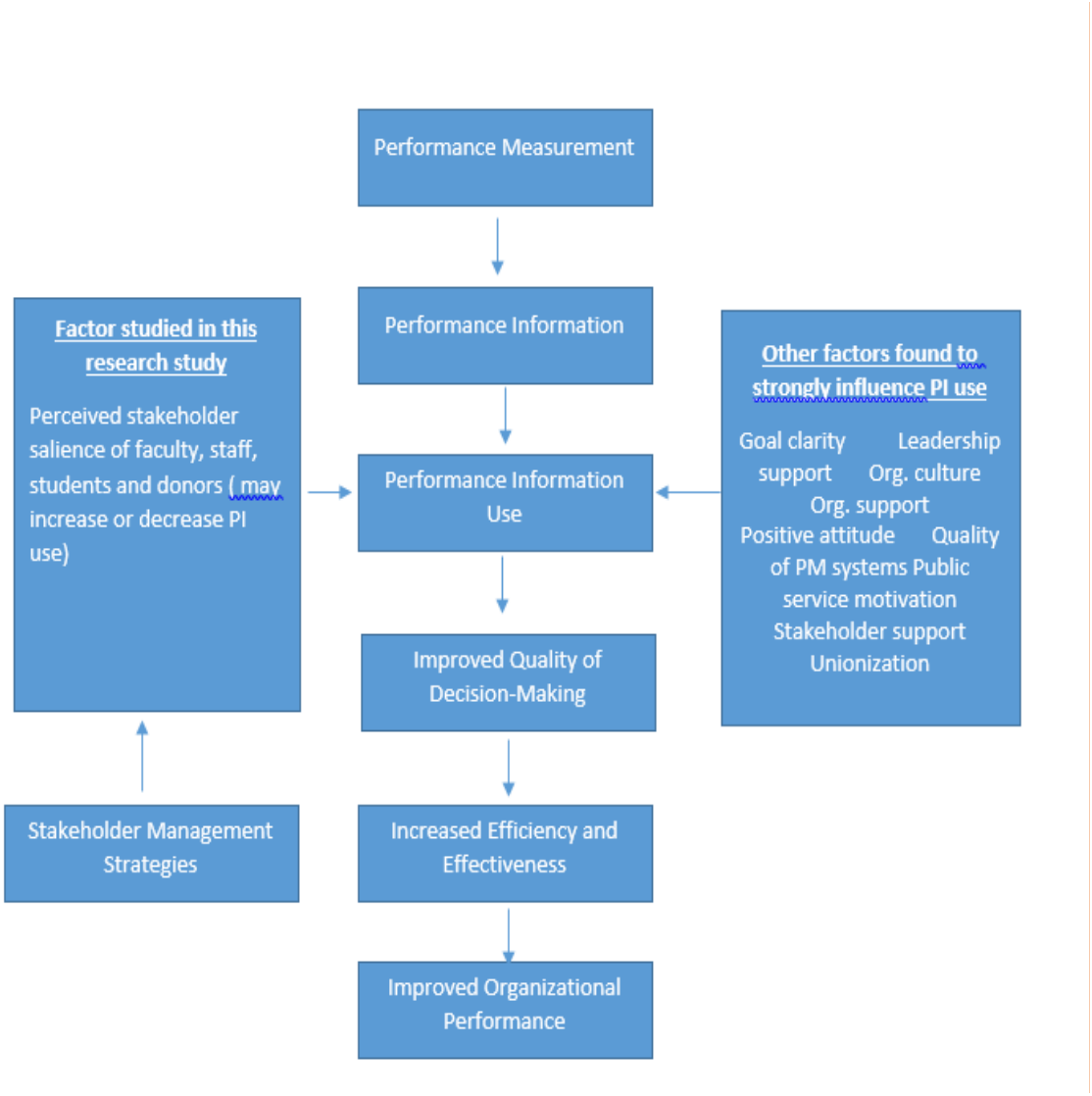
For the second research question, four groups of stakeholders were examined: faculty, students, staff and donors. This choice was influenced by Freeman's (2010) identification of five generic stakeholder groups: shareholders, employees, customers, government and communities. Although we know that governments are important stakeholders, as will be discussed in Chapter 4, the level of government oversight and involvement in the affairs of universities varies from province to province. Thus, this stakeholder group was excluded.

Summary of Research Proposition

This project is based on the position that the public sector needs to be more efficient and effective, and PM systems can lead to improved organizational outcomes if used correctly. Specifically, the use of PI to inform the decision-making process will result in higher quality decisions and superior levels of performance. However, stakeholder support, or lack thereof, is a major factor influencing PI use. Furthermore, depending on how salient stakeholders are perceived

to be, some may be able to influence the extent of PI use (or non-use) more so than other stakeholders. More precisely, those stakeholders whom university leaders perceive as salient may be more influential on PI use than those who are perceived as less salient. As well, because stakeholder support is crucial to PM success, it is necessary to manage stakeholders, particularly those who oppose PM and PI use, and find ways to bring them on board. Therefore, an examination of the strategies utilized to manage stakeholders and of the dissemination thereof is an important stage of the process of PM and PI use. A summary, in model form, of this study's proposition is presented in Figure 1.2. The theoretical frameworks used to guide this study are discussed in Chapter 3.

Figure 1.2. Model of performance information use.
Source: Created by author.



Importance of the Study

The overarching importance of this project is that it focuses on an important area in higher education: PI use. As has been discussed above, public sector reforms over the past 30 years have

focused on more managerial or corporate approaches to university management. One such approach is performance measurement, with the expectation that the PM results will inform the decision-making process (Broucker, De Wit, & Leisyteto, 2015). Once identified with Anglo-Saxon universities, this new way of managing the public sector has now begun to appear in many universities around the world, such as Portugal, Latvia, the Netherlands and Finland, to name only a few (Broucker, De Wit, & Leisyteto, 2015). The number of universities around the world is difficult to ascertain, but can be estimated as at least 16,000, which is the number of business schools estimated worldwide. Yet, with this many institutions of higher learning around the world, there has been very little research available on why, and the extent to which, universities engage in data-driven decision-making. This is the first study, to my knowledge, to provide empirical evidence on PI use across the Canadian university sector. Thus, this study will be useful both to researchers wishing to further examine PI use and to university leaders looking to create a more data-driven culture in their institutions.

This study also measures the perceived salience of four stakeholder groups – faculty, students, staff and donors – which, to my knowledge, has not been done before. Knowing how salient each group is perceived to be is useful for explaining certain behaviours towards these four stakeholder groups and may also explain each group's behaviour towards the university administration. Knowing how powerful each group is perceived to be may also assist university leaders to develop strategies to manage these stakeholders, which may include strategies to increase or decrease salience.

As well, it is generally agreed that powerful stakeholders may significantly affect an organization and this has been studied many times. However, it has never been examined in a PI

use setting. Therefore, this study adds an empirical examination of an important variable – perceived stakeholder salience - to the existing body of knowledge on PI use. The examination of perceived stakeholder salience also responds to a call by scholars (see Kroll, 2012; Kroll, 2015) to engage in a more extensive investigation of individual variables that could affect PI use. To clarify, many of the variables tested in previous studies are in the organizational category. However, some researchers regard PI use as an organizational behaviour (see Moynihan & Pandey, 2010), a behaviour carried out by humans whose thoughts, feelings, biases and attitudes, when faced with performance information, may result in changes in organizational activities or directions

As mentioned, there are recent empirical studies that indicate that PM can improve organizational performance, if done correctly. As well, prior research has shown that stakeholder support for PM strongly influences PI use. Yet, despite its importance, there has been very little examination of the strategies used to garner stakeholder support for PM and PI use. Because PI use is increasing in many universities, a study of how university leaders promote PI use, from a stakeholder's viewpoint, will provide practical and valuable insights for university leaders and administrators on which techniques work best.

Terms and Definitions

Performance Information

As PI can cover a broad range of information, it is important to examine the meaning of PI in the context of this dissertation. To do so, it is necessary to look at some of the definitions of performance measurement. Van Dooren, Bouckaert and Halligan (2015) defined performance measurement as an activity that systematically collects performance data. Hatry (2006) also emphasized the systematic nature of the process by noting that a key characteristic of performance measurement is regular tracking. In addition to regular and systematic collection, PI is self-produced by the organization and reported in a quantitative, aggregated form (Kroll, 2012).

Thus, for the purpose of this study, PI is defined as financial and non-financial information resulting from systematic measuring and reporting on the performance of activities, processes, services, products, departments, programs and business units that can be useful to administrators in performing their jobs. For the purposes of this dissertation, PI does not include individual employee performance evaluations. An example of PI in the higher education sector is the list of key performance indicators that are published on the websites of most Canadian institutions of higher learning. As well, PI also includes other information that is systematically collected and relevant to a specific department's activities.

Performance Information Use

What is PI use? As is discussed in detail in Chapter 2, PI use is often very vaguely defined or sometimes not defined at all. Most studies define PI use indirectly according to the ways in which they operationalize PI use. Therefore, based on how PI use is operationalized, we can deduce that most studies implicitly define PI use as the purposeful consideration and evaluation of PI in the

decision-making process. Examples of purposeful use include using PI to improve services through better-informed decisions, goal-based learning, or sanctioning and rewarding (Kroll, 2015). Some scholars view purposeful PI use as learning, which is mostly concerned with future improvements) as well as steering and controlling (Van Dooren et al., 2015). This type of PI use is considered purposeful because the performance movement identifies with values such as improved decision-making and efficiency, both of which imply purposeful use (Hatry 2006; Radin, 2006).

This study also defines PI use as the careful consideration and incorporation of PI in the decision-making process. For purposes of this study, I consider PI use to encompass monitoring, focusing attention, decision-making and legitimization activities. This definition of PI use is based on Henri's (2006) extensive analysis of the varying definitions of performance management systems, and is discussed in more detail in Chapter 3.

Thesis Organization

This dissertation consists of six parts. Chapter 2 discusses the higher education sector with a focus on the Canadian university system. Chapter 3 presents a literature review on PM systems, the results of the empirical studies on PI use and the theoretical frameworks that guide this study. Chapter 4 presents the methodology used to conduct this study. Chapter 5 reports the major findings of this study. The final chapter presents the discussion and analysis of the findings, the conclusion and limitations of the study and implications for future research.

Summary

To improve performance and to meet demands for better accountability, PM systems are increasingly becoming a fact of life for many public institutions, including universities. However, the

problem is that some studies have found that the goal of PM systems is often not achieved. That is, individuals are not using the data produced by PM systems to guide them in their organizational activities, including decision-making. As a result, some researchers maintain that the key to understanding the problem of lack of use is to study the factors that influence an individual to use (or not use) PI.

This study continues in the same vein and examines the extent of PI use across Canadian universities and the effect of perceived stakeholder salience of four stakeholder groups on the PI use habits of university leaders across Canada. The study also examines the stakeholder management strategies used by university leaders on the issue of PI use.

CHAPTER 2: CANADIAN HIGHER EDUCATION

Introduction

The first universities established in Europe were the University of Bologna (1088), the University of Paris (c. 1150) and the University of Oxford (1167). Harvard University, founded in 1636, claims to be the oldest institution of higher education in the United States. Yet, although universities have existed for many centuries, their structures remained relatively unchanged prior to the mid-20th century, where the primary focus was to gain and preserve knowledge through scholarly writing.

However, since the 1950s, the higher education landscape has changed dramatically both in Canada and worldwide. This chapter begins with a historical background of the evolution and organization of the Canadian higher education system, followed by a discussion of the current situation in the Canadian higher education sector. The final section of this chapter discusses performance management in higher education, both globally and in Canada.

Historical Evolution of the Canadian Higher Education Sector

Prior to confederation, under both the French and British regimes, the Church played a dominant role in education at all levels. The Constitution Act of 1867 led to the creation of the Dominion of Canada as a federation of four provinces (Ontario, Quebec, New Brunswick and Nova Scotia) with two levels of government, provincial and federal. At that time education was not an important portfolio to the authors of the constitution, as there were only about 1500 university students in Canada at that time (Cameron, 1991). As well, Canada's founders were concerned with threats of American imperialism and thus wanted to create a strong central

government. They did so by assigning responsibility for key issues such as trade and defense to the federal government, while lower level, less important dossiers such as education and health were assigned to the provinces.

By the beginning of the 20th century, there were many types of higher education institutions – public, private, secular and denominational – and their relationships with the government were limited and vague. In particular, after accusations of partisan interference and petty patronage at the University of Toronto, it became clear that the government's role and boundaries in the affairs of publicly funded universities needed to be clarified (Jones, 2014). Thus, at the start of the 1900s, a Royal Commission was struck to study university governance in Britain and the US. The Commission recommended that administrative oversight of a university be delegated to a governing board of individuals appointed by the government and that the university senate be maintained. In other words, a bicameral model of governance, under which the senate was accorded responsibility for all academic affairs and fiscal responsibility for the overall administration of the university, was delegated to the board.

The university student population did not experience significant growth between Confederation and World War II. The network of small Canadian universities served a small fraction of the population who were most often children of the political elite (Jones, 2014). In these cases, the institutions served as finishing schools for their daughters and prepared their sons for admission to professions. The exponential growth of higher education began in earnest after the end of the Second World War. As part of a benefits package, Canadian veterans were offered free university education, which included free tuition and a living allowance to pay for the basics. The federal government paid for this by providing direct per-

student grants to universities. The program was hugely successful, and in 1945-46 enrolment in Canadian universities increased by 46 percent when 20,000 veterans entered the university system, with another 35,000 enrolling the following year (Cameron, 1991). This, coupled with the change in post-war labor market conditions, created a growing demand for university education from other segments of the Canadian population. Excluding veterans, the number of students registered in universities increased by almost 70 percent between 1941 and 1951 (Jones, 2014).

Given this growth, universities began to request financial support for expansion in order to address the increasing demands for higher education, which the federal and provincial governments viewed as a way to further the economic and social development of the nation. The federal government became more involved by providing grants directly to the universities. However, this direct involvement created constitutional concerns for some provinces, as they felt the federal government was interfering in an area that was clearly a provincial responsibility. To resolve this issue, the federal government moved away from direct grants to universities and increased cash transfers to the provinces themselves.

By the early 1970s, each province had developed a distinct system of higher education, which consisted of institutions that were either part of the university sector or the non-university post-secondary sector, referred to as colleges or CEGEPs in Quebec (Jones 2014; Contact North, 2015). The provinces generally treated the university and non–university sectors quite differently with respect to the amount of autonomy that was granted to each (Jones, 2014). Universities were given much more autonomy than colleges in that each university had the freedom to determine its objectives and to set out a path to achieve them.

However, this was not the case for colleges. They were more tightly controlled and regulated than the universities, because the provinces viewed colleges as mechanisms to achieve certain public policy outcomes. For example, in Quebec, the college system was a result of the Quiet Revolution of the late 1960s and early 1970s, and was introduced by the provincial government in order to provide greater access to post-secondary education. In some cases, the Ministry of Education was directly involved in the day-to-day management of certain colleges (Jones, 2014).

After years of plentiful financial support to the higher education sector, the recession of the early 1970s led to significant cuts in government funding. Thus, the sector was forced to find solutions to its new financial realities. Anticipating that salaries could be subject to budget cuts, faculty quickly began to organize themselves (Jones, 2014). Indeed, by the 1980s, the majority of Canadian university professors were members of institution-based labor unions (Tudiver, 1999). Moreover, in addition to salary issues, collective agreements were negotiated to give faculty a larger say in how decisions were to be made. For example, agreements contained detailed appointment, tenure and promotion policies that involved peer review and collegial decision processes, decisions that had previously usually been the purview of the university administration (Horn, 1999; Jones, 2014). As well, there was now student and faculty representation on the senate and the board.

Starting in 1995, the federal government cut cash transfers to the provinces, and by 1998, they had been slashed by C$4.5 billion (Fisher, Rubenson, Bernatchez, Clift, Jones, Lee & Trottier, 2006). As a result, most provinces began to cut spending in many sectors, including higher education. However, because education was a provincial jurisdiction, each province

developed its own strategy to counteract the funding reductions. For one, significant tuition fee differentials among the provinces began to emerge. Ontario and Nova Scotia charged higher tuition fees to support university costs, while Quebec intentionally maintained low tuition fees for university students and continued to offer tuition-free education for CEGEP students. Nonetheless, despite the decrease in funding, governments continued to encourage universities and colleges to increase enrolment to address the continuing demand for higher education (Jones, 1996).

Today, 150 years later, education and health continue to be provincial jurisdictions. The result is that each of the ten provinces and three territories operates with very different institutional structures and regulatory arrangements. Several reports have observed (see Jones, 2014; Contact North, 2015) that having such a variety of structures goes against the accepted norms of organizational theory and systems design in that there is no federal ministry of higher education, no national education policy and no national quality assessment or accreditation mechanism for institutions of higher education.

The Current Situation in Canadian Higher Education

Canadian universities continue to face many challenges. From a financial standpoint, most are faced with increasing (and largely fixed) costs, decreasing revenues and a culture that is not conducive to rapid implementation of change strategies (Steele, 2010). The global state of the economy has also contributed to this crisis. For example, the 2008 financial crisis continues to affect university coffers, so that, for example, growing pension deficits are commonplace. In 2010, the Globe and Mail reported that Canadian university pension plans were collectively in a $2.6 billion deficit position (Bradshaw, 2010).

In most cases, government subsidies to the university sector continue to be slashed as provincial governments throughout Canada are being pressured to reduce escalating deficits and fund other priority sectors such as health care (Jones, 2014). For example, in Newfoundland, Memorial University's 2017 operating grant was slashed by $11.9 million to $315 million and the school is intensifying its search for efficiencies after having already implemented significant reductions and eliminating 60 positions (Roberts, 2017). In Nova Scotia, the university financial crisis led to the introduction of Bill 100, the University Accountability and Sustainability Act. This Bill allows universities that face severe financial difficulties to implement revitalization plans that suspend collective agreements and ban strikes for up to 18 months (Chiose, 2015). Bill 100 also allows the minister to ask for financial statements and to verify the sustainability of a university's financial operations. In Saskatchewan, universities are also facing deep budget cuts, as the University of Saskatchewan saw its 2017 budget sliced by 5.6 percent, or $18 million, the largest cut in the university's history, and has since been seeking alternative sources of funding to ensure its long-term financial sustainability (CBC News, 2017a; Giles, 2017). In May 2017, Manitoba Premier Brian Pallister sent a firm directive to all public post-secondary institutions to reduce their top management by 15 percent (CBC News, 2017b). The University of Winnipeg announced that it had eliminated $3.7 million in costs in order to achieve a balanced budget (CBC News, 2017c). These cuts were in addition to the $16 million in realized reductions over the last decade and the 15 percent elimination of senior management positions in July 2016 (CBC News, 2017 c). In Quebec, after years of budget cuts, the government announced that in 2017-18, it would increase education funding by 4.2 percent with approximately $1.5 billion for higher education

over 5 years (Bruemmer, 2017). In Ontario, some universities have had to make difficult decisions to reduce expenses. In 2015, faced with an $11.8 million deficit, Nipissing University cut 54 positions and closed its campus in Brantford (Paul 2015). As well, in the wake of a projected $25 million deficit for 2015-16, Wilfrid Laurier University eliminated 22 jobs and continues to look for efficiencies. The universities of Trent and Guelph are also looking to cut costs and boost revenues to deal with declining revenues and large pension deficits (Paul, 2015)

Shifting demographics have also significantly affected universities. In some areas of the country, enrolment has been in decline for several years, and is expected to start rising again only after 2020, when the grandchildren of baby boomers begin to set foot on university campuses (Trends in Higher Education, 2011; Brown, 2012). In other areas of the country, jurisdictions are aging quickly or are growing as a result of immigration. For higher education, this means there will be fewer individuals entering university directly from high school, or CEGEP in Quebec, and an increase in the number of mature students and immigrants who are often already in the workforce (Contact North, 2015). The impact of these shifting demographics is that institutions will need to offer greater program flexibility in program design and implementation, more on-line or blended learning, more recognition or prior learning and more collaborative programs with employers (Contact North, 2015)

Raising tuition fees to improve financial stress is not an obvious solution, and is often a very hotly contested issue. Canadians are socially inclined to public education, and a 2006 poll revealed that 60 percent of Canadians would support the total elimination of university tuition fees (CAUT, 2009). This inclination is evident in the numerous student demonstrations to protest against tuition fee increases. This was Quebec's situation in 2012 when the sitting

government, the Quebec Liberal Party, planned to raise annual university tuition fees. The proposed increase was $1625 (from $2,168 to $3,793) over a period of seven years, which amounted to $233 per year or $23.30 per course, based on 10 courses per academic year. Following this announcement, about half of Quebec's student population organized massive student strikes. One third of Quebec students continued to participate in the strike by its 100th day, while a quarter million had participated during its peak. The result was that an election was called which the Liberal Party lost and the new incoming government, the Parti Quebecois, rolled back the tuition fee increases.

A summary of the key features of the Canadian higher education system is presented in Table 2.1.

Table 2.1

Key Features of Canada's Higher Education System

Feature
1. Higher education is a territorial or provincial jurisdiction.
2. Higher education is predominantly delivered through public provision.
3. Different roles for colleges, universities and polytechnics.
4. Quality assurance is a patchwork quilt.
5. Shifting demographics are having an impact on institutions.
6. Governments demand more with less.

Source: Adapted from Contact North, 2015.

Performance Management in Higher Education

Higher education systems worldwide have become increasingly preoccupied with institutional performance evaluation. Institutions of higher learning have come under governmental and social pressure to demonstrate value for money performance (Lucier, 1992; Alexander, 2000). Thus, for many universities around the globe, performance management has

been an everyday reality since the introduction of "New Public Management" (NPM), an umbrella term covering a set of public sector reforms carried out in the 1980s and afterward across most OECD countries (Hood, 1995). NPM reforms emphasize a move away from traditional public administration toward public management. It was first introduced in Anglo-Saxon countries, and was then picked up and promoted by the OECD on a worldwide scale (Kettl, 2000). Though there are many variations of NPM, the process generally involves attempts to implement management techniques from the private sector, and it is seen as an increasingly global reality. Key elements of NPM include various forms of decentralizing management within public services, increasing use of markets and competition in the provision of public services and increasing emphasis on performance, outputs and customer orientation (Alonso, Clifton, & Diaz-Fuentes, 2015). Specifically, NPM has been generally associated with seven dimensions of change (Hood 1995). The first dimension of change is a shift towards a greater dismantling of public organizations into separately managed units. Second is a move towards greater competition between public sector organizations and between public sector organizations and the private sector. Third is a greater use of management practices traditionally ascribed to the private sector. The fourth dimension is an increased emphasis on discipline and parsimony in resource use, finding less costly ways to deliver public services. The fifth dimension promotes a more "hands on" style for top managers in order to establish a link between clear assignment of duties and accountability. The sixth dimension is a progression towards more explicit and measurable standards of performance for public sector organizations in terms of range, level and content of services provided. The seventh, and last, dimension is an attempt to control organizations by establishing output measures, an example of which is

setting remuneration based on job performance rather than rank or education. A summary of these NPM change dimensions is presented in Table 2.2.

Today, NPM-style reforms have been implemented across most of the western world and beyond (Alonso et al., 2015). For this reason, the development and application of performance measures have become an integral part of many western governments' approaches to the management of post-secondary institutions because of their link, whether actual or perceived, to improved organizational performance (Taylor, 2001).

Table 2.2

Seven Dimensions of NPM Change (Hood, 1995)

1. Dismantling of public organizations into separate units
2. Greater competition between public sector organizations and between public sector organizations and the private sector
3. Greater use of management practices traditionally ascribed to the private sector.
4. Emphasis on discipline and parsimony in resource use and finding less costly ways to deliver public services
5. A move towards a more "hands on" style for top managers in order to establish a link between clear assignment of duties and accountability
6. A move towards more explicit and measurable standards of performance for public sector organizations
7. Attempt to control organizations by setting establishing output measures

The worldwide expansion of access to higher education has also created increasing national and global demands for consumer information on academic quality. As a university education is an important life decision and significant investment, many students and their families are seeking metrics that will help them make informed choices in the selection of a university or a program. This had led to institutions reporting PI for this purpose and participating in the growing number of university rankings, both at the global and national levels. Donors, too, seek evidence that their money will be, or has been, well spent and has

furthered the academic mission.

Since the 1980s, PI use has increased dramatically in the higher education sector across OECD nations, with the heaviest users being the UK, France, the Netherlands, Scandinavia, Australia and New Zealand (OCUFA, 2006). In Canada, *Maclean's Magazine* is perhaps the best-known example of PI for Canadian higher education sector outside government and institutional efforts. Since 1991, *Maclean's* has been reporting the annual ranking of Canadian universities. However, despite its popularity, *Maclean's* methodology has been severely criticized for its lack of rigor (see Kong & Veall, 2005; Cramer & Page, 2007).

The National Survey of Student Engagement (NSSE), a North American survey of student satisfaction, has also been gaining popularity in Canada. Offered since 2000, the NSSE attempts to improve higher education by asking undergraduates about specific measures for levels of engagement on and off campus. In 2015, 73 Canadian institutions of higher learning took part in the survey, the largest number in its 15-year history (Hutchins, 2015).

At the provincial level, some governments have established their own performance indicators to monitor post-secondary institutions' performance, though these indicators vary from province to province. For example, in the mid-1990s, Ontario universities were mandated by the Ontario Ministry of Training, Colleges and Universities to report on three key performance indicators (KPIs): graduation rates, student loan default rates and postgraduate employment rates. Universities in the Atlantic Provinces have cooperated on the Atlantic Common University Data Set (ACUDS), which provides basic information, in a common format using common definitions, on all member universities. The categories of this data set include types of degrees offered, number of degrees offered, tuition fees, enrolment, undergraduate

class sizes and research awards granted, to name only a few. It is meant to complement the information each institution makes publicly available. In some cases, a part of the overall government funding can be tied to performance, but in general, the bulk of funding is usually based on enrollments.

Summary

This chapter is a review of the history of how the Canadian higher education system was created and the landscape of higher education today, with a particular emphasis on performance management in the sector. The most profound changes in higher education have occurred in the past 60 years, and in the wake of this unrestrained growth, many Canadian universities are experiencing financial crises due to decreased tuition revenues and government funding, and increased costs. Influenced by NPM, governments, the general public and consumers of education are demanding evidence of performance, which has led to an increase in the amount of performance information produced for a variety of purposes.

CHAPTER 3: LITERATURE REVIEW

Introduction

This chapter reviews the literature on performance management (PM) and performance information (PI) use variables. The first section of this chapter reviews the evolution of PM. After this, in order to understand why performance reforms have failed, I review the assumptions of PM. I follow this with a discussion of the three phases of PM – adoption, design and use – and the various theoretical perspectives that have been used to examine each phase. This is then followed by the results of two groups of empirical studies: those that examine the link between PM system and organizational performance, and those that investigate factors influencing PI use. The chapter ends with a summary of the theoretical foundations that guide this study.

Evolution of Performance Management

Performance management is not a new concept. Much of the earlier literature on this topic is categorized under the heading of management control systems (Ferreira & Otley, 2009). As well, the terms *management control systems, management accounting* and *management accounting systems* are sometimes used interchangeably (Chenhall, 2003). However, these terms are not entirely synonymous. Management accounting is a collection of techniques such as budgeting, while management accounting systems are the systematic use of management accounting techniques to achieve some goal (Chenhall, 2003). The term *management control system* is a much broader concept that includes not only management accounting systems, but other controls such as clan controls, which rely on values, beliefs, corporate culture, shared norms and informal relationships to regulate employee behaviour and help organizations reach

their goals.

The seminal work of Robert Anthony (1965) provided the first discussion of management control as a separate topic of scholarly study (Merchant & Otley, 2007). At that time, Anthony (1965) defined management control as "the process of assuring that resources are obtained and used effectively and efficiently in the accomplishment of an organization's objectives" and distinguished management control from both strategic planning and operational control (Otley, 1994). This narrow yet universal definition has led to a near-exclusive focus on accounting-based organizational controls aimed primarily at regulating the behaviour of managers (Otley, 1994).

The concept of management control has evolved over time with the transformation of the environment and the circumstances in which organizations operate (Carenys, 2010). Current concepts of management control systems vary widely, as some continue to have a narrow focus of management control and exclude strategy formulation processes from their control discussions while others utilize broader conceptualizations of management control (Merchant & Otley (2007). That is to say, management control systems may be defined to encompass almost everything managers do to acquire, allocate and manage resources in pursuit of the organization's objectives (Merchant & Otley, 2007).

Some scholars advocate studying management control systems from a broad perspective because these systems do not operate in isolation (Malmi & Brown, 2008). In other words, even though much of the research in management control considers single themes that are seemingly unconnected to one another, these themes are actually part of a broader control system (Malmi & Brown, 2008). Such a broad concept has led to the widespread use of the

descriptor *performance management*. This change in nomenclature is meant to reflect a holistic approach that includes all aspects of organizational control, including those under the heading of management control systems (Ferreira & Otley, 2009).

Performance Management and Goal Setting Theory

The influence of goal setting theory on PM and PI use research is evident as it is the foundation for many of the variables identified (see Table 1.1) as influencing PI use. Developed inductively, goal setting theory (Locke and Latham 2002; Latham and Locke 2007) posits that specific high goals lead to superior performance more so that easy goals, general goals (e.g., "do your best") or no goals. The link between goal setting and superior performance is that a specific high goal affects choice, effort, and persistence (Latham, Borgogni & Petitta, 2008). That is, a specific goal increases an individual's focus on what is to be accomplished rather than putting it off for a later date. The theory also identifies participatory decision-making, feedback, competition, and financial incentives as variables that affect a person's behavior to the extent that they lead to the setting of and commitment to a specific high goal. However, with respect to financial incentives the contrary is not true. That is, a lack of financial incentives does not impede the attainment of goal commitment. As well, according to Latham, Borgogni and Petitta, 2008, the effectiveness of goal setting is affected by several moderator variables – ability, commitment, feedback, task complexity and context and, as discussed below, all may be linked to PM and PI use.

Goal clarity, the essence of goal setting theory, has been identified as a strong predictor of PI Use. Goal clarity is said to exist when employees clearly understand the mission, vision, goals and strategic plans of the organization. The theory also proposes that individuals who possess

high ability with respect to a specific goal are more likely to achieve it than those with low ability. Moreover, if an employee lacks the knowledge or skill to perform a task, the three mechanisms (mediators) that explain the influence of goal effectiveness – choice, effort and persistence- on performance are not operative. In other words, the three cornerstones are not sufficient for goal attainment. In the extant PI use literature, learning forums and training sessions (Moynihan) have been identified as strong predictors of PI use. So has organizational support in the form of providing resources in the form of, for example, support to attend conferences or workshops on PM (Julnes & Holzer, 2001). This because they increase the knowledge and ability of employees with respect to using PI which has the effect of reducing the complexity of PI use.

Commitment is an indispensable variable in goal setting theory because no commitment is akin to not having a goal. Several PI use empirical studies have identified a positive attitude towards PM, which implies a commitment to PM, and public service motivation, which is a desire or commitment to serve the public, as strong precursors to PI use.

In goal setting theory feedback is necessary to establish whether progress on goal attainment is being made or whether corrective action is needed. Feedback is also an important element for PM and PI use. In this study, PI is the feedback and PI use is defined as the sum of monitoring, attention focusing, strategic decision-making and legitimization activities.

Goal setting theory states that context is a moderator variable in that it can enhance or minimize the effect of a specific high goal on performance. In organizational behavior terms

context refers to characteristics of an organization that facilitate or hinder an employee or team's behavior (Johns, 2006). These include the environment in which the organization exists, the organization's own culture climate, the physical work surroundings to name only a few. Again, in the PI use literature context is the foundation for some of the variables that have been found to influence PI use. Some of these include organizational size and culture, financial situation, political competition to name only a few. As well, the theory of evidence-based decision-making (Baba & HakemZadeh, 2012) identifies context as a variables that influences whether evidence (or PI in this project) is incorporated into the final decision.

Performance Management Assumptions

The first assumption underpinning PM is that organizational members can and will use PI to improve a host of activities and processes (Askim, Johnsen, & Christophersen, 2008; Hammerschmid et al., 2013; Taylor, 2009; Taylor, 2011). This assumption is based on the rational decision-making model, which regards the decision-making process as sequential, starting with problem identification and followed by collection of data, evaluation of alternative courses of action, selection of the preferred alternative and implementation of action (Taylor, 2009). The goal of the rational model is to make an optimal decision based on a careful evaluation of all information available. However, many scholars have argued that this assumption of the rational decision model is unrealistic; therefore, this assumption has been identified as a factor in the failure of previous public sector reforms (see Boyne, Gould-Williams, Law, & Walker, 2004; Moynihan & Pandey, 2005; Taylor, 2009).

The second assumption is that PI use is primarily facilitated by structural and technical advancements (Taylor, 2011). In other words, it is assumed that the path to a successful PM system is a purely technical issue.

The third assumption underlying PM is that PI will be used in a purposeful way, which is central to the PM doctrine. However, PI can be used in non-purposeful ways as well. Moynihan, Pandey and Wright (2012a) identified four ways in which PI can be used: perverse, political, passive, and purposeful. PI data are used perversely if they are used in ways that are contrary to the goals of performance management. For example, if call center employees are measured on the number of calls they process, they may cut short phone conversations with clients, thus decreasing customer satisfaction. PI can also be used in a political manner, for example, to argue for the legitimacy of a program or to make a case for resources. Members use PI passively if they perform the minimum in order to comply with various requirements. PI is used purposefully if it is used to shape strategic decisions, set priorities, innovate, and solve problems in order to improve programs and activities.

The fourth assumption, and the final one discussed here, is that using PI to inform decision-making will lead to improved organizational performance. Although all performance enhancement initiatives seek such improvements, PM systems often fail (McCunn, 1998). Furthermore, there are relatively few empirical studies of PM and organizational performance, so that the link between PM and improved performance is uncertain. However, as discussed above, the studies that indicate the effectiveness of PM in the public sector suggest that further study of PM is necessary in order to identify the conditions under which PM is successful (Micheli & Mara, 2013).

Theories Used to Study Performance Management

This section reviews the theories and perspectives used to examine the three phases of PM. As illustrated in Figure 3.1, the first phase is the decision to adopt PM systems. This is followed by the design and implementation of the PM system. Once the PM system is in place, the third phase is the actual use of the PM system because, as noted earlier, the presence of a PM system does not automatically result in organizational members using the PM system.

Figure 3.1. Three phases of performance management systems. Adapted from Bourne, Mills, Wilcox, Neely & Platts (2000).

Adoption of Performance Management Systems

The dominant theoretical framework associated with the adoption of PM systems is agency theory (Heinrich & Marschke, 2010), which holds that principals and agents have different preferences, and that agents are self-interested and opportunistic. Thus, by collecting performance data on agent activities, principals are able to independently verify those activities (Moynihan et al., 2012b).

The institutional perspective offers another lens through which researchers can examine why some organizations adopt control structures such as PM. Institutional theory suggests that organizations tend toward conformity or imitation and that the institutional environment can strongly influence the development of formal structures in an organization, often more

profoundly than market pressures (Vibert, 2004). For example, the adoption of innovative structures in early-adopting organizations may become so legitimized that organizations that do not adopt them are seen as irrational and negligent. At this point, new and existing organizations will adopt the structural form, even if it does not improve efficiency, because legitimacy in the institutional environment helps ensure organizational survival (Meyer, Rowan, DiMaggio, & Powell, 1991).

Contingency theory has also been used to explain why some organizational structures include PM systems, or to examine why an organization chooses to adopt one PM system over another (Bruns & Waterhouse, 1975; Chenhall, 2003). Contingency theory attempts to determine which organizational structures achieve the highest performance, and suggests that performance depends on the particular situation that an organization faces (Vibert, 2004). Organizational structures include elements of specialization of functions and roles, standardization of procedures, formalization of documentation, centralization of authority, span of control and configuration of role structure.

Certain contingency variables have been found to drive the adoption of PM systems. One such variable is organization size (Merchant, 1981). In large organizations, PM systems free senior managements' attention from processes that can be controlled by exception, and also provide them with information when their informal network is overloaded (Davila & Foster, 2005). Age is another such variable, based on the principle that as an organization ages, it learns, and management controls emerge to formalize this learning by codifying routines and liberating management attention from repetitive tasks (Davila & Foster, 2005).

Drawing from the entrepreneurship literature, Davila and Foster (2005) have identified

two drivers of PM system adoption, one of which is the introduction of a new leader. The replacement of a founder has been identified as a critical event in moving from an informal organization to one that formalizes its processes. The second driver is the presence of venture capitalists, which may encourage the adoption of control systems because venture capitalists generally regard control systems as important for the functioning and success of the organization.

Design and Implementation of Performance Management Systems

This section discusses two streams of research with respect to the design of PM systems. The first stream presents the perspectives and theories that have been used to inform the design of such systems. The second stream discusses scholarly work on the development of specific frameworks to identify relevant measurement dimensions and guide the design of concrete metrics.

The theories used to inform the design of PM systems have evolved over the years. In the earlier literature, these systems were viewed as formal mechanisms that coordinated human performance. Thus, researchers borrowed heavily from classic organization theorists such as Fayol (1949) and Taylor (1911), who both had a scientific, rational vision of organizations and their management systems (Carenys, 2010). However, as the limitations of using the scientific approach were identified (see Ouchi, 1977), scholars began to pay closer attention to the motivational factors that influence behaviour, and accepted that the crucial factors in the design of a PM system were not merely formal. As such, scholars started to draw on theories from the human relations school and open systems theory. The human relations

school advocates that humans are not merely the egoistic, utilitarian animals of neoclassical economic and scientific viewpoints, but have other, high-level psychosocial needs, and their social relationships at work heavily influence their productivity (Bruce, 2006). The theory of open systems was developed after World War II in reaction to earlier theories of organizations that treated the organization largely as a self-contained entity (Bastedo, 2004). The theory proposes that organizations are strongly influenced by their environments, and that an organization's survival depends on its relationship with the environment (Bastedo, 2004). Many modern theories of organization use the open systems perspective. For example, contingency theory argues that organizations are structured in ways that best fit the environment in which they are embedded (Vibert, 2004). Similarly, in resource dependency theory, organizations adapt to their environment as dictated by their resource providers (Vibert, 2004). Cultural theory has also been used to study how PM systems should be designed. Hofstede (1980) identified cultural beliefs, norms and values as the most important factors that shape the type of system an organization will adopt. For example, Ferreira and Otley (2005) developed their conceptual model of PM empirically by analyzing the management control systems in a range of organizations. Their PM model considered organizational culture and context, which reflects the idea that these concepts can influence the nature of PM systems in any organization (Ferreira and Otley, 2005).

Some examples of specific PM frameworks include the Performance Measurement Matrix (Keegan, Eiler, & Jones, 1989), the Performance Pyramid (Lynch & Cross, 1991), the Balanced Scorecard (Kaplan & Norton, 2001), and the Performance Prism (Neely, Adams, & Crowe, 2001). On the whole, these PM frameworks assume that organizational success is not

only a function of financial performance, but also of other performance dimensions such as process efficiency, customer satisfaction and the effectiveness of marketing activities.

Use of Performance Management Systems (PI Use)

The use of PI to inform decision-making is a human activity conducted by people with names, faces, personal histories, personal preferences, varying levels of competencies, organizational commitments and biases. As such, the current body of literature on PI use borrows from a number of theoretical perspectives to examine why an individual would choose whether to use PI. Some of these theoretical perspectives are drawn from fields such as, for example, economics, political science, social psychology, public administration, culture and leadership. Moreover, PI use studies often take multi-theoretical approaches due to the inherent weaknesses in using a single theory to explain the complex phenomenon of PI use (Saliterer & Korac, 2013). There are, however, some studies that do not identify a perspective, because they aim to build and empirically test middle-range theories, including variables that previous studies found significant (see Moynihan & Pandey, 2010; Yang & Hsieh, 2007).

The current body of empirical research has tested 23 categories of variables thus far. To facilitate the analysis and discussion of PI use variables, I use Kroll's (2014) three-way classification of PI use factors that categorizes each of these variables as environmental, organizational or individual. I use this classification as I am unaware of any other framework or typology to examine PI use variables.

Environmental PI Use Variables

The most widely tested environmental variables have been external stakeholder involvement and political competition. Julnes and Holzer (2001) viewed PM as an organizational change process that produces conflict, which is often resolved by internal political processes such as the formation of interest groups and coalitions. Thus, they have drawn on the field of political science and have used political models to analyze the roles that powerful groups (internal, external and unions) may play in facilitating organizational change. Johansson and Siverbo (2009) also used political theory to analyze the effects of ideology and political competition on PI use.

Another perspective from which to explain PI use is contingency theory, which maintains that contingencies or sources of uncertainty facing an organization shape the organizational design (Vibert, 2004). Based on this, Saliterer and Korac (2013) borrowed from contingency theory to support their prediction that greater resource availability would have a negative effect on PI use, because only when resources are lacking will organizations look for ways to improve their performance.

Organizational PI Use Variables

Most of the PI variables that have been studied are organizational variables. As these factors are varied in nature, a number of different perspectives have been used to analyze their effect on PI use.

Some studies have viewed PI use as a product of organizational culture and thus have used cultural theories to propose that certain types of culture, especially those that are more open to change, are more likely to engage in higher levels of PI use (see Johansson & Siverbo,

2009; Julnes & Holzer, 2001; Taylor, 2011). Johansson and Siverbo (2009) justified their hypothesis that the financial situation of an organization would affect PI use with rational theory, which presupposes that inefficient organizations will look for ways to improve their performance. As well, the rational model framework, which views PI use as a purely technical issue, provided the theoretical foundation for Julnes and Holzer's (2001) hypotheses that resource availability, training and goal orientation increase PI use. In another study, Berman and Wang (2000) interpreted PI use from the point of view of the change process, and more specifically the conditions or capacities that were necessary in order to achieve successful changes. This view led them to identify technical capacity and stakeholder support and participation as important antecedents of PI use. Johansson and Siverbo (2009) employed an element of new institutional sociology - the tendency to imitate similar organizations - to support their prediction that PI use is higher in municipalities following prevailing trends or fads.

The leadership variable has been tested extensively, and although leadership studies have offered a variety of theoretical approaches, the body of research largely supports the idea that leadership matters to organizational performance (Moynihan & Ingraham, 2004). Dull (2009) proposed that leadership commitment is associated with higher levels of PI use, basing this prediction on the logic of credible commitment drawn from the study of institutional political economy. The transformational model of leadership focuses on the relationship between leaders and their subordinates, and is a form of leadership especially suited to fostering organizational change (Moynihan & Ingraham, 2004). Moynihan, Pandey and Wright (2012a) proposed that transformational leadership indirectly influences PI use through its effect

on organizational culture and goal clarity. To explain their predictions of PI use, Moynihan and Ingraham (2004) used an integrative approach to leadership, which is concerned with the ways in which public officials use management systems to improve performance, and argued that effective leadership is exhibited through actions that build and improve organizational abilities.

Moynihan and Landuyt (2009) posited that the key assumptions underpinning improvement initiatives such as PM are essentially learning theories. That is, public sector managers will learn from PI, which leads to more informed decision-making and ultimately improved performance. Thus, more recently, some authors have studied PI use through an organizational learning lens (see Askim et al., 2007; Moynihan & Pandey, 2005; Moynihan & Landuyt, 2009). The concept of organizational learning is that improvement is possible if organizational actors identify and use information to improve their actions (Moynihan & Landuyt, 2009). Thus, organizational learning has provided a theoretical model for the study of certain variables that may improve organizational performance. One such variable is learning forums, in which managers and staff regularly meet to discuss PI with the objective of learning constructively from their mistakes (Askim et al., 2007; Moynihan & Landuyt, 2009). Overall, although the academic community is divided on how to define, identify and study organizational learning, there is a general agreement that organizational learning is a useful model for the study of interactions between information, knowledge, organizational action and change (Askim et al., 2007).

Individual PI Use Variables

There is a growing recognition that the individual behaviour of PI use warrants deeper examination (Kroll, 2014). For example, Kroll (2013b) drew on theories from the area of social

psychology to support his study. He investigated the effects of attitude towards PM and social norms on PI use, and based his propositions on the theory of planned behaviour. This theory suggests that the performance of a behaviour is contingent on three factors: an individual's attitude toward a behaviour, perceived norms and behavioural control. In another study, Kroll (2014) employed concepts of social identity to explain intergroup behaviour. He proposed that prior to the advent of New Public Management, the predominant identity of public sector employees was that of public servant. However, an additional identity emerged with New Public Management, which was associated with values such as efficiency, change and progressiveness, and these values were to some extent in conflict with pre-reform values. Thus, Kroll proposed that PI use would be less prevalent among those individuals who identified as public servants. He also used concepts from the area of emotional intelligence (EI) to test his proposition that individuals with high levels of emotional intelligence tend not to use PI because managers with high levels of EI are generally more approachable, and are thus able to collect information and data from subordinates in other ways.

The theory of public service motivation (PSM) has been successful in explaining the PI use habits of civil servants, and is recognized as a valuable alternative to economically founded theories of behaviour (Kroll, 2014). PSM, often thought of as altruism, is a characteristic associated with public sector employees, which results in a desire to serve the public (Moynihan et al., 2012b). This, in turn, leads employees to experience task identity, task significance and, as a result, higher job motivation (Kroll & Vogel, 2014). PSM has been used as a theoretical basis for the proposition that employees with high levels of PSM tend to be high-level users of PI (see Kroll, 2014; Kroll & Vogel, 2014; Moynihan & Pandey, 2010; Moynihan et

al., 2012b). Table 3.1 summarizes the different perspectives from which to examine the adoption, design and use of PM systems.

Results of Empirical Studies – Effect of PI Use on Performance

This section discusses the results of six empirical studies on the effectiveness of PM systems in the public sector. In all cases, the dependent variable is organizational performance. Three studies measured perceived performance, and the other three studies measured performance using hard data such as test scores and actual outcomes.

Verbeeten (2008) conducted a study of managers in Dutch public institutions (mostly government organizations) and examined the link between clear and measureable goals and perceived performance. Using a structural model, Verbeeten showed that clear and measureable goals were positively associated with both the quantity (efficiency and production targets) and quality of performance (innovation and employee morale). Overall, Verbeeten's findings revealed that specification of clear and measureable goals appears to provide focus in operations and improves performance.

Table 3.1

Summary of Perspectives Used to Examine the Three Phases of Performance Management

Area of PM Research	Perspective Used to examine PM	Premise of Perspective
Adoption of PM Systems	Agency Theory (Heinrich & Marschke,2010)	PM adopted to collect data on agent activities
	Institutional Theory (Meyer et.al, 1991)	Institutions tend toward conformity and adopt PM to ensure legitimacy
	Contingency Theory (Bruns & Waterhouse,1975; Chenhall, 2003)	Adoption of PM depends on circumstances of the organization
	New Leader (Davila & Foster, 2005)	New leaders adopt PM to formalize processes
	Venture Capitalists (Davila & Foster, 2005)	PM adopted to satisfy investors that organization is well-managed
Design of PM Systems	Classic Organization Theory (Carenys,2010)	Formal systems based on the scientific and rational methods
	Human Relations Theory (Ouchi,1977)	Employee satisfaction is key to productivity and quality
	Open Systems Theory (Ouchi,1977)	Design recognizes that organization is dependent on its environment
	Cultural Theory (Hofestede,1980)	Cultural norms influence the type of PM system an organization will adopt
Use of PM Systems		
Environmental Variables	Political Theory (Julnes & Holzer,2001; Johansson & Siverbo, 2009)	Powerful groups, ideology and political competition influence PI use
	Contingency Theory (Saliterer & Korac, 2013)	Environmental circumstances of the organization influence PI use
Organizational Variables	Cultural Theory (Julnes & Holzer,2001; Johansson & Siverbo, 2009; Taylor, 2011)	Certain cultures may be more open to PI use than other cultures
	Rational Theory (Julnes & Holzer, 2001)	Rational Factors (e.g. training, quality of PM system) influence PI use
	Change Theory (Berman & Wang, 2000)	PM is a change process and certain capacities are needed for success
	Leadership Theory (Dull, 2009; Moynihan & Ingraham,2004; Moynihan et.al, 2012a)	Leadership commitment to PM influences PI use
	Learning Theory (Moynihan & Landuyt, 2009)	Organizational learning, such as learning forums, influence PI use
Individual Variables	Theory of Planned Behaviour (Kroll, 2013b)	Attitude, perceived norms and behavioural control influence PI use
	Identity Theory (Kroll, 2014)	PI use is influenced by the group one identifies with
	Emotional Intelligence (EI) (Kroll, 2014)	High EI managers collect data from others and rely less on formal PI
	Public Service Motivation Theory (Kroll, 2014; Kroll & Vogel, 2014, Moynihan & Pandey, 2010; Moynihan et.al, 2012b)	Employees with high levels PSM engage in higher levels of PI use

However, Speklé and Verbeeten (2013) later found that PM works only in public sectors that exhibit certain characteristics. The dependent variable of organizational performance was measured by the amount or work produced, its accuracy, number of innovations, reputation for unit excellence, attainment of production/service level goals, efficiency and morale of unit personnel. Three independent variables measured 1) clarity of mission and goals; 2) measurability of outputs; and 3) the extent of clarity, rules and standards for performing tasks. Their conclusion was that PM, as a means to improve public sector performance, may apply only to a subset of public sector organizations. This subset includes those units that are characterized by clear missions, measurable outputs and logical, clear and rule-oriented processes for performing tasks. These findings imply that PM cannot be applied universally across all public sectors equally.

LeRoux and Wright (2010) examined the link between the use of performance measures and the perceived quality of strategic decision-making in nonprofit social service agencies. The independent variable in this study was reliance on performance measures such as workload and output indicators, unit cost and efficiency measures, outcome and effectiveness measures, customer satisfaction ratings, external audit information and industry standards or benchmarks. Their findings indicated a significant relationship between PI use and performance in that for each unit increase in the use of performance measures, the perceived effectiveness of the strategic decision-making increased by 0.04 standard deviations ($p < .01$).

Another group of scholars studied the effect of PM systems in small and medium-sized public transit systems in the United States (Poister, Pasha & Edwards, 2013). This study used the hard data of passenger trips to measure performance. Their results demonstrate that both

strategic planning and performance measurement, two principal components of PM, contribute to improved performance in this sector. As well, their overall findings indicate that engaging more proactively in PM practices is associated with improved outcomes in this industry.

Two separate studies in the education sector compared test scores with PM practices, but produced different results. The first study, by Sun and Van Ryzin (2012), examined the relationship between PM practices and educational outcomes – the dependent variable – as measured by standardized test scores in math and English. The independent variable measured the extent of: 1) setting measureable goals including interim goals with time frames; 2) the use of periodic assessment and other diagnostic tools to measure the effectiveness of plans and interventions for students; and 3) the use of PI to revise plans in order to meet goals and make strategic decisions. The empirical results of this study show that schools with better PM experience better outcomes in terms of both level and gain in standardized test scores even when controlling for student, staffing and school characteristics. The second study, by Hvidman and Andersen (2013,) hypothesized that PM is less effective in the public sector than in the private sector. They examined the effect of PM, specifically of PI use, on the performance of 9th grade Danish students on year-end final examinations in both Danish public and private schools. The results of this study showed that PM improves performance in the private sector, but not in the public sector, thus contradicting the management assumption of NPM that private sector techniques such as PM can be easily transferred to the public sector. The authors suggested that characteristics of the public sector reduce the effectiveness of PM because of the fundamental differences between the two sectors. For example, they stated that managers in private organizations often have a greater variety of internal organizational

actions at their disposal, more autonomy and better options for exploiting their environment. In other words, these managers have more opportunities to implement changes as a result of PI. Thus, Hvidman and Andersen concluded that as outcomes of PM ultimately hinge on managers' ability to use PI, PM would be less effective in public organizations than in private ones.

In summary, these empirical studies on the effectiveness of PM demonstrate mixed results. However, the evidence indicates that PM does work in the public sector in certain circumstances, which supports the argument in favour of continued study of PM.

Results of Empirical Studies - PI Use

This section begins with a review of how empirical studies conceptualize and operationalize PI use, and then presents the results of various studies of PI use and perceived PM effectiveness. These results are presented in two categories: variables that strongly support PI use and perceived PM effectiveness, and variables that show mixed support for these same dependent variables.

How Performance Information Use is Conceptualized

What does PI use mean? Extant empirical studies of PI use tend not to elaborate on the concept of PI use (Moynihan et al., 2012a). Rather, most of these studies have operationalized and measured PI use as a behaviour that managers may exhibit in a variety of narrowly or broadly defined organizational activities. For example, Rabovsky (2014) takes a sector-specific definition of PI use as the extent to which PI is used to evaluate deans, track research productivity and assess the teaching ability of faculty and instructors. Other studies have

measured PI use in several universally common organizational activities, such as communicating program successes to stakeholders and the public, advocating for resources, allocating resources, making decisions, setting priorities, identifying problems, tracking goal achievement, making improvements and directing organizational activities (see Hammerschmid et al., 2013; Kroll, 2014; Kroll &Vogel, 2014; Henri, 2006; Moynihan & Ingraham, 2004; Moynihan & Lavertu, 2012; Moynihan et al., 2012b; Saliterer & Korac, 2013; Taylor, 2009; Taylor, 2011).

The argument for using broad dimensions of PI use is that researchers are thus able to study and compare a wider range of public sector organizations (Hammerschmid et al., 2013). The counter-argument, however, is that some sectors have unique characteristics that warrant more specific definitions of PI use (Rabovsky, 2014).

Some studies have viewed PI use as one-dimensional, while others interpret PI use as multi-dimensional. For example, Johansson and Siverbo (2009) asked the question "To what extent does one make use of ratio comparisons in your municipality?" Likewise, Moynihan and Pandey (2010) measured PI use by asking respondents to assess the statement, "I regularly use PI to make decisions." The authors defended the use of a one-item scale by stating that multiple measures of PI use are often so highly correlated that aggregating them into a single scale is appropriate. On the other hand, Rabovsky (2014) argued that while using one dimension is reasonable from a statistical viewpoint, this approach limits our knowledge of the subtle but important ways in which PI can be used.

As previously mentioned, PI can be used in political, perverse, passive or purposeful ways. However, a significant majority of studies have examined the purposeful use of PI, due to the performance movement's identification with values such as improved decision-making and

efficiency, both of which imply purposeful use (Hatry 2006; Radin, 2006). In addition, when research subjects are asked about the extent of their PI use habits, they normally link these habits to purposeful use, unless they are explicitly directed to do otherwise (Moynihan et al., 2012b). The one study that assumes both purposeful and political PI use (Moynihan et al., 2012b) examined the latter as a means of advocating for an agency's legitimacy in order to obtain new resources.

Overall, the extant studies of PI use clearly confirm that there are different ways to conceptualize and measure PI use. This can be problematic for two reasons. First, when PI use is narrowly and specifically defined, there is the possibility that robust PI use exists for a certain activity or process, but because it is not covered in such a narrow conceptualization, it is ignored. Second, if PI use is too broadly defined, it is left open to a wide array of interpretations; thus, PI use means different things to different people. Moreover, how PI use is conceptualized is inextricably tied into how it is measured. If there are inconsistencies in how PI use is interpreted, there will invariably be inconsistencies in the results, all of which can affect the reliability, validity and comparability of studies on PI use.

However, research on PI use is far from a mature field of study; therefore, using broad, loosely defined conceptualizations may be appropriate given the developmental stage of empirical research (Moynihan & Landuyt, 2009). Nonetheless, despite differences in how PI use is conceptualized, the one thing on which all previous studies seem to agree is that PI use entails more than simply collecting and reporting performance data.

Variables that Strongly Support Performance Information Use

Goal Clarity

Goal clarity is said to exist when employees clearly understand the mission, vision, goals and strategic plans of the organization. Moynihan and Landuyt (2009) showed a significant relationship between employees with a good understanding of the mission, vision and strategic plan of their organization and PI use. Similarly, Moynihan, Pandey and Wright (2012a) also found strong support for the link between goal clarity and PI use.

Leadership Support

Enthusiasm for PM (Ho, 2006), the willingness to self-evaluate (Ammons & Rivenbark, 2008; Boyne et al., 2004) and a credible commitment to achieving results (Dull, 2009) are characteristics of leadership support, a strong predictor of PI use and perceived PM development. Leaders show support by communicating credible commitment to performance systems through symbols, the allocation of resources to performance management, and leadership attention and involvement (Askim et al., 2008; Dull, 2009; Ho, 2006; Melkers & Willoughby, 2005; Moynihan & Ingraham, 2004).

Several studies have evaluated leadership support in general, while others have looked for specific indicators of leadership support. For example, Dull (2009) and Moynihan and Lavertu (2012) used a single survey item to ask whether an organization's leadership demonstrates a strong commitment to achieving results. Other studies adopted more targeted approaches and examined the extent to which leaders were actively involved in a variety of PM activities, such as routine reviews (see Ammons, Liston & Jones, 2013; Boyne et al., 2004),

strategic planning processes (see Moynihan & Ingraham, 2004) and follow-up activities (see Askim et al., 2007).

Various studies have examined types of leadership, with mixed results. Moynihan, Pandey and Wright (2012a) identified transformational leadership, which appeals to higher-order needs, as a type of leadership that indirectly, through goal clarity and organizational culture, sets the stage for high levels of purposeful PI use. On the other hand, Kroll and Vogel (2014) found no support for a direct link between transformational leadership and PI use, and explained this result by indicating that respondents may have a tendency to use other types of non-routine PI. Moynihan and Pandey (2010) concluded that generalist leaders, such as city managers, use PI less often than function-specific leaders. However, whether a leader identifies as a shaping manager or a state servant (Kroll, 2014), or whether leadership is stable (Askim et al., 2007), have no effect on PI use. As well, Moynihan and Ingraham (2004) have shown that the effect of leadership support on PI use depends not only on the type of leader but also on the level of employee response to leader initiatives.

As a whole, results indicate that leadership support significantly predicts PI use and supports previous evidence of the critical role that leaders may play in the facilitation of organizational change (Pettigrew, 1985).

Organizational Culture

The majority of studies of organizational culture have found it a strong predictor of PI use. Schein (1985) defined organizational culture as "the way things are done around here," and Taylor (2011) categorized it as either developmental, group, hierarchical or rational. Developmental cultures are preoccupied with organization, flexibility, growth and resource

acquisition. Group cultures focus on people in the organization, employee cohesion, and morale. Hierarchical cultures emphasize uniformity, coordination, evaluation and ensuring internal efficiency and organizational stability. Rational cultures focus on productivity, performance, goal fulfillment and achievement.

It has been hypothesized that an organizational culture that accepts PM is more likely to use PI for decision-making than a culture that is skeptical of or opposed to the implementation of such a system in the organization (Taylor, 2011). Specifically, Moynihan, Pandey and Wright (2012a) established a significant relationship between a developmental culture and PI use, whereas Taylor (2011) and Saliterer and Korac (2013) found that rational cultures are important predictors of PI use. Johansson and Siverbo's (2009) results confirmed their hypothesis that organizations that offer managers the opportunity to experiment, accept protest and disagreement, and pursue curiosity and novelty will experience higher levels of PI use. Similarly, Ammons, Liston and Jones (2013) found that an organizational culture or management philosophy that emphasizes data-driven decisions and the importance of performance improvement leads to higher perceived levels of PM success. Only one study (Kroll, 2013) revealed that the presence of a developmental culture was insignificant when identified as a control variable.

Organizational Support

Organizational support, a strong predictor of PI use, is support other than leadership and stakeholder support that facilitates PI use. Examples include providing support in the form of learning opportunities and professional development activities, either internal or external to the organization. These activities allow organizational members to hone their skills in using and

interpreting PI. Learning forums have been identified as a type of organizational support; these include activities such as strategic planning routines, after-action reviews, benchmarking processes, or other routines in which managers actively engage in the regular examination of performance data with peers and supervisors. Two studies (Moynihan & Lavertu, 2012; Moynihan & Landuyt, 2009) showed that the existence of learning forums significantly supports organizational learning. Moynihan and Landuyt (2009) also established that work groups with the characteristics of learning forums, such as inclusiveness and dialogue, consideration of performance information, and a desire to foster improvement, very strongly supports organizational learning. Similarly, Ho (2006) found that the higher the frequency of meetings to discuss performance data and performance, the higher the level of perceived effectiveness of PM.

Resources are another way to provide organizational support. For example, Julnes and Holzer (2001) found that if employees have access to publications and on-line services about performance management, or are able to attend conferences and workshops on the topic, PI use increases significantly.

Organizational support can also be demonstrated by allowing managers to actually use PI. For example, a manager may be willing to use PI but cannot because of organizational regulations, rules or bureaucracy. Moynihan and Landuyt (2009) showed that allowing a manager the discretion to use PI positively affects PI use. Similarly, Moynihan and Pandey (2010) found that when managers have the freedom and flexibility to pursue process changes, PI use also increases.

Positive Attitude Toward Performance Management

Organizational actors with positive attitudes towards PM experience higher levels of PI use. A positive attitude is defined as a favorable disposition towards innovation, change and performance measures (Ho, 2006; Julnes & Holzer, 2001; Kroll, 2013) and a willingness to be compared to others (Ammons & Rivenbark, 2008).

Julnes and Holzer (2001) examined attitudes towards innovation, change and performance measures. The results of their study showed that when rational/technocratic factors are not included in the model, a positive attitude towards PM has a significant effect on PI use. Kroll (2013) established that a positive attitude and social norm, mediated by the manager's intentions, strongly supports PI use. As well, when employees are easily motivated to be results-oriented, PI use increases (Moynihan & Lavertu, 2012). Ho (2006) demonstrated strong support for the hypothesized link between individuals' enthusiasm for benchmarking and perceptions of PM effectiveness. As well, Ammons and Rivenbark (2008) found that city administrators who are willing to be compared to others are more likely to use performance measures to improve operations. The authors referred to these administrators as enthusiastic comparers who, even when their own performance was shown to be lacking, retained a positive attitude towards performance management. The only study that reported mixed results on the positive attitude variable (Saliterer & Korac, 2013) showed that having a pro-PM attitude has a positive influence on PI use habits of mayors, but an insignificant impact on those of chief officials.

Public Service Motivation

Public service motivation (PSM), a particular form of altruism (Bozeman & Su, 2015),

is gaining popularity in the literature on PI use. PSM is defined as beliefs, values and attributes that go beyond self-interest and organizational interest to encourage employees to do good for others and contribute to the well-being of society (Kroll & Vogel, 2014), and can be regarded as a form of altruism (Rainey and Steinbauer, 1999). Employees with high levels of PSM experience task identity and perceived task significance in their work, which leads to higher job motivation, which in turn is the foundation for the extra effort they put into their daily work (Moynihan et al., 2012b).

Vogel & Kroll (2014) demonstrated that PSM has a significant effect on PI use. Moynihan and Pandey (2010) showed similar results, which remained relevant even after job attributes and both organizational and external factors were taken into consideration. The study also tested the effect of reward expectations, which turned out to be insignificant. Based on these findings, the authors concluded that PI use is fostered by altruism rather than self-interest.

Quality of PM System

Several studies have identified quality PM systems as important factors in PI use. The essential components of a quality system include specific characteristics of PI itself, human expertise, and adequate technical and information systems.

When managers see PI as useful to their needs, they are more likely to engage in PI use (Kroll, 2013; Taylor, 2009). This includes the ability to obtain relevant and timely PI (Dull, 2009, Moynihan & Landuyt, 2009). However, the amount of PI available has no effect on PI use (Boyne et al., 2004), but the perception that PI is available does influence PI use (Moynihan & Pandey, 2010). Ammons and Rivenbark (2008) found that the use of higher-order metrics

(efficiency versus input measures) leads to higher levels of PI use. As well, Taylor (2009) found that when performance indicators are derived from goals and used to track performance, PI use increases significantly. In a later study, Taylor (2011) showed that when PI is easy to understand, measures what it is supposed to measure, is linked to a specific goal, and is easily accessible, PI use increases when tested as a single model.

Human expertise is also an important precursor to PI use. Employees who can relate outputs to program operations, develop outcome measures, compare actual results with program goals, analyze and compare performance data exhibit significantly higher levels of PI use (Berman & Wang, 2000). The abilities to link missions to measures (Moynihan & Lavertu, 2012) and make causal inferences (Moynihan & Lavertu, 2012; Dull, 2009) are also consistent and significant predictors of PI use.

Effective information systems, in which the right information gets to the right people at the right time, strongly and positively influence PI use (Moynihan & Landuyt, 2009). Likewise, Berman and Wang (2000) also confirmed that the availability of adequate information technology systems strongly supports PI use, though the presence of cost accounting systems does not. Moynihan and Pandey (2010) found that integration of PI into management systems predicts greater PI use, while Ammons and Rivenbark (2008) showed mixed support for this variable.

Stakeholder Support

Stakeholders include any internal or external group, organization, member or system that affects or can be affected by an organization's actions (Freeman, 2010). Indeed, the

majority of empirical studies have shown that adequate stakeholder support is a key factor in integrating PI with decision-making.

From an internal stakeholder's perspective, several studies highlight the importance of obtaining support from all levels of management. Berman and Wang (2000) suggested that buy-in from lower-level managers, in particular, is highly important because managers can sabotage performance enhancement initiatives by deliberately dragging out the process. Their study showed that when department heads, managers, supervisors, and employees support performance management, there is a significant increase in PI use. Involvement is as important as support. Taylor (2009) found that when managers and lower-level employees are involved in the development of performance indicators that are derived from goals, PI use increases. Boyne, Gould, Law and Walker (2004) also found a strong and positive relationship between employee involvement in evaluative activities and the extent of self-evaluation. Likewise, Folz, Abdelrazek and Chung (2009) discovered that buy-in from administrative and supervisory personnel most affects whether CEOs believe that PM has been beneficial to their organization.

From an external perspective, when citizen advocates, citizen advisory boards, and elected officials support performance management, there is a significant increase in PI use (Berman & Wang, 2000). Julnes and Holzer's (2001) findings also support the view that continued success of PM depends on the continued support of elected officials and the public. Moynihan, Pandey and Wright (2012b) tested political support as a control variable, and found it significant at the .05 level for purposeful use. Again, involvement of external stakeholders is an important factor. Two studies showed that citizen involvement in the development of

performance measures (Ho, 2006) and external stakeholder participation (Yang & Hsieh, 2006) have positive effects on the perceived impact and effectiveness of performance management.

Unionization

The only variable that has been shown to negatively influence PI use is the level of unionization. Julnes and Holzer (2001) showed that unionization has a significant negative effect on PI use, explaining that union members tend to shy away from performance measures for evaluation, pay or any other measure that enhances quality. Similarly, Folz, Abdelrazek, and Chung (2009) concluded that higher levels of unionization strongly and adversely color how senior leaders perceive the impact of performance management.

Variables that Show Mixed Support for Performance Information Use

Financial Situation

Studies of the impact of an organization's financial situation on PI use habits have shown mixed results. Three studies (see Boyne et al., 2004; Kroll & Vogel; 2014, Johansson & Siverbo, 2009) found no support for the hypothesized link between financial stress and PI use. Conversely, Julnes and Holzer (2001) established a strong correlation between financial stability and PI use. Both Saliterer and Korac (2013) and Rabovsky (2014), however, reported mixed results on the effects of financial stress on PI use activities.

Ideology

It has been proposed that certain types of ideologies are more receptive to PM and therefore lead to higher levels of PI use. A study by Moynihan and Ingraham (2004) showed that liberal governments use PI more for executive-branch decisions; they explained this result

by suggesting that when organizational performance needs to be improved, conservatives tend to opt for privatization whereas liberals prefer to undertake actions to improve internal operations. Likewise, Askim, Johnsen and Christophersen (2007) found a significant negative relationship between non-socialist political regimes and learning from benchmarking, and suggest that non-socialist regimes may prefer more radical solutions than benchmarking.

However, Johansson and Siverbo (2009) discovered little support for their hypothesis that municipalities with a left-wing majority use PI more than those with a right-wing majority. Likewise, Rabovsky's (2014) study revealed that the make-up of the state legislature (Democrats or Republicans) has no impact on PI use, but conservative university presidents do use PI more than their liberal counterparts.

Political Competition

Many of the empirical studies were conducted in federal, state, municipal or county settings in which leaders and top officials are elected positions. Therefore, the extent of political competition between parties was examined as a factor in PI use. For example, parties with a very strong majority would have little competition and would tend to use PI less than those with a slimmer majority. Askim, Johnsen and Christophersen (2007) found that organizational learning increases as competition increases. On the other hand, Dull (2009) reported that PI use decreases when there is political competition. Moynihan and Lavertu (2012) analyzed two groups of respondents and found that only one of those groups reported political conflict as a significant influence on purposeful PI use. Likewise, Johansson and Siverbo (2009) found no support for their hypothesis that PI use is lower in municipalities with a higher

level of political competition, and Moynihan and Ingraham (2004) found that political competition was not a significant predictor of PI use.

Prior Experience with Performance Management

The effect of prior experience with PM on PI use has been shown to be inconclusive. One study by Ho (2006) revealed that a mayor's familiarity with PM strongly influences its perceived impact. Conversely, another study by Kroll and Vogel (2014) demonstrated that managers' experience with PM tends to negatively influence PI use. As well, there is little support for the hypothesis that municipalities with prior benchmarking learn more from benchmarking than those without such prior experience (Askim et al., 2007).

Publication of Performance Information

Studies of the link between publication of PI and PI use generally report mixed results. Boyne, Gould, Law and Walker (2004) proposed a positive relationship between the amount of performance data published for external scrutiny and the extent of self-evaluation. The authors explained their inconclusive result by suggesting that publicizing the fact that PI is published is not included in their model. On the other hand, there is significant support for the hypothesis that publication of regular performance reports for citizens affects the perceived usefulness of PM for staff evaluations, funding decisions, internal communications and client orientation, but not for public accountability and cost efficiency (Ho, 2006).

Reason for Adoption

The reasons an organization adopts PM have been tested as a PI use variable, but with mixed results. Saliterer and Korac (2013) showed that when PM is implemented to make more

rational decisions, reduce costs and improve quality, PI use increases significantly for one of the two actor groups tested. However, Moynihan and Ingraham (2004) found that the adoption of PM due to external demands increased PI use in only one of the two government departments studied. As well, Berman and Wang's (2000) proposal that PI use is associated with governments' demand for the use of performance measurement is not strongly supported.

Size of Organization

It is still uncertain whether organizational size is related to PI use. Dull (2009) found no support for the size variable and suggested that, though larger organizations are usually associated with more capacity to analyze and prepare PI, there is a good deal of evidence to show that its effect is marginalized when alternative variables have been controlled for. Moynihan and Ingraham (2004) proposed that PI use acts as a means of monitoring the efforts and outputs of a large number of employees, and will be perceived as more useful as the number of employees increases. They tested PI use at the levels of executive branch and local agency, and found that the size of the government is positively and significantly related to PI use for senior executive branch decisions only. For agency levels, the result is not significant because managers and supervisors at the local level usually have first-hand knowledge of processes and program performance in their organizations, reducing the need for PI to direct and evaluate. Both Berman and Wang (2000) and Johansson and Siverbo (2009) showed positive and significant relationships between PI use and county and municipality size. However, Saliterer and Korac (2013) found that increased size has a negative influence on PI use. As well, both Vogel and Kroll (2014) and Taylor (2011) found city population insignificant.

Askim, Johnsen & Christophersen's (2007) proposal that members of large networks learn most from benchmarking was not supported.

Summary of Empirical PI Use Studies

Empirical studies of PI use indicate the influence of many factors, one of which is stakeholder support. However, the variable of stakeholder support has not been examined at a deeper level. In most studies, participants are asked to respond to survey questions regarding whether various stakeholders support PM or PI use (see Berman & Wang, 2000; Boyne et al., 2004; Folz et al., 2009; Ho, 2005; Moynihan et al., 2012; Taylor, 2011; Yang & Hsieh, 2007). In a few cases, these surveys were followed up with interviews. As far as I am aware, however, there are no studies of the influence of perceived stakeholder salience on a manager's level of PI use or the management strategies used to bring stakeholders, particularly non-supportive ones, into the PM fold.

Theoretical Frameworks

As discussed in Chapter 1, this study answers the following three questions:

1. To what extent do Canadian university leaders engage in PI use? This leads to the following sub-question:

    a) What do stakeholders perceive to be the main drivers of PI use?

2. Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use? The four hypotheses for this question are:

    a) Perceived salience of faculty members influences PI use
    b) Perceived salience of students influences PI use
    c) Perceived salience of non-academic staff influences PI use
    d) Perceived salience of donors influences PI use

3. What strategies do university leaders use to manage stakeholder reactions to PI use?

Four theoretical frameworks support the examination of these research questions. The first is the stakeholder theory developed by Freeman (2010). The second is the theory of evidence-based decision-making (EBDM) developed by Baba and HakemZadeh (2012). The third is the conceptual theory of stakeholder identification and salience developed by Mitchell, Agle and Wood (1997). The fourth framework for this study is one developed by Savage, Nix, Whitehead and Blair (1991), which assesses stakeholders' potential for threat or cooperation for a specific issue and provides a strategy for stakeholder management. Each of these is discussed below.

Stakeholder Theory

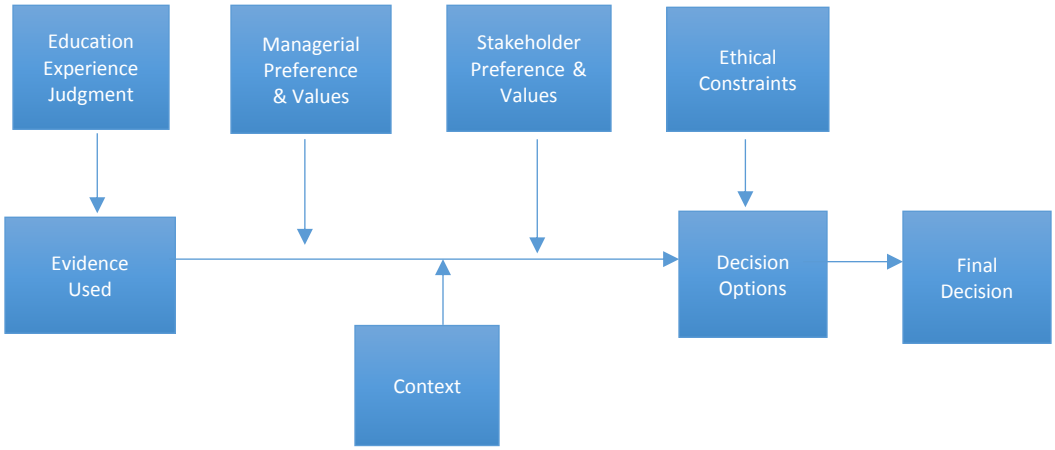
Stakeholder theory defines stakeholders as any person or group that can affect, or be affected by, an organization (Freeman, 2010). The core idea of this theory is that owners/shareholders are not the only stakeholders in an organization, and organizations that

manage their stakeholder relationships effectively will survive longer and perform better than organizations that do not. In terms of this project, stakeholder theory supports the hypothesis that stakeholder groups may affect the extent to which university leaders use PI to inform the decision-making process.

Theory of Evidence-Based Decision Making

The theory of EBDM first posits that the type of evidence a manager will use depends on his/her level of education, experience and judgment. Whether that evidence is incorporated into decision alternatives is influenced by three elements: context; managerial preferences and values; and stakeholder preferences and values. The last phase of the theory suggests that ethical constraints may influence whether evidence is incorporated into the final decision. The theory of EBDM is presented in Figure 3.2.

Figure 3.2. Theory of evidence- based decision-making (Baba & HakemZadeh, 2012).



Which Evidence Will a Manager Use?

This theory proposes that the type of evidence a manager will use is a function of his/her education, experience and judgment. In terms of education, the more knowledgeable a manager is about research being conducted in a field, the more likely she/he will use evidence produced from that research to inform the decision-making process. Baba and HakemZadeh (2012) also argued that individuals who are exposed to research-based evidence might be more likely to transfer their learning into practice and base their decisions on evidence.

Individual experience refers to the level of expertise individuals possess. Baba and HakemZadeh (2012) proposed that expert managers may be more capable of recalling relevant evidence to the area of decision making, as compared to less experienced managers. However, in certain cases, overly confident experts may, in fact, reduce the amount of evidence they seek to inform the decision-making process (Mahajan, 1992).

Judgment, as it relates to the type of evidence a manager will use, refers to the limitations of management rationality and its effects on managerial decision-making (Baba & HakemZadeh, 2012). As a result, managers may use evidence to which they have recently been exposed, that is readily available (Kahneman & Tversky, 1973), or which confirms their beliefs and values (Pfeffer & Sutton, 2006).

Which Evidence gets Incorporated into Decision Alternatives?

Baba and HakemZadeh (2012) proposed that three factors might affect which evidence makes its way into decision options. The first factor, individual managerial preferences and values, is supported by agency theory. The argument is that both managers and owners of a firm strive to maximize utility, and thus managers may use or discard evidence (or PI) to do so. The second factor

is stakeholders' preferences and values, in which the interests of owners and certain stakeholders or stakeholder groups may not be well aligned. The effect on the use of evidence, or PI use, is that stakeholders with conflicting values and preferences may put pressure on managers to reevaluate their decision options. The third factor that may influence the use of evidence is context, and there are many different aspects of an organization's context that may affect the implementation of EBDM. Johns (2006) defined context as situational opportunities and constraints that affect the occurrence and meaning of organizational behaviour and the functional relationships between variables. Similarly, Cappelli and Sherer (1991) defined context as the surroundings associated with the phenomena. One example provided by Baba and HakemZadeh (2012) is organizational culture, which may speed up or slow down the process of translating evidence (or PI) in to practice.

The Final Decision

Ethical considerations, at different levels, may influence the process of moving from decision options to a final decision (Baba & HakemZadeh, 2012). For example, at the individual level, one's religion, nationality or gender may introduce ethical constraints when moving from alternatives to a final decision (Baba & HakemZadeh, 2012). Other examples of ethical constraints include the organization's ethical climate and the level at which the final decision is being made.

Theory of Stakeholder Identification and Salience

This theory, developed by Mitchell, Agle and Wood (1997), supports the idea that not all stakeholder groups will be able to have their preferences and values realized. Therefore, in the context of this study, not all stakeholders will be able to influence whether PI is or is not incorporated into decision alternatives. The theory of stakeholder salience answers the following

two questions: 1) Who are the stakeholders? 2) Under what conditions will a manager pay more attention to one group of stakeholders versus another group?

Mitchell, Agle and Wood (1997) extracted concepts from several literatures (agency, behavioural, ecological, institutional, resource dependence and transaction cost theories of the firm) and identified three attributes: power, legitimacy and urgency. They used these attributes to develop a typology of stakeholders, then used the resulting typology to predict the likely level of managerial attention each group would receive. It is important to note the dynamic nature of the model in that stakeholder groups may acquire or lose an attribute, thus increasing or decreasing their level of salience to an organization.

Attributes of Power, Legitimacy and Urgency

After examining a range of broad and narrow definitions of stakeholders, Mitchell, Agle and Wood (1997) characterized power as an attribute that could be used to identify stakeholders. They then categorized power as coercive, utilitarian or normative, based on the type of resource used to exercise power. Coercive power is based on the physical resources of force, violence or restraint; utilitarian power is the use of material or financial resources for control purposes; and normative power is the use of non-physical resources such prestige and esteem for control purposes. From this, Mitchell, Agle and Wood (1997) theorized that a stakeholder group has power if it has, or can gain access to, coercive, utilitarian or normative means to impose its will on an organization.

However, stakeholders can gain or lose power in an organization. The strategic contingency theory of intra-organizational power may explain how this might occur. The theory was proposed by Hickson, Hinings, Lee, Schnek and Pennings (1971) and suggests that the power of a specific

subunit (or stakeholders in this case) depends on three factors: expertise in coping with problems or uncertainty facing the organization, the centrality of the subunit within the workflow, and the extent to which a subunit's expertise is unique and not substitutable (Hickson et al., 1971). The strategic contingency theory of power also suggests that units best able to cope with an organization's critical problems and uncertainties acquire relatively large amounts of power.

Legitimacy, the second attribute Mitchell, Agle and Wood (1997) used to categorize stakeholders, is based on Suchman's (1995) definition of legitimacy as "a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some social constructed system of norms, values, beliefs and definitions." Mitchell, Agle and Wood (1997) thus argued that managers should pay attention to stakeholder groups, which, based on Suchman's (1995) definition, are a legitimate entity.

The third attribute of stakeholder salience is urgency. Specifically, Mitchell, Agle and Wood (1997) argued that managers should pay attention to stakeholders whose claims are urgent because paying attention to stakeholder issues in a time sensitive manner has long been a topic of interest to crisis management scholars. Thus, Mitchell, Agle and Wood (1997) argued that urgency should be considered in the stakeholder literature as well.

Typology and Stakeholder Salience

Stakeholders may possess one, two or three attributes, resulting in seven possible stakeholder groups with varying levels of importance or prominence, as shown in Figure 3.3. Mitchell, Agle and Wood (1997) theorized that each group would receive different levels of managerial attention depending on which attributes they possessed.

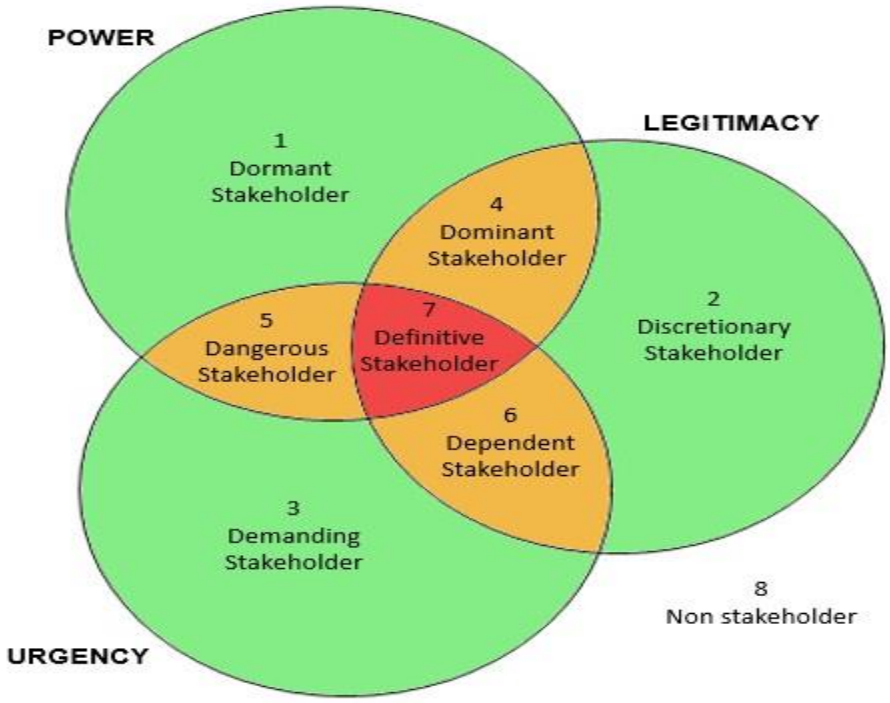
The theory predicts that stakeholders possessing only one of the three attributes will receive little or no managerial attention. These are referred to as latent stakeholders, and are further classified into three subgroups: dormant, discretionary or demanding. Groups who possess the power attribute only are referred to as dormant stakeholders because they are unable to use their power vis-à-vis the organization. However, dormant stakeholders may acquire legitimacy or urgency, which would elevate their salience. If a group is legitimate but does not have power or urgency, it is considered a discretionary stakeholder. There is no pressure for a manager to engage in active relationship with such a group, although many managers may choose to do so because of the corporate social responsibility aspect of interacting with certain groups. When urgency is the only attribute possessed by a group, that group is considered a demanding stakeholder, to whom Mitchell, Agle and Wood (1997) refer as mosquitoes buzzing in the ears of managers: irksome but not dangerous.

Stakeholders who possess two of the three attributes are categorized as expectant stakeholders, and it has been proposed that this group will receive increased levels of managerial attention (Mitchell et al., 1997). Groups who possess power and legitimacy are referred to as dominant stakeholders whose influence in the organization is assured; in other words, this group will matter to managers. Dependent stakeholders are those whose claims are urgent and legitimate and who depend on other stakeholders for the required power to carry out their will. For example, in the case of an environmental disaster caused by a firm, ordinary citizens and businesses have urgent legitimate claims, but must rely on an advocacy group, or a government, to satisfy those claims. Dangerous stakeholders are those that have power and an urgent claim, and Mitchell, Agle and Wood (1997) label them as such due to their potential for coercion and violence.

Examples of situations involving dangerous stakeholders include wildcat strikes, employee sabotage and terrorism.

Stakeholders who possess all three attributes of power, legitimacy and urgency are considered definitive stakeholders. This class of stakeholders commands management's undivided attention because of the very real consequences that may result if their claims are ignored. Shareholders are an example of definitive stakeholders. If shareholders have urgent claims that are not taken seriously, they have the power to replace the senior management of that organization. Table 3.2 presents a summary of the types of stakeholders.

Figure 3.3. Stakeholder typology (Mitchell, Agle and Wood, 1997).



Framework for Assessing and Managing Organizational Stakeholders

To examine and explain how university leaders deal with stakeholder reactions to a data driven decision-making environment, this study uses a framework for assessing and managing organizational stakeholders developed by Savage, Nix, Whitehead and Blair (1991). These scholars proposed that in addition to dealing with traditional strategic management issues, organizational leaders must also evaluate stakeholders who are likely to influence the organization. Essentially, this framework calls for an assessment of stakeholder views on a specific issue, followed by a proposal of one of four stakeholder management strategies depending on the results of the assessment. Assessments evaluate whether stakeholders have the potential to threaten or cooperate with an organization regarding a specific issue; that is, threat or cooperation is not a static state, but is issue-driven.

Leaders cannot assume that supportive/non-supportive stakeholders will always be so for all issues. Savage, Nix, Whitehead and Blair (1991) identified four factors to guide the assessment of stakeholders: 1) the level of resource control, 2) stakeholder power versus organizational power, 3) the likelihood of action, and 4) the likelihood of forming a coalition with other groups. Table 3.3 shows the details of the components that should be considered when making an assessment of stakeholder potential for threat or cooperation.

Table 3.2

Stakeholder Types, Salience and Characteristics (Mitchell, Agle and Wood, 1997)

Type	Sub group	Attribute	Salience	Characteristics
Latent Stakeholders Overall, latent stakeholders have low salience. Managers may do nothing about these groups and may not even recognize them as stakeholders.	Dormant	Power	Low	This group has the power to impose their views on the organization but lacks the legitimacy or urgency to do so, so its power remains unused. No pressure for managerial attention, but managers should be cognizant of the possibility of higher salience if a second attribute is acquired.
	Discretionary	Legitimacy	Low	No pressure for managerial attention, but managers may engage with this group for other reasons. Examples include beneficiaries of charitable donations.
	Demanding	Urgency	Low	Viewed as irksome but not dangerous. Examples include serial complainers, individuals with unjustified grudges or low return customers.
Expectant Stakeholders Overall, managers see moderately salient stakeholders as "expecting something." Likely higher level of engagement with these stakeholders.	Dominant	Power Legitimacy	Moderate	Managerial attention for this group is likely as they form the dominant coalition.
	Dependent	Legitimacy Urgency	Moderate	Managerial attention is likely if this group relies and obtains the support of powerful stakeholders. This group depends on the support of powerful stakeholders or the benevolence of management to satisfy their claims.
	Dangerous	Power Urgency	Moderate	Stakeholders who lack legitimacy will be coercive and possibly violent. Examples include wildcat strikes, employee sabotage and terrorism.
Definitive Stakeholders This class of stakeholders commands management's undivided attention because of the very real consequences that may result if their claims are ignored.	none	Power, Legitimacy Urgency	High	High salience – managers give immediate priority to these stakeholders. Examples include majority shareholders.

Table 3.3

Factors Affecting Stakeholder Potential for Threat and Cooperation (Mitchell, Agle and Wood, 1997)

Stakeholder Situation	Effect on Stakeholders' Potential for Threat	Effect on Stakeholders' Potential for Cooperation
Controls key resources (needed by organization)	Increases	Increases
Does not control key resources	Decreases	Either
More powerful than organization	Increases	Either
As powerful than organization	Either	Either
Less powerful than organization	Decreases	Increases
Likely to take supportive action	Decreases	Increases
Likely to take unsupportive action	Increases	Decreases
Unlikely to take any action	Decreases	Decreases
Likely to form coalition with other stakeholders	Increases	Either
Likely to form coalition with organization	Decreases	Increases
Unlikely to form any coalition	Decreases	Decreases

Based on the assessment of the potential for threat (high or low) and cooperation (high or low), four types of stakeholders emerge; supportive, mixed blessing, non-supportive and marginal stakeholders. Based on this, one of four stakeholder strategies may be proposed: involve; collaborate; monitor or defend.

The supportive stakeholder is ideal and what every organization wishes for. This stakeholder group supports the organizational goals and actions, scores high on potential cooperation and low on potential threat. Such groups tend to include board members, managers, staff employees and parent organizations. However, senior executives often miss the opportunity to capitalize on the cooperative potential of supportive stakeholders because they are viewed as a group that does not need to be managed (Savage et al., 1991). Savage, Nix, Whitehead and Blair (1991) proposed that the best strategy for this group is to involve them as much as possible in the issues they support. Involvement techniques suggested include participatory management

techniques, delegating decision making to lower levels or involving supportive stakeholders in the decision-making process.

Marginal stakeholders are considered neutral. In general, their interests are specific and narrow, and they tend to ignore all other issues. For instance, consumer interest groups would be considered examples of marginal stakeholder groups. They are neither highly threatening nor especially cooperative, although they have the potential to become either or both. Savage, Nix, Whitehead and Blair (1991) proposed that the best strategy for this group is to monitor them for their reactions, if any, to strategic decisions or issues. If management detects that decisions or issues may be of concern to marginal stakeholders, then the organization should act to increase their support or deflect opposition (Savage et al., 1991).

Non-supportive stakeholders are considered to have a high potential for threat and a low potential for cooperation, and are the group that organizations and managers worry about the most (Savage et al., 1991). Examples of such stakeholders could include employee unions. The proposed strategy to handle non-supportive stakeholders is a defending approach, which borrows from the traditional marketing and strategic tactics to handle competitors, although the medium- to long-term objective should be to find a way to bring non-supportive stakeholders onto the organization's side (Savage et al., 1991).

When a stakeholder groups' potential for threat and cooperation are equal, they are referred to as mixed-blessing stakeholders. They may shift out of their equilibrium position and become either more cooperative or more threatening. Thus, in order to maximize cooperation, a collaboration strategy is recommended to make potential opposition more difficult (Savage et al., 1991). Wood and Gray (1991) define a collaborative situation as one in which "a group of

autonomous stakeholders of a problem domain engage in an interactive process, using shared rules, norms and structures to act or decide on issues related to that domain." Some examples include joint ventures or other collaborative efforts, up to and including mergers (Savage et al., 1991). Table 3.4 summarizes the types of stakeholders, their characteristics, their level of threat or cooperation and the recommended stakeholder management strategy.

Table 3.4

Summary of Framework for Assessing and Managing Organizational Stakeholders (Savage, Nix, Whitehead, & Blair, 1991)

Type of Stakeholder	Characteristics	Threat/Cooperation	Strategy
Supportive	Ideal stakeholder; supports organizational goals and actions; usually includes board members, managers and staff employees	Low on potential threat/high on cooperation	Involve
Marginal	Not usually concerned about most issues; may include stockholders and consumer interest groups depending on the issue	Neither highly threatening nor highly cooperative	Collaborate
Non-supportive	Most distressing for an organization and its managers; usually includes labor unions, governments and sometimes the news media	High on potential threat/low on cooperation	Defend
Mixed Blessing	Plays a major role in organization; can transition to a non-supportive or supportive position	High on potential threat /high on cooperation	Monitor

Summary

Performance management is not a new concept. Although its origins excluded strategic control, PM has evolved to a point at which it encompasses everything managers do to achieve organizational objectives. As it is a broad and complex area of study, it has inspired many theories of the adoption, design and use of PM systems.

The few empirical studies that assess the effectiveness of PM systems have shown mixed results. However, evidence that PM systems can work in the public sector supports the argument that PM is effective if used correctly. From a PI use perspective, empirical studies have identified a number of variables that influence PI use, including goal clarity, leadership support, organizational culture, organizational support, positive attitude toward PM, public service motivation, stakeholder support for PM and unionization. This study examines stakeholder support at a deeper level by investigating whether perceived stakeholder salience influences PI use, and by exploring the management strategies used by university leaders with regards to PM and PI.

CHAPTER 4: METHODOLOGY

Introduction

This chapter discusses the methodology that was used to execute this study. It begins with a review of how the literature search was conducted, a discussion of the research approach that was adopted and the data collection methods that were used. Following this, I describe the measurement of variables, the target population and the processes used to recruit respondents, as well as the required sample sizes, response rates and respondent profiles. The last section explains data analysis techniques and procedures to ensure the reliability and validity of the study.

Literature Review Process

The searches for literature relevant to this study were conducted on Proquest, Google Scholar, Business Source Complete, and Web of Science, while additional literature was identified via Kroll's (2012, 2014, 2015) three systematic literature reviews of PI use.

Research Approach

Research Paradigms

Investigators seeking to answer a research question can take many approaches within two dominant frameworks: quantitative and qualitative approaches. Researchers may prefer either qualitative or quantitative approaches, depending on their identification with either of two main paradigms: positivism or constructivism/interpretivism. The former of these is associated with quantitative methods, and the latter with qualitative methods (Feilzer, 2010). These two research paradigms are diametrically opposed: positivist purists believe there is one singular reality that can

be discovered by objective and value-free inquiry, whereas constructivist purists believe there is no such thing as a single objective reality and that subjective inquiry is the only kind possible (Feilzer, 2010).

However, according to Creswell (2003), the criteria for selecting an approach should be largely influenced by the research question itself, and also by the personal experiences of the researcher. In terms of the research question, Creswell stated that a quantitative approach is best to test a theory or to identify factors that influence an outcome. On the other hand, when a topic is new, when it has never been addressed in a certain setting, or when existing theories do not apply to a particular setting or group, a qualitative approach may be more useful due to its exploratory characteristics (Creswell, 2003). This type of reasoning has led to the development of a third research paradigm, mixed methods, which is discussed in detail in the next section of this chapter. Increasingly popular, mixed methods bypass messy issues of truth and reality, accept philosophically that there are multiple realities that are open to empirical enquiry, and orient themselves toward solving practical problems in the real world (Feilzer, 2010).

Johnson and Onwuebuzie (2004) advocated the use of pragmatism as the philosophical partner for mixed-methods research. Pragmatism is a philosophical tradition that originated in the United States around 1870, and is most often identified with, among others, Charles Sanders Peirce (1839–1914), William James (1842–1910) and John Dewey (1859–1952) (Stanford Encyclopedia of Philosophy, n.d.). Pragmatism proposes that research approaches should be mixed in ways that offer the best opportunity to answer important research questions. Pragmatists also hold an "anti-representational view of knowledge," arguing that research should no longer aim to most

accurately represent reality or to provide an "accurate account of how things are in themselves" but to be useful, to "aim at utility for us' (Feilzer, 2010).

Justification for Mixed Methods

This study employed a mixed-methods approach, which Creswell and Clark (2007, p. 5) defined as

> a methodology [that] involves philosophical assumptions that guide the direction of the collection and analysis of data and the mixture of qualitative and quantitative data in a single study or series of studies. Its central premise is that the use of quantitative and qualitative in combination provides a better understanding of research problems than either approach alone.

The mixed-methods approach in this study is justified by the nature of the research questions: some of the questions I ask here are more suited to quantitative approaches, while others are more suited to qualitative approaches.

Another reason for a mixed-methods approach is that collecting qualitative data in what would otherwise be a quantitative study adds context to a research phenomenon. Johns (2006) argued that context – situations that affect organizational behaviours as well as the relationships between variables – has not been sufficiently recognized by researchers, and suggested that well-conducted qualitative research has great potential to incorporate context into research.

A third reason is that the pragmatism perspective, the philosophical partner of mixed methods, is in line with my personal beliefs: I believe that some things are black and white, while others are not. Thus, my view of the acquisition of knowledge rejects a purely qualitative or

quantitative approach. I also believe that this study should aim to be useful and practical to organizations wanting to ensure that their PM systems are utilized to their full potential.

The conduct of mixed-methods studies, analysis of mixed-methods data and interpretation of conflicting results have all been subject to debate. However, all methods of data collection have weaknesses, and the use of a mixed-methods approach mitigates the disadvantages of using a purely quantitative or qualitative research design (Creswell, Plano Clark, Gutmann, & Hanson, 2003). For example, the detail of qualitative data can provide a more holistic interpretation of a research phenomenon that is not available in general quantitative surveys, whereas adding a quantitative element allows a researcher to generalize results to a population (Creswell et al., 2003). As a result, the mixed-methods approach has now become established as a legitimate methodological choice of many academics and researchers across a variety of disciplines (Cameron & Molina-Azorin, 2011; Creswell et al., 2003; Greene & Caracelli, 1997).

Mixed-Method Design

Mixed methods involve some form of triangulation, which Denzin (1978) broadly defines as combining different methodologies in the study of the same phenomenon. The triangulation metaphor, originating in navigation and military strategy, refers to the use of multiple reference points to locate an object's exact position (Jick, 1979).

The actual mixing of methods, as triangulation demands, can be thought of as a continuum that ranges from simple to complex designs. As illustrated in Table 4.1, Jick (1979) explained that in its simplest form, triangulation involves the quantification of qualitative data or the use of field data to strengthen statistical results. A somewhat more sophisticated design involves the use of a

"within methods" strategy, which uses multiple techniques within a given method to test for reliability. Towards the complex end of the continuum is the use of "across methods," the most popular form of triangulation, which mixes qualitative and quantitative methods to achieve convergent validation. The more complex triangulation designs attempt to capture more complete, holistic and contextual portrayals of the unit(s) under study.

Table 4.1

A Continuum of Triangulation Design (Jick, 1979)

Scaling	Reliability	Convergent Validation	Holistic (or Contextual description)
Simple Design ----------			----------Complex Design

There are several types of mixed-method designs. Tashakkori and Teddlie (2003) have identified nearly 40 different types of designs in the literature. However, because of the similarities among these designs, Creswell and Clark (2007) have provided a functional design classification into four major categories: triangulation design, embedded design, explanatory design, and exploratory design. Triangulation design, also called concurrent design, is a one-phase design in which the researcher collects quantitative and qualitative data separately and concurrently, and attempts to merge the separate results in an interpretation. In an embedded design, one data set provides a supporting, secondary role in a study based on another type of data set. This is useful when it is necessary to include qualitative or quantitative data to answer a research question within a largely quantitative or qualitative study. The explanatory design is a two-phase design in which qualitative data helps explain or build upon initial quantitative results. The exploratory design uses a

qualitative method to develop or inform a quantitative method. This design is based on the premise that an exploration is needed because, for example, measures or instruments are not available, the variables are unknown, or there is no guiding framework or theory.

As my objective was to arrive at one interpretation of the combined research questions this study adopted a concurrent design, with qualitative and quantitative data collected simultaneously. As will be discussed in Chapter 6, both data sets were merged to arrive at one interpretation and conclusion of the research phenomenon.

Data Collection Methods

This study collected data using two methods: surveys and interviews. The complete survey and interview scripts are presented in Appendix 2 and Appendix 3, respectively.

Survey

The surveys in this project was constructed by consolidating two existing scales developed, respectively, by Henri (2006) and Agle, Mitchell and Sonnenfeld (1999). When combined and adapted, the final version of the survey consisted of four main parts. Part I contained 26 items to measure PI use; Part II contained 32 items to measure perceived stakeholder salience; Part III contained one open-ended question; and Part IV contained 11 demographic questions. The survey, or parts thereof, was used to answer three of the four research questions. For clarity, I have summarized this in Table 4.2.

Table 4.2

Survey Description and Use

Survey	Description of Data Collected	Research Question Addressed by Data		
		Q #1	Q #2	Q #3
Part I	26 items to measure PI use	x	x	
Part II	32 items to measure perceived stakeholder salience		x	
Part III	1 open-ended question			x
Part IV	11 demographic questions			

Notes:
Q #1: To what extent do university leaders engage in PI Use?
Q #2: Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?
Q #3: What strategies do university leaders use to manage stakeholder reactions to PI use?

Some individuals did not complete the entire survey. That is, 86 individuals completed Part I, while only 67 of those 86 individuals completed the entire survey. As the survey was used to answer multiple research questions, this explains the different response rates for the same survey. Response rates are discussed in detail in a later section of this chapter.

Interviews

The interview script was designed to answer the related research questions (#1.a and #3) and consisted of four main themes: 1) general perceptions of PM and PI use, 2) perceptions of PI use drivers, 3) stakeholder salience and 4) stakeholder management strategies for PM and PI use.

Measurement of Variables – Survey

Two of the research questions (#1 and #2) required the measurement of two constructs: PI use and perceived stakeholder salience. Therefore, the first step was to decide how to measure PI use and stakeholder salience; the second was to identify appropriate measurement instruments.

Measuring Performance Information Use

In Chapter 1, I defined PI use as the purposeful consideration and evaluation of PI in the decision-making process. In addition, as noted earlier, extant empirical studies tend not to elaborate on the concept of PI use (Moynihan et al., 2012a). Rather, most studies have operationalized and measured PI use as a behaviour that managers may exhibit in a variety of narrowly or broadly defined organizational activities. For this study I wanted to explore the concept of purposeful PI use in more depth. I searched for a study that methodically analyzed the various conceptualizations of PM systems in order to develop a comprehensive definition of PI use that could be used across all organizations. I found once such study by Henri (2006), who examined the relationship between organizational culture and PI use. Henri analyzed various definitions of performance/management control systems and proposed that these definitions revealed four types of PI use: monitoring, attention focusing, strategic decision making and legitimization. In other words, PI is used to provide feedback regarding expectations and to communicate with various stakeholders (monitoring); send signals throughout the organization (attention focusing); facilitate the decision-making process (strategic decision-making); and justify decisions or actions (legitimization). Each type of PI use is described below, and all of these types are summarized in Table 4.3.

Monitoring

Monitoring, defined as a feedback system relying on a cybernetic logic whereby goals are set in advance, output is measured, goals and output are compared, feedback is provided and corrections are made if necessary (Hofstede, 1978), answers the question “How am I doing?” The information gathered is used for reporting and external disclosure. Acting as a diagnostic control

(Tessier & Otley, 2012) and answering machine (Burchell, Clubb, Hopwood, Hughes, & Nahapiet, 1980), PI is associated with the measurement and reporting of performance in meeting stakeholder requirements (Atkinson, Waterhouse, & Wells, 1997).

Attention Focusing

To answer the question "What problems should we look into?" PI sends cues to managers throughout the organization and acts as an interactive control to foster organizational dialogue (Simon 1994) and an ammunition machine (Burchell et al., 1980) that promotes specific positions and reflects one particular conception of the organizational mission. The signals sent (PI) indicate the primary and secondary objectives on which employees should be focusing their attention (Atkinson et al., 1997; Vandenbosch, 1999).

Strategic Decision Making

Strategic decision-making aims to answer this question: "Given the many alternatives, which is rationally the best?" Strategic decision-making commits substantial resources, sets precedents, creates waves of minor decisions (Mintzberg, Raisinghani, & Theoret, 1976). It is ill structured, non-routine or complex (Schwenk, 1988) and is substantial, unusual and all pervading (Wilson, Butler, Cray, Hickson, & Mallory, 1986). Thus, managers must constantly manage strategic issues. They use PI to support their analytical processes concerning issues in which they are taking the lead, or to explore ideas proposed by others (Langley, 1990). By revealing cause and effect relationships between internal processes and achievement of objectives (Atkinson et al., 1997), PI becomes a learning machine (Burchell et al., 1980) and a tool for problem solving (Vandenbosch, 1999) in strategic decision-making.

Legitimizing

PI use can legitimize past decisions made under certain conditions of certainty or uncertainty, to answer the question "How can this action be justified?" This type of PI use is seen as a "rationalization machine" to obtain a retrospective understanding of an action (Feldman & March, 1981). Legitimizing also refers to the justification and validation of current and future actions, as well as the assertion of self-interest and the exercise of power (Ansari & Euske, 1987). PI can also be used to increase the legitimacy of organizational activities (Hopwood, 1987) and to establish authority and maintain credibility (Dermer, 1990).

Table 4.3

Determination of PI Use Definition (Henri, 2006)

Definitions of PM Systems/ Management Control Systems	Suggested uses of Performance Information based on definitions of PMS/MCS
Definition: Score card; problem solving; attention directing (Simon, Guetzkow, Kozmetsky & Tyndall, 1954)	Monitoring Attention focusing Strategic decision-making Legitimization
Definition: Answering machines; learning machine; ammunition machine; rationalization machine (Burchell, Clubb, Hopwood & Hughes, 1980)	
Definition: Score keeping; problem solving; attention focusing; legitimization (Vandenbosch, 1999)	
Definition: Coordination; monitoring; diagnosis (Atkinson, Waterhouse & Wells, 1997)	
Definition: Diagnostic & interactive (Simons, 1990)	

Instruments used to Measure PI Use

With Henri's (2006) comprehensive definition of PI use in mind, the next step in this project was to find an appropriate instrument to measure PI use. This study used Henri's (2006) "Performance measurement systems use" instrument, developed from his construct of PI use. For three elements of the construct (monitoring, attention focusing, legitimizing), Henri (2006) adapted

an instrument developed by Vandenbosch (1999). This instrument originally measured the intensity of the use of executive support systems (ESS), which Henri argued was an appropriate surrogate for PM systems. That is, PM systems and ESS had a common base that allowed for the adaptation of the instrument to Henri's examination of the relationship between PI use and organizational culture. To measure PI use from a strategic decision-making dimension, Henri adapted seven elements from the instrument developed by Brockmann and Simmonds (1997).

Henri (2006) assessed the reliability of each of the four PI use constructs with Cronbach's alpha coefficients and each exceeded the recommended cut-off point of .70. Content validity was established with pre-existing scales. Nonetheless, Henri pre-tested the questionnaire with three groups: academics, top managers and MBA students. The results showed that content validity had been achieved. As well, a confirmatory factor analysis demonstrated that every construct exhibited acceptable model fit and all factor loadings were statistically significant.

Table 4.4 presents the 26 items used to measure PI use. The complete survey is contained in Appendix 2.

Table 4.4

Items Used to Measure PI Use (Henri 2006)

In the last six months I have used performance information to:
(1= never, 2 = rarely, 3 = occasionally, 4 = sometimes, 5 = frequently, 6 = usually, 7 = every time)

Monitoring
1. Track progress towards goals
2. Review key measures
3. Monitor results
4. Compare outcomes to expectations

Attention-focusing
5. Tie my unit together
6. Develop a common vocabulary in my unit
7. Provide a common view of my unit
8. Enable discussions in meetings with superiors, subordinates and peers
9. Enable continual challenge and debate underlying results, assumptions and plans
10. Enable my unit to focus on critical success factors
11. To identify what problems my unit should be looking into

Strategic decision-making
12.. Make strategic decisions once the need for a decision was identified and an immediate response was required
13. Make strategic decisions once the need for a decision was identified and an immediate response was NOT required
14. Make decisions when it was difficult to differentiate among plausible solutions to a problem because each had good arguments (i.e.: they could not be easily ranked)
15.Make decisions regarding an unstructured problem that had not been encountered before
16. To anticipate the future direction of my unit, as opposed to responding to an identifiable problem
17. Make a final decision on a strategic issue of major importance

Legitimization
18. Confirm my unit's understanding of the business
19. Justify decisions
20. Verify assumptions
21. Maintain perspectives
22. Support actions
23. Reinforce beliefs
24. Stay close to the business
25. Increase focus
26. Validate a point of view

Measuring Perceived Stakeholder Salience

There has been relatively little research, as compared to that of PI use, on what stakeholder salience is and how it should be measured. Thus, to measure perceived stakeholder salience, this study used the typology developed by Mitchell, Agle and Wood (1997), discussed in detail in

Chapter 3, which identified three characteristics of the salient stakeholder: power, legitimacy and urgency.

Instrument used to Measure Perceived Stakeholder Salience

To measure managers' perceptions of stakeholder salience, this project used an instrument developed by Agle, Mitchell and Sonnenfeld (1999), called "Stakeholder Attributes," which was developed to test the conceptual theory of stakeholder salience developed by Mitchell, Agle and Wood (1997). The instrument included eight items for each of the independent variables of power, legitimacy and urgency, which were rated on a seven-point Lickert scale.

Each item was evaluated for each of the five generic stakeholder groups (shareholders, employees, customers, government and communities) as defined by Freeman (2010). Thus, each respondent evaluated each of the three constructs (power, legitimacy and urgency) five times each with a different stakeholder group. Performing this analysis on each group independently for each attribute demonstrated reliabilities largely between .70 and .90. A further analysis in which the full data set of 115 observations was split into two halves for separate factor and reliability analysis produced results almost identical to those of the full-data set.

The scale (eight items) used to measure perceived stakeholder salience for the faculty stakeholder group is presented in Table 4.5. The complete survey is contained in Appendix 3.

Table 4.5

Items Used to Measure Perceived Stakeholder Salience (Agle, Mitchell & Sonnenfeld, 1999)

In this section we ask you eight questions about your perceptions of four stakeholder groups - Faculty, Staff (non -academic), Students and Donors - for a total of 32 questions.

DEFINITIONS Stakeholders: Individuals or groups of individuals that can affect, or be affected by, an organization's actions, objectives and policies.

Stakeholder power is defined as a group/person possessing any one of the following three abilities:

- The ability to apply a high level of direct economic reward or punishment to obtain its will (e.g.: offering/withholding funds, resources, goods, services etc.)
- The ability to apply coercive or physical force to obtain its will (e.g.: guns, lockouts, sabotage, including access to legal processes that can invoke the use of physical force)
- The ability to positively or negatively influence the reputation or the prestige of an organization to obtain its will (e.g.: by going to the media)

For each stakeholder group please rate each statement based on your interaction with this group in the past six months (1 = strongly agree, 2 = agree, 3 = somewhat agree, 4 = neither agree or disagree, 5 = somewhat disagree, 6 = disagree, 7 = strongly disagree)

1. The faculty stakeholder group had power (whether used or not)
2. The faculty stakeholder group had the power to enforce its claims, demands or desires (whether used or not)
3. The faculty stakeholder group had the ability to impact my unit/department (whether used or not)
4. The faculty stakeholder group actively pursued its claims, demands or desires
5. The faculty stakeholder group urgently communicated its claims, demands or desires
6. The faculty stakeholder group actively sought attention regarding its claims, demands or desires
7. The claims, demands or desires of the faculty stakeholder group were viewed as legitimate (proper or appropriate)
8. The claims, demands or desires of the faculty stakeholder group were not proper or appropriate

Note: These eight items were adapted, by changing the name of the stakeholder group, to measure perceived salience of students, staff and donors.

Target Population – Survey and Interviews

For this study, I wanted to ensure that the individuals recruited to complete the questionnaire did in fact have the opportunity to use PI in the course of their work and were familiar with the four stakeholder groups (faculty, students, staff and donors). Thus, before deciding on the target population, I discussed this issue with university administrators at various levels, and it was recommended that I target the most senior individuals of each institution because of the broad scope of their responsibilities and their probable interactions with all four stakeholder groups. As a result, the target population for the survey was defined as senior Canadian university

leaders. Specifically, I targeted individuals in academic and non-academic sectors who held positions at the following levels: deans, executive directors, assistant vice-presidents, assistant vice-provosts, associate vice-presidents, associate vice-provosts, vice-presidents and presidents.

For the semi-structured interviews, the target population was diverse in order to ensure varying perspectives on PM and PI use from several university stakeholder groups. As such, target respondents included faculty, senior management (as defined above) and staff.

Respondent Recruitment - Surveys

In order to survey senior administrators across Canada, I first had to obtain permission from each university. To determine the population of universities in Canada, I consulted the UNIVCAN website, which lists all the universities and colleges in Canada. A total of 71 universities were invited to participate in the study. The francophone universities (mostly in Quebec) were excluded because of the complexity and cost involved in surveying the senior administrators of these institutions. However, this study does feature Quebec representation, as two Quebec universities participated in the surveys and interviews. In terms of provincial participation across Canada, only one province is not represented.

Once institutional permission was obtained, I sent the survey to each senior administrator of that university. A $5 donation to the Canadian Red Cross was offered as an incentive to complete the survey.

Universities and survey respondents were sent the following documentation:

- Invitation to participate in the study - universities (Appendix 3)
- Invitation to participate in the survey (Appendix 7)
- Letter of information /informed consent for on-line survey (Appendix 4)

- Ethics approval (Appendix 5)
- Letter of support - sent to universities only (Appendix 6)

Respondent Recruitment - Interviews

Interview respondents were recruited from my numerous professional contacts and were sent the following documentation once they agreed to be interviewed:

- Ethics approval (Appendix 5)
- Letter of support
- Letter of information /informed consent for interviews (Appendix 8)

Required Sample Size

As mixed methods were used, the required sample sizes differed depending on the data collection instrument and the research question. Each is discussed below.

Sample Size Required- Research Question #1

Q#1: To what extent do university leaders engage in PI use?

As quantitative survey data (from Part I of the survey) were used to answer this question, the sample size required to estimate the population mean with respect to PI use was dependent on the desired confidence level, interval (margin of error) and the estimated population. At a 95 percent confidence level, the required sample sizes for three different confidence intervals (3 percent, 5 percent and 10 percent) were estimated to be 565, 291 and 89, respectively. The results are summarized in Table 4.6. The actual response rate was 86, and this result is discussed in the next section of this chapter (see response rates).

Table 4.6

Sample Size Required for Different Confidence Levels and Intervals (using Qualtrics sample-size calculator downloaded from https://www.qualtrics.com/blog/calculating-sample-size)

Confidence level	Confidence interval	Estimated population*	Required sample size
95 percent	3 percent	1275	565
95 percent	5 percent	1275	291
95 percent	10 percent	1275	89

* Based on 85 universities with an average of 15 senior administrators per institution (includes the 71 universities invited to participate in this study plus the francophone universities)

Sample Size Required- Research Question #1a

Q#1a: What do stakeholders perceive to be the main drivers of PI use?

This question used interview data to examine stakeholder perceptions of the main drivers of PI use. Based on discussions with researchers at my institution, Concordia University, the number of interviews to be conducted was initially set between 15 and 20. However, a review of the literature revealed that guidance for determining appropriate sample sizes is virtually nonexistent (Guest, Bunce & Johnson, 2006). As well, Baker and Edwards (2012) stated that every experienced researcher knows this question has no reasonable answer. The authors suggested that the only possible answer is to have enough interviews to say what you think is true and not to say things for which you do not have the number.

Purposive sampling is the most commonly used form of non-probabilistic sampling (Guest et al., 2006). This technique is often used in qualitative research for the identification and selection of information-rich cases for the most effective use of limited resources (Patton, 2002). The strategy is to identify and select individuals who possess a deep knowledge of or experience with the phenomenon of interest (Creswell & Plano Clark, 2011). In addition to knowledge and experience,

participants must be available, willing to participate and able to express their experiences and opinions in an articulate, expressive and reflective manner (Bernard, 2002; Spradley, 1979). By contrast, probabilistic sampling is used to ensure the generalizability of findings by minimizing the potential for bias in selection and controlling for the potential influence of known and unknown confounders (Paklinas, Horwitz, Green, Wisdom, Duan & Hoagwood, 2015).

The sample size for interviews typically relies on the concept of "saturation," the point at which no new information or themes are observed in the data. However, the number of interviews needed to assure saturation depends on several factors. Guest et al. (2006) conducted a methodological study to determine at which point saturation occurs, involving sixty in-depth interviews with women in two West African countries. The authors systematically documented the degree of data saturation and variability over the course of thematic analysis. Based on the data set, they found that saturation occurred within the first twelve interviews, although basic elements for meta-themes were present as early as six interviews into the process. Variability within the data followed similar patterns.

However, the authors did not suggest that a sample size of 12 would be applicable in all situations. Rather, they proposed that the following be considered when determining sample sizes for interviews: if the goal is to describe a shared perception, belief or behaviour among a relatively homogeneous group, then a sample size of 12 would likely be sufficient. In other words, saturation will be reached sooner if the participants are similar with respect to their experiences in the research domain. As well, data quality and clarity of the domain of inquiry affect the point at which saturation is reached. That is, 12 interviews will likely not be enough if a selected group is relatively heterogeneous, the data quality is poor or the domain of inquiry is diffuse or vague.

The purpose of this research question is to obtain perceptions of the main drivers of PI use. Therefore, since the research question is clear, the participants as a group are homogeneous and all highly intelligent individuals who are capable of expressing their views in a reflective manner, an initial sample size of 15 to 20 is justified. The actual sample size of 15 is discussed in the next section of this chapter (see response rates).

Sample Size Required - Research Question #2

Q# 2: Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?

To examine question #2, the effect of perceived stakeholder salience on PI use, quantitative data (from Part I and II of the survey) were analyzed with multiple regression techniques. In terms of sample size, the literature indicates several ways to determine the appropriate number of respondents needed for this particular statistical method. According to Van Voorhis and Morgan (2007), the general principle is no less than 50 participants for a correlation or regression, with the number increasing with larger numbers of independent variables. Green (1991) suggested $N > 50 + 8$ m (where m is the number of IVs) for testing the multiple correlation and $N > 104 + m$ for testing individual predictors (assuming a medium-sized relationship). There are two other rules of thumb that could be used. Harris (1985) proposed a minimum sample size of 50 plus the number of predictor variables for five or fewer predictors. Table 4.7 presents a summary of the various rules of thumbs for computing sample size (n) for multiple regression analysis. The actual response rate for this question was 67, which is discussed in the next section of this chapter (see response rates).

Table 4.7

Rules of Thumb – Sample Sizes for Multiple Regression

Rule of Thumb	Required sample size for m=4
No less than 50 participants (Van Voorhis & Morgan, 2007)	50
n> 50+ 8m (where m in the # of IVs) (Green, 1991)	82
n>104 + m (where m in the # of IVs) (Green, 1991)	108
n> 50 + m (where m in the # of IVs) (Harris, 1985)	54

Sample Size Required- Research Question #3

Q #3: What strategies do university leaders use to manage stakeholder reactions to PI use?

Examining question #3, stakeholder management strategies used, involved results from the open-ended survey question and interviews. As discussed in the previous section, the number of interviews was justified at 15 to 20. The actual response rate for this question was 29, which consisted of 15 interviews and 14 survey responses to the open-ended questions, and this is discussed in the next section of this chapter (see response rates).

Results of Pilot Testing

Survey

As noted above, the survey was constructed using two existing instruments (see Henri, 2006; Mitchell et al., 1997) that each demonstrated high reliability ratings. The first part of the survey measured the extent of PI use, and the second part measured the perceived salience of four stakeholder groups. Five academics reviewed the survey during October and November 2016 and made some suggestions to the introduction of the survey and inclusion of demographic items. These suggestions were all incorporated into the final version of the survey. It was then tested on

six individuals who worked in the higher education sector. Based on the feedback received, the survey was clear and understandable, and therefore, no further adjustments were made.

Interviews

A draft script was used to interview two pilot respondents. As there are always opportunities to clarify or reword questions in an interview setting, only minor modifications were made to the interview's final script.

University Participation Rates - Surveys

Of the 71 universities invited to participate, 28 institutions granted me permission to survey their senior administrators, seven institutions declined to participate and the remaining 36 did not respond to my initial invitation and subsequent reminders. Table 4.8 presents a summary of university responses to the invitation to participate in the study.

Table 4.8

Summary of University Responses to Invitation to Participate in Study

	No.	Percent
Accepted	28	39.44
Declined	7	9.86
No response	36	50.70
Total	71	100.00

Profiles of Participating Universities

The 28 universities that participated in this study varied in headcount size from 790 to 58,740 students with an average of 15,575 students and a standard deviation of 14,293 based on 2016 enrollment data. All but two universities had graduate programs, six had medical schools, three had dental schools, eight had law schools and 17 had doctoral programs. Although the

participation rate of universities is low the profile of the participant universities is comparable to that of the non-participant universities. Details comparing both populations are reported in Table 6.6. Table 4.9 contains the profiles of participating universities.

Response Rates

This study involved two instruments: surveys and interviews. Respondents completed or partially completed the survey, so that the response rates vary depending on the research question being answered. Thus, to add clarity to the discussion, survey response rates are presented by research question.

Table 4.9

Profile of Participating Universities in Survey (using 2016 enrolment figures)

Name	Location in Canada	Size*	Medical School	Dental School	Law School	Doctoral Program
University #1	Western	Large				X
University #2	Western	Large				
University #3	Western	Small				
University #4	Western	Large	x		x	x
University #5	Western	Small				
University #6	Western	Large	x	x	x	x
University #7	Western	Small				x
University #8	Western	Medium				
University #9	Western	Large			x	
University #10	Western	Small				
University #11	Western	Medium				
University #12	Western	Large				x
University #13	Western	Large	x	x	x	x
University #14	Atlantic	Small				
University #15	Atlantic	Medium			x	x
University #16	Atlantic	Large	x			x
University #17	Atlantic	Small				
University #18	Atlantic	Medium				x
University #19	Central	Large				x
University #20	Central	Medium	x		x	x
University #21	Central	Medium				
University #22	Central	Medium				x
University #23	Central	Large			x	x
University #24	Central	Large				x
University #25	Central	Large				x
University #26	Central	Large	x	x	x	x
University #27	Central	Large				x
University #28	Central	Small				

* Small: less than 5,000 headcount
Medium: more than 5,000 and less than 10,000 headcount
Large: more than 10,000 headcount
Source: Univcan website www.univcan.ca/universities/facts-and-stats/enrolment-by-university

Response Rates by Research Question

Question #1 – To what extent do university leaders engage in PI use?

A total of 86 respondents completed part 1 of the survey, which measured the extent of PI use with a 7-point scale (1= never use PI and 7 = use PI all the time). Of these 86 cases, 75 were complete, with a mean of 4.58, and 11 cases contained missing data. As the missing values for the 11 cases were not widespread, they were estimated using the mean and median of each respective item (Cheema, 2014). Replacing the missing data with the mean resulted in a revised mean and standard deviation of 4.50 and 1.12, respectively. The results when replacing missing data with the median resulted in a mean and standard deviation of 4.50 and 1.12, respectively. Table 4.10 summarizes the descriptive statistics for the 75 complete cases with respect to part 1 of the survey, and the 86 cases using the mean and median to estimate the missing data.

Table 4.10

Missing Data Comparisons

Cases	n	mean	sd
Complete cases - Part 1 (PI use)	75	4.58	1.14
Partial and complete cases – Part 1 Missing data replaced with mean	86	4.50	1.12
Partial and complete cases – Part 1 Missing data replaced with median	86	4.50	1.12

An analysis of variance test (ANOVA) was conducted to compare the means of these three different cases in order to determine if the means were significantly different from one another. An F statistic of 0.0048 with a p value is 0.945 confirmed no significant differences between these three cases.

Question # 1.a – What do stakeholders perceive to be the main drivers of PI use?

A total of 15 individuals provided interview data that were used to answer this question. Given the quality of the data, the clarity of the research domain, the type of question (examining perceptions) and the homogeneity of the respondents, saturation was reached at a level of 15 interviews.

Question #2- Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?

A total of 67 individuals, of the 89 who had completed part 1, fully completed parts 1 and 2 of the survey, which together were used to answer question #2. An analysis of the missing data revealed that respondents had not answered all, or very large sections, of the items related to stakeholder salience. Thus, I decided not to estimate the missing data and to use only those 67 cases that were complete with respect to all parts of the survey.

However, because 19 of the 86 cases (22.09 percent) did not complete large sections of the survey, additional verification was undertaken to ensure that the survey was well understood. As the survey was anonymous, it was not possible to contact the respondents who did not complete the survey. Therefore, 10 individuals were chosen at random from those who had received the survey. I contacted them by telephone to enquire if they had completed the survey and if they had any issues in understanding the survey items. Two individuals, a dean and an executive director, confirmed they had completed the survey and that no difficulties were encountered. Further conversations were initiated with individuals in my home institution, Concordia University, who held similar positions as the target population. I presented the survey to seven individuals who held senior positions in facilities management, alumni and advancement, financial services and

faculty. All seven indicated that they fully understood what was being asked in the survey. Thus, this verification, in addition to the results of the pilot testing process and reliability indicators (Cronbach's Alpha), would indicate that the missing data for the stakeholder salience items was not due to a lack of understanding on the part of the respondents.

Question #3 – What strategies do university leaders use to manage stakeholder reactions to PI use?

To answer this question, 15 individuals were interviewed and 14 survey respondents answered the open-ended question, for a total of 29 responses. Missing data are not relevant here, as the data collected for this research question are qualitative.

Summary of Response Rates

Table 4.11 summarizes the response rates per question. In some cases, the surveys were sent out on my behalf. In other cases, I was provided with an email list, or I had to rely on the accuracy of the university's website to obtain the email addresses of senior administrators. Thus, the exact number of surveys sent out is unknown, but is estimated to be approximately 420 based on an average of 15 senior leaders (dean level and above) per each of the 28 institutions that agreed to participate. Based on this, the population of Canadian senior leaders (71 invited plus francophone universities) is estimated to be 1,275.

Based on the estimated 420 surveys sent out, the response rate varies per question from 15.95 percent to 20.48 percent. Similarly, based on the estimated total population of university leaders across Canada, the response rate varies from 5.25 percent to 6.74 percent.

Table 4.11

Response Rate by Research Question

	n	420 surveys	Population of 1275
1. To what extent do Canadian university leaders engage in PI use?	86	20.47%	7%
1a. What are the main drivers of PI use?	15	n/a	n/a
2. Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?	67	15.95%	5%
3. What strategies do university leaders use to manage stakeholder reactions to PI use?	29	n/a	n/a

Respondent Profiles

Survey

The profile of the respondent group, based on the demographic questions, is shown in Table 4.12. The profile is based on the 67 surveys that were fully completed.

Interviews and Open Ended Survey Question

Responses from 29 individuals were used to answer research question #3. Data were obtained from 15 interviews and 14 responses to the open-ended survey question.

Information about each interview respondent's current title, position, status, sector, interview details and location is presented in Table 4.13. As well, many of the interview respondents held previous positions in the university sector, and this information is presented in Table 4.14.

This section also includes the profile of the 14 survey respondents who answered the open-ended survey question. The profile is presented in Table 4.15.

Overall, of the 29 respondents, vice presidents account for 20.69 percent of the group, while executive directors and deans account for 13.79 and 27.59 percent respectively. Most of the

respondents, 72.41 percent are from Central Canada, which in this study refers to Ontario and Quebec. Since the number of Quebec and Ontario universities represents approximately 55% of Canadian universities, this result appears skewed. However, further analysis, presented in Table 6.5, shows similar profiles among the participating and non-participating universities. Further details are presented in Table 4.16.

Table 4.12

Profile of 67 Survey Respondents

AGE	Percent	**SECTOR EMPLOYED**	Percent
Less than 40 years	3	Academic sector	61
Between 41 and 55 years	40	Non-academic sector	35
Over 55 years	57	Other	4
	100		100
YEARS EMPLOYED		**STATUS**	
Less than 5 years	39	Tenured faculty	64
Between 6 and 10 years	19	Staff member	33
Between 11 and 15 years	12	Non-tenured faculty	1
Over 15 years	30	Other	2
	100		100
CURRENT POSITION		**STUDENT HEAD COUNT**	
President	2	Less than 1,000	3
Vice president	24	Between 1,001 and 5,000	21
Associate vice president	14	Between 5,001 and 10,000	17
Assistant vice president	3	Between 10,001 and 15,000	19
Dean	42	Between 15,001 and 20,000	20
Executive Director	6	Between 20,001 and 25,000	6
University Librarian	2	Over 25,000	14
Other	7		100
	100		

LOCATION		**PROGRAMS/ SCHOOLS**	Yes %	No%	%
Western Canada	52	Doctoral Program	74	26	100
Central Canada	32	Medical School	23	77	100
Atlantic Canada	16	Dental School	8	92	100
	100	Law School	27	73	

Table 4.13

Profile of 15 Interview Participants and Interview Details

	Name	Current Title	Senior Administration?	Status	Sector	Date of Interview	Length of Interview (in minutes)	Location in Canada
1	Denise	Associate Professor	no	Faculty	Academic	Feb 16	45	Central
2	Marie-Ange	Administrator	no	Staff	Academic	Feb 17	50	Central
3	Dan	Professor	no	Faculty	Academic	Feb 27	48	Central
4	Amelia	Associate Professor	no	Faculty	Academic	Mar 31	40	Central
5	Mitch	Professor	no	Faculty	Academic	Apr 18	35	Central
6	Ivan	VP Academic	yes	Faculty	Academic	Apr 5	40	Western
7	Goldie	Dean	yes	Staff	Academic	Mar 21	45	Western
8	Rocco	Director	no	Staff	Non academic	June 5	40	Central
9	Patricia	Executive Director	yes	Staff	Non academic	Apr 21	50	Central
10	Brianna	Professor	no	Faculty	Academic	June 5	60	Central
11	Thomasina	VP Academic	yes	Faculty	Academic	June 22	60	Central
12	Issey	Professor	no	Faculty	Academic	June 22	75	Central
13	Jean	Executive Director	yes	Faculty	Non academic	Apr10	45	Central
14	Kaitlin	Professor	no	Faculty	Academic	June 27	55	Central
15	Greg	Director	no	Staff	Academic	June 27	55	Central

Table 4.14

Current and Prior Positions of Interview Participants

Name	Current position	Prior positions held in higher education sector						
		Dept. Chair	Director	Vice Dean	Dean	Executive Director	Vice President	Other
Denise	Professor	x	x					
Marie-Ange	Officer							X
Dan	Professor	x	x					
Amelia	Professor		x					
Mitch	Professor		x	x				
Ivan	VP		x				x	
Goldie	Dean		x		x			
Rocco	Director		x					
Patricia	Executive Director		x			x	x	
Brianna	Professor		x					
Thomasina	VP	x	x	x	x		x	
Issey	Dean		x		x			
Jean	Executive Director		x			x		X
Kaitlin	Professor	x						
Greg	Director		x					
	TOTAL	4	13	2	3	2	3	2

Table 4.15

Profile of Survey Respondents to Open-ended Survey Question

	Senior Administrative Position	Status	Sector	Location in Canada
1	Vice president	Staff	Non academic	Western
2	Vice president	Faculty	Academic	Western
3	Associate vice president	Staff	Non academic	Central
4	Assistant vice president	Faculty	Non academic	Central
5	Dean	Faculty	Academic	Central
6	Dean	Faculty	Academic	Central
7	Dean	Faculty	Academic	Central
8	Dean	Faculty	Academic	Western
9	Dean	Faculty	Academic	Central
10	Dean	Faculty	Academic	Central
11	Dean	Faculty	Academic	Atlantic
12	Executive Director	Staff	Non academic	Central
13	Executive Director	Staff	Non academic	Western
14	Librarian	Other	Academic	Western

Table 4.16

Profile of Interview and Survey Respondents to Open-Ended Question

Position	No.	Percent	Location	No.	Percent
Vice Presidents (Incl. Assistant & Associate)	6	20.69	Central Canada	21	72.41
Executive Directors	4	13.79	Western Canada	7	24.14
Deans	8	27.59	Atlantic Canada	1	3.45
Professors	7	24.14			
Directors	2	6.89			
Librarian	1	3.45			
Administrator	1	3.45			
Total	29	100		29	100

Sample Representativeness

Survey/ quantitative data

Both the average number of senior administrators per institution (15) and the breakdown by type was estimated by reviewing the titles of the 420 individuals invited to participate in the survey. Table 4.17 compares the actual sample size of the 67 survey respondents by type and demonstrates that the sample is representative of the estimated population of senior university administrators across Canada.

Table 4.17

Sample Representativeness of Survey Respondents

	Estimated number and break down of senior administrators	Percent based on estimated breakdown	Percent based on actual sample size of 67
President	1	7.00	2.00
VPs (Includes associate and assistant VPs)	6	40.00	41.00
Deans	5	33.00	42.00
Other (Executive Directors, Librarians, others)	3	20.00	15.00
Total	15	100.00	100.00

Interviews/ quantitative data

As for the interview subjects the objective was to obtain qualitative data on PM and PI use from a diverse group of individuals, including faculty. As Table 4.13 shows, 5 of the 15 interview respondents (or 33.33 percent) held senior administrative positons at the time of the interview. Seven individuals (or 47 percent) held faculty positions and the remaining three respondents (or 20

percent) held staff positions. As well, as Table 4.14 indicates many of these individuals held prior positions in the education sector and therefore could provide insight on PM and PI use from many different perspectives.

Data Analysis

Quantitative Data

Quantitative data for research questions 1 and 2 were collected via an on-line survey. The first aim of collecting this quantitative data was to assess the extent of PI use across Canada. Therefore, PI use data was analyzed using descriptive statistics. The second aim of collecting quantitative data was to evaluate the relationship between four independent variables, perceived stakeholder salience of four groups, and a single dependent variable, PI use. In this case, descriptive statistics, correlation analysis, and multiple regression analysis were performed.

Qualitative Data

There are a number of methods available to the qualitative researcher. In this study, all interviews were transcribed, analyzed and then coded using certain aspects of grounded theory. Grounded theory consists of a specific set of procedures for developing middle-range theories from and with the help of empirical (text) data (Eriksson & Kovalainen, 2008). Throughout the entire analysis process, detailed memos were kept to document all impressions, coding decisions and thought processes.

The first step was to read all the transcripts several times to obtain a general first expression. Following this, a micro-examination of each transcript was conducted line-by-line and even word-by-word in order to form initial categories or themes. After this, the initial categories

were analyzed in more detail to gain new knowledge about them and how they relate to other categories. This was followed by the integration and refinement of the analysis to identify one category from which to form a larger theoretical scheme.

Mixed Data

If the aim of a mixed-methods study is to produce a holistic and complete interpretation of a research phenomenon, as was the case here, it is not sufficient to simply analyze qualitative and quantitative data separately and present the findings separately. However, several scholars have found that, in many instances, this is indeed the case. For example, in their review of mixed methods in information systems research, Venkatesh, Brown and Bala (2013) found that there is typically a dominant method, which is characterized by rigorous data collection and analysis, whereas the non-dominant method is often presented in a less rigorous manner with respect to data collection and/or analysis. As well, Jick (1979) suggested that some mixed-methods researchers struggle with true integration, in the sense of looking at a phenomenon from different perspectives and providing an enriched understanding. He added that in its current form, much mixed-methods research has been limited to presenting the data derived via different methods alongside each other and discussing findings separately. Similarly, Bryman (2007) observed that some, if not most, empirical mixed-methods research has not been able to transcend the forced dichotomy of quantitative and qualitative methods, and they are still used and represented as "totally or largely independent of each other."

This study aimed to develop meta-inferences, which are theoretical statements, narratives, or stories inferred from an integration of findings from the quantitative and qualitative strands of

the process, a critical and essential aspect of mixed-methods research (Venkatesh et al., 2013). The process of developing meta-inferences is conceptually similar to the process of theory development from observations, which in this case are the findings from the qualitative and quantitative analyses (Venkatesh et al., 2013).

Reliability and Validity

Quantitative Data

Reliability and validity help to demonstrate and communicate the rigor of the research process and the credibility and trustworthiness of research findings. A reliable test, procedure or tool is one that will produce the same results in different circumstances assuming nothing has changed (Roberts, 2006). In quantitative research, reliability is generally tested using a test-retest strategy and Cronbach's alpha to verify the internal consistency of an instrument. Internal consistency is the relationship between all the results obtained from a single test or survey (Roberts, 2006; Cooper & Schindler, 2014).

Validity is the extent to which a test measures what it claims to measure (Cooper & Schindler, 2014). There are two broad measures of validity: external and internal. External validity is the ability to generalize findings to other people in other situations, and internal validity is the confidence that we can place in the cause-effect relationship in a scientific study. Internal validity can be further categorized into content validity, criterion-related validity, and construct validity (Eby, 1994). Content validity concerns the relevance of items such as survey questions, and is generally achieved through pilot testing of questions and expert reviews. Criterion-related validity is established when a tool such as a questionnaire can be compared to other similar validated measures of the same concept or phenomenon (Eby, 1994). Construct validity refers to the

adequate measurement of a construct by the scale or test under consideration, and is primarily determined by expert review of questions and factor analysis, a statistical tool that examines the relationships between variables, disentangles them and identifies clusters of variables that are closely linked together.

Two existing instruments (Agle et al., 1999; Henri, 2006) were combined to create the survey for this study. When used individually in their original studies, these two instruments proved reliable and valid. Nonetheless, because they were being combined and used in a different setting, I employed the strategies shown in Table 4.18 to demonstrate reliability and validity.

Qualitative Data

Attaining trustworthiness, or validity and reliability, should be an important objective of all qualitative research. However, because concepts of validity and reliability cannot be addressed in the same way as quantitative research, other strategies are necessary. Guba (1981) proposed four criteria that should be considered to ensure the trustworthiness of a qualitative study: credibility, transferability, dependability and confirmability (Shenton, 2004). Credibility refers to the confidence in the ability of the data and processes of analysis to address the intended focus, and requires that the results align well with reality (Shenton, 2004). Transferability is the extent to which the findings can be transferred to another setting or group. To facilitate transferability, Shenton (2004) suggested that researchers provide a clear and distinct description of the culture, context, selection and characteristics of participants, data collection and process of analysis. A rich presentation of the findings, together with appropriate quotations, will also increase transferability (Graneheim & Lundman, 2004). According to Lincoln and Guba (1985, p. 299) dependability "seeks means for taking into account both factors of instability and factors of phenomenal or design

induced changes – in other words, the degree to which data change over time and alterations made in the researchers' decisions during the analysis process." Confirmability is the qualitative investigator's equivalent to objectivity; it is achieved when readers have assurance that the findings of the study are the results of the experiences and ideas of the informants, rather than the characteristics and preferences of the researcher (Shenton, 2004). Thus, all steps must be taken to reduce the effect of investigator bias. Miles and Huberman (1994) have noted that a key criterion for confirmability is the extent to which the researcher admits his or her own predispositions. The strategies that were used to demonstrate credibility, transferability, dependability and confirmability are shown in Table 4.19.

Table 4.18

Strategies Used to Demonstrate Reliability and Validity – Quantitative Data (Adapted from Cooper & Schindler, 2014; Roberts, 2006; Eby, 1994)

Quality Criterion	Overall strategies used to achieve each quality criterion	Specific strategies and tactics used to achieve each quality criterion
Validity		
	Review of questions	Questions reviewed by a panel of 7 experts
	Pre-testing of survey	Recruited 5 respondents for pre-testing and asked individuals to think out loud while they were taking the test (i.e. ask any questions) Observed how respondent completed the survey (e.g. looked for hesitations or answers that are changed) Conducted debriefing session with each respondent
	Pilot testing of survey	Recruited five individuals for pilot testing Conducted debriefing session with each respondent
Reliability	Use of statistical techniques	Computed Cronbach's Alpha to test for internal consistency

Table 4.19

Strategies used to Demonstrate Credibility, Transferability, Dependability and Confirmability of Qualitative Methods (adapted from Shenton, 2004)

Quality Criterion	**Overall strategies to achieve each quality criterion**	**Specific strategies and tactics used to achieve each quality criterion**
Credibility	Use of appropriate well-recognized research methods	The study used the interview, which is a well-recognized research method.
	Development of early familiarity with culture of participating organizations	Through conversations and research, I familiarized myself with the culture of participating organizations. As well, having worked in higher education for close to 25 years, I am very familiar with the higher education culture.
	Tactics to help ensure honesty of participants	Participants were given assurance of total anonymity and the option to refuse to participate. They were encouraged to be frank and open, assured of my independence, and informed that there are no right answers to the questions.
	Iterative questioning in data collection (to detect deliberate lies)	Questions were rephrased and asked again.
	Member checks of data collected and interpretations/theories formed	14 of the 15 interviews were audio recorded, thus increasing the accuracy of data. If something was not clear, respondents were contacted again to clarify (3 cases).
	Thick descriptions of phenomenon under scrutiny	The study includes detailed descriptions that describe the actual situation and context.
Transferability	Provision of background data to establish context of study and detailed description of phenomenon in question to allow comparisons to be made	Chapters 1 and 3 contain detailed descriptions of the phenomenon, and Chapter 2 contains a detailed discussion of the Canadian higher education sector.
Dependability	Employment of overlapping methods	The study used a mixed methods design, which is, effectively, the use of overlapping methods.
	In-depth methodological description to allow study to be repeated	The study includes detailed descriptions of how the study was carried out, including operational detail of data gathering.
Confirmability	Triangulation to reduce effect of investigator bias	This study employed mixed methods, which is, in effect, triangulation.
	Admission of researcher's beliefs and assumptions	The study includes a discussion of my beliefs and assumptions (see researcher's perspective, Chapter 1).

Summary

A mixed-methods research design with survey and interview methods was used to carry out this study, with several steps taken to ensure its reliability and validity. Techniques used to analyze the data included descriptive statistics and regression analysis for quantitative data, and coding techniques for the qualitative data. The final step in the analysis was the total integration of both data sets in order to develop meta-inferences about the research phenomenon.

CHAPTER 5: FINDINGS

This chapter presents the findings of this study for the following research questions:

1. To what extent do university leaders use PI?

   a) What are the main drivers of PI use?

2. Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?

3. What strategies do university leaders use to manage stakeholder reactions to PI use?

Question #1

Question # 1: To what extent do university leaders use PI?

The objective of this question was to get a baseline pulse on PI use in the Canadian university sector, as it has not yet, to my knowledge, been measured. As discussed in detail in Chapter 1, most studies measure PI use with one or two simple items. The expectation for this question was to measure PI use in more detail based on a well-defined construct of PI use. To do so, I used an instrument (see Henri, 2006) that was developed to measure PI use based on a comprehensive analysis of management control systems, which, as discussed previously, resulted in four types of PI use: monitoring, attention focusing, strategic decision-making and legitimization. Another objective of the question was to identify what stakeholders perceived as the main drivers of PI use in the higher education sector.

Survey Results

The results for overall PI use reveal a mean of 4.5 and a standard deviation of 1.12 based on a sample size of 86 cases with missing data replaced with the mean. Descriptive statistics are contained in Table 5.1. All respondents use PI to some extent as indicated by the minimum response of 2 (rarely use PI) based on a seven-point scale. Frequency of PI use is presented in Table 5.2 and Figure 5.1 shows a histogram of PI use. Reliability coefficients are presented in Table 5.3.

Table 5.1

Descriptive Statistics - PI Use

Cases	n	mean *	median **	sd	Max	Max
Partial and complete cases	86	4.50	4.50	1.12	2	7

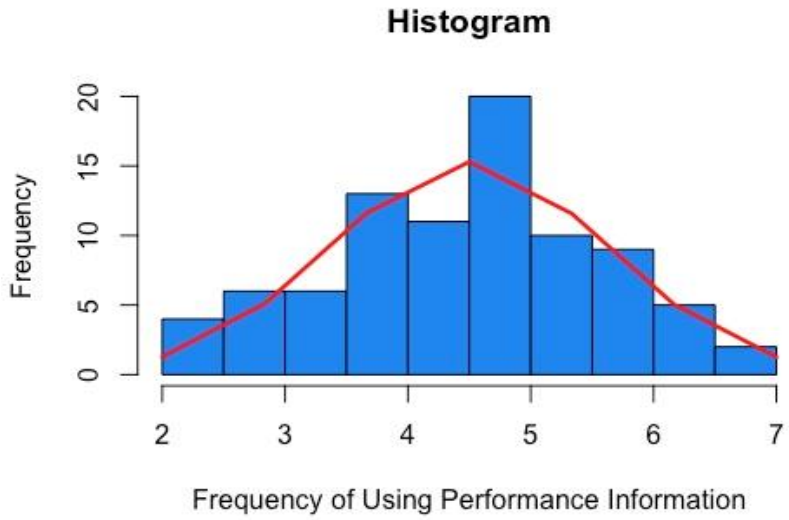
*missing data replace with mean
**missing data replaced with median

Table 5.2

Frequency of PI Use

	Missing data filled with mean		Missing data filled with median	
	Frequency	Percent Total	Frequency	Percent Total
Never	0	0.0000	0	0.0000
Rarely	4	0.0465	4	0.0465
Occasionally	11	0.1279	11	0.1279
Sometimes	25	0.2907	24	0.2790
Frequently	30	0.3488	31	0.3605
Usually	14	0.1628	14	0.1628
Every time	2	0.0233	2	0.0233
Total	86	1.000	86	1.000

Figure 5.1. Histogram PI use.



Confirmatory Factor Analysis

Before conducting reliability analyses and computing Cronbach's alpha a confirmatory factor analysis (CFA) should have been conducted to assess whether the data support the subscales (monitoring, attention-focusing, strategic decision-making and legitimization) initially proposed by Henri(2006). However, the sample size in this study did not meet any of the minimum sample size recommendations to conduct a CFA. According to Meyers, Ahn and Jin (2011) the recommended sample size for conducting a confirmatory factor analysis is n>=200. Comrey and Lee (1992) provided the following advice regarding sample size: 50 cases is very poor, 100 is poor, 200 is fair, 300 is good, 500 is very good, and 1,000 or more is excellent. In this study, the PI use model proposed by Henri (2006) identifies four factors. Therefore, given the sample size of 86 a CFA was not performed in this study. Rather, to test the validity of the scales

other methods such as expert review by academics and pilot testing with comprehensive debrief were conducted and proved satisfactory. Moreover, CFA results on Henri's (2006) sample size of 383 revealed acceptable model fit and statistical significance for all factor loadings.

Table 5.3

Cronbach's Alpha for PI Use Sub Scales (n= 86)

Sub component of PI use	# of items	Cronbach's alpha
PI use – monitoring	4	0.960
PI use – attention focusing	7	0.940
PI use – strategic-decision making	6	0.913
PI use – legitimizing	9	0.920
	26	

The alpha results, shown in Table 5.3 demonstrate very high reliability. However, given the small sample size of 86, these values may appear to be quite high. Goforth (2015) stated that a large number of highly correlated items could contribute to an elevated alpha score, thus risking redundancy in scale items. With 26 items to evaluate PI use in four areas, it may be that some of the items were redundant and contributed to the higher alpha values than were expected.

Question #1a: What do stakeholders perceive to be the main drivers of PI use?

Each interview participant was asked about his/her general thoughts on data-driven decision making and what they thought was driving this movement in the higher education sector. Interviewees identified 11 drivers of PI use, with accountability as the

most recurring theme. As well, interview participants identified governments, students and taxpayers as the stakeholder groups to whom the higher education sector should be accountable. Other drivers include the requirements of university accreditation bodies, an example of which is the Association for the Advancement of Collegiate Schools of Business (AACSB). Table 5.4 lists the main drivers of PI use identified by the interview respondents.

Table 5.4

Main drivers of PI Use Identified by Interview Participants

	Accountability	Justify decisions	Accreditation	To improve performance/quality control	Resource allocation	Desire to create a data driven culture	Current leadership regime	IT Capacity	New Public Management	Rankings	Fad
Interviewee											
Denise		x			x						
Marie Ange			x								
Dan	x	x									
Amelia	x										
Mitch	x								x		
Ivan	x										
Goldie	x			x		x					
Rocco	x			x							
Patricia	x		x								
Brianna		x			x		x				
Thomasina	x			x							
Issey			x					x		x	
John	x					x	x	x			x
Kaitlen		x									
Greg	x	x	x	x	x						
Total	10	5	4	4	3	2	2	2	1	1	1

Note: Based on analysis of qualitative data tabulated by author

Accountable to the Government

Provincial governments are the primary funders of higher education, and the sector has been plagued with financial difficulties for several years. Thus, some respondents stated that universities were engaging in PI use in order to demonstrate that the funding they received was being used in a way that contributes to their overall goals as established by the higher education sector.

> So, we get some external pressure from government for sure…
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

> Government pressure because they want to know, are we getting our money's worth in terms of what we are getting back from universities?
>
> Mitch, Faculty
> (personal interview, April 18, 2017)

> If we are going to be publicly funded institutions, then the governments who provide the funds are responsible that we are achieving the goals that justify them turning money over to us.
>
> Thomasina, Vice president
> (personal interview, June 22, 2017)

> I find there is increased pressure from government for us to show them the real data. How are we using this money? What are we doing with this money?
>
> Patricia, Executive Director
> (personal interview, April 21, 2017)

> … to respond to our shareholders – the governments and funding bodies – to show the value of the institution.
>
> Goldie, Dean
> (telephone interview, March 21, 2017)

Accountable to Students

Several respondents identified accountability to students as a main driver of PI use. Accountability was discussed mostly in terms of quality of education and employment opportunities upon graduation.

> We need to know if what is being delivered to the students is of acceptable quality…
>
> Rocco, Director
> (personal interview, June 5, 2017)

> There are requests from students…in terms of showing evidence that universities are doing work that is appropriate and aligned with their strategic goals and this is showing evidence of improvement over time.
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

> Students are saying, "We are paying all this money, and what are we getting?"
>
> Patricia, Executive Director
> (personal interview, April 21, 2017)

> Students are very open to performance information. It allows them to evaluate and compare institutions… and they have created the ultimate KPI... *Rate My Professor*.
>
> Goldie, Dean
> (Telephone interview, March 21, 2017)

Accountable to the Public

Respondents also identified accountability to the public and taxpayers as a driver of PI use, as demonstrated in these examples:

> There is a great deal of pressure on universities these days to show the ability in a public way of the value for money that the public investment is making in higher education.
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

> We are a public institution and we need to tell the guys on the street what we are doing. When finances are plentiful, there is less monitoring. When finances are tight, then we must make the case that we are spending tax dollars wisely.
>
> Amelia, Faculty
> (personal interview, March 31, 2017)

The increased scrutiny of higher education by the media and certain public disclosure acts that reveal the salaries of certain employees in the higher education sector were identified as reasons for the increase in public accountability:

> I would say the general public and the media are becoming more enquiring as to what universities are doing.
>
> Mitch, Faculty
> (personal interview, April 18, 2017)

> Ontario publishes the Sunshine list that fundamentally publishes the salary of anyone earning over $100,000. You had Profs on that list making huge amounts of money so there were questions arising. But faculty themselves are feeling the external pressures…they read the newspapers, they know that their neighbors see how much they work or don't work.
>
> Patricia, Executive Director
> (personal interview, April 21, 2017)

> I am doing a private contract for the government and the deputies say that the general public still has the impression there is still fraudulent behaviour in the public sector.
>
> Issey, Faculty
> (personal interview, June 22, 2017)

Question #2

Question #2: Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?

This question sought to examine the relationship between university leaders' perceived stakeholder salience of four groups (faculty, students, staff and donors) and PI use. Although several studies have examined the effects of powerful stakeholders, this

has not, as far as I am aware, been explored in a setting of PI use. Furthermore, as discussed in Chapter 1, the events that occurred at the University of Manitoba in November 2017 provide evidence that university stakeholders may affect the extent to which PI is used.

The relationship between perceived stakeholder salience and PI use was examined quantitatively, using multiple regression analysis with PI use as the dependent variable and the perceived salience of four stakeholder groups (faculty, students, staff and donors) as the independent variables. The interview data gathered also added context to the quantitative results.

Stakeholder Salience Results

University leaders perceive faculty as the most salient stakeholder group, with a mean of 2.52 and a standard deviation of 0.66 (mean scores closer to one represent higher perceived salience than mean scores closer to seven). In addition, the results are skewed to the left and not normally distributed around the mean. One explanation for this skewness is that professors provide the unique core value and carry out the core mission and consequently they are most salient. (V. Baba, personal communication, March 27, 2018). After faculty, the most salient stakeholder groups are students, staff and donors. Descriptive statistics for stakeholder salience are presented in Table 5.5.

Table 5.5

Descriptive Statistics for Stakeholder Salience

Variable	N	mean	sd	median	Trim	mad	min	max	range	skew	kurtosis	se
Faculty Salience	67	2.52	0.66	2.5	2.5	0.74	1	4	3	0.17	-0.66	0.08
Student Salience	67	2.9	0.85	2.88	2.89	0.74	1	5	4	0.12	-0.27	0.1
Staff Salience	67	3.31	0.94	3.25	3.31	0.74	1	5	4.5	-0.04	-0.08	0.11
Donor Salience	67	3.43	0.85	3.62	3.45	0.74	1	5	4	-0.36	-0.37	0.1

Interview respondents also discussed faculty salience, and they generally agreed that faculty are indeed very powerful:

> Yes, faculty are very powerful. If I behave in a way where the dominant coalition does not like me, then I am out. Better get along with the Profs…
>
> Issey, Faculty
> (personal interview, June 22, 2017)

Some of the comments addressed faculty salience by discussing notions of tenure and independence:

> Faculty have a lot of power…there is less power the higher you go and more constraints. I've had some people complain about it – first time presidents – who can't believe how little they can actually do. Faculty members with tenure are protected by notions of academic freedom, which is not shared by many professionals at all… Generally…the essential elements of an employment contract are loyalty and subordination – you have to do what your boss tells you. Profs don't. They are protected and occupy a privileged position in the academy. Just like doctors.
>
> Jean, Executive Director
> (personal interview, April 10)

> If you are president of RBC, you decide what goes on and you can tell me what to do. But if you are president of a university, you don't tell me what to do. What I do has nothing to do with the president actually… And you do want the faculty to buy in…and of course the issue is that the dean or the provost, yes they are

> administrators but we do not view them as our bosses, so there is a certain collegial dimension.
>
> Mitch, Faculty
> (personal interview, April 18, 2017)

One respondent, a faculty member, stated that despite being very powerful, faculty felt as though they were no longer involved in the decision-making process. Another respondent stated that faculty only had power if the board was composed mainly of academics:

> Faculty is powerful, there is no doubt about it. Let's face it, when you have an institution where so many of its people are tenured…if a tenured faculty doesn't want to do something, then one is stuck. It's ironic; the Profs are as powerful as ever, but there is a sense we are not at the heart of the decision-making.
>
> Brianna, Faculty
> (personal interview, June 5, 2017)

> I don't think faculty has any power at all. Faculty may have power if the board is composed of many academics, but when the board is composed of business people, there is no power.
>
> Amelia, Faculty
> (personal interview, March 31, 2017)

Multiple Regression Results

Correlations and Significance

The correlation matrix indicates that with respect to the dependent variable of PI use, there is no correlation with student salience (r = -0.03), a weak correlation with faculty salience (r = -0.19), a weak correlation with donor salience (r = -0.19), a moderate negative correlation with staff salience (r = - 0.29) and a moderate positive correlation with the demographic variable, size of institution (r = 0.29). These assessments were made using Cohen's (1988) rules of thumb, which are often used in the social sciences. The rules propose that for correlations between variables describing

people, r = 0.1 should be considered a small or weak association, r = .3 might be considered medium in strength and r = .5 or higher could be considered large or strong. The p value for the correlation coefficient of staff salience is 0.0182, and for size, it is 0.0183, so that both are significant at the 0.05 confidence level. The correlation coefficients are presented in Table 5.6. The p values for all coefficients are contained in Appendix 1.

Table 5.6
Correlation Matrix

	Monitoring	Legitimizing	Attention focusing	Strategic DM	PI Use	Students	Faculty	Staff	Donor	Age	Size	Yrs. Emp.
Monitoring	1.00											
Legitimizing	0.74	1.00										
Attention focusing	0.76	0.83	1.00									
Strategic DM	0.67	0.8.	0.70	1.00								
PI Use	0.88	0.93	0.91	0.87	1.00							
Students	-0.05	0.03	-0.01	-0.06	-0.03	1.00						
Faculty	-0.16	-0.14	-0.12	-0.28	-0.19	0.42	1.00					
Staff	-0.29	-0.22	-0.26	-0.27	*-0.29	0.47	0.47	1.00				
Donor	-0.24	-0.25	-0.09	-0.11	-0.19	0.27	0.23	0.36	1.00			
Age	0.01	0.03	0.07	-0.01	0.03	-0.22	0.09	-0.06	-0.01	1.00		
Size	0.21	0.30	0.27	0.26	*0.29	-0.11	0.04	-0.15	-0.15	0.12	1.00	
Years employed	-0.31	-0.13	-0.15	-0.05	-0.18	-0.02	-0.18	0.05	0.03	0.26	-0.01	1.00

* significant at p=0.05

Reliability and Validity Results

To assess the reliability of measurement, Cronbach's alpha was computed for each PI use and stakeholder salience construct. The results, presented in Table 5.7, indicate that each stakeholder salience construct has acceptable reliability as they are all above .75. However, as discussed in the previous section, the alpha results for PI use are higher than expected.

Table 5.7

Reliability results

Construct	Cronbach's Alpha
PI Use – Monitoring	0.96
PI Use – Legitimizing	0.92
PI Use – Attention focusing	0.93
PI Use – Strategic decision making	0.92
Faculty salience	0.75
Student salience	0.81
Staff (nonacademic) salience	0.84
Donor salience	0.83

Regression Results

Multiple regression techniques can be used for two broad classes of research problems, prediction and explanation. This study used multiple regression analysis for the latter purpose. That is, the objective was not to estimate a model that would explain PI use, as many of the strong predictors identified in Chapters 1 and 3, such as leadership support, were excluded from the models. Rather, the objective was to determine whether any of the four stakeholder variables demonstrated a small but reliable relationship to PI use, which would be indicated by predictor variables whose coefficients proved significant. Thus, four regression models (with n = 67) were tested in order to determine if any of the independent variables could be considered as significant predictors of PI use – the dependent variable.

Model #1 (please refer to Table 5.8 and Table 5.9)

Model #1 was constructed using all four independent variables of perceived stakeholder salience for faculty, students, staff and donors. The regression equation for model #1 is:

$\hat{Y} = 5.973 - 0.184 x_1 + 0.236 x_2 - 0.330 x_3 - 0.149 x_4$

Where,

x_1 = perceived faculty salience
x_2 = perceived student salience
x_3 = perceived staff salience
x_4 = perceived donor salience

The results show that, as expected, model #1 explains a small amount of variation in the dependent variable; in this case, 6.20 percent. The F statistic of 2.081 and a corresponding p value of 0.094 indicate that the regression model is not significant. As well, none of the coefficients of the predictor variables proved significant at p = 0.05.

Table 5.8

Model # 1 – Summary and ANOVA Results

Model	R^2	Adjusted R^2	Standard Error of Estimate	df	F Statistic	Sig (F)
1	0.118	0.062	1.074	62	2.081	0.094

Table 5.9

Model # 1 – Regression Results

Model 1	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	5.973	0.704		8.490	
Perceived faculty salience	-0.184	0.235	-0.110	-0.782	0.437
Perceived student salience	0.236	0.182	0.182	1.293	0.201
Perceived staff salience	-0.330	0.176	-0.279	-1.880	0.065
Perceived donor salience	-0.149	0.168	-0.115	-0.889	0.377

Note: DV=PI use

Model #2 (Please refer to Table 5.10 and Table 5.11)

The next step was to determine whether any of the demographic variables could improve the model. In previous studies, size of institution was tested seven times with

mixed results (see Table 1.1). Additionally, given the significant correlation (see Table 5.6) between size of institution and PI use, I decided to include this variable in model #2. Also, the sociodemographic variables of respondent age and number of years employed were also tested in several studies. The results of these were also mixed: less than one third of the 23 studies found these two variables significant (see Table 1.1). However, since the interview data discussed in the next section provided evidence that junior faculty and staff members may be more receptive to PI use, I decided to include the variables of age and number of years employed in the model. This resulted in the following regression equation:

$$\hat{\mathbf{Y}} = 5.057 - 0.184\, x_1 + 0.313\, x_2 - 0.235\, x_3 - 0.105\, x_4 + 0.234\, x_5 + 0.169\, x_6 - 0.205\, x_7$$

Where,
x_1 = perceived faculty salience
x_2 = perceived student salience
x_3 = perceived staff salience
x_4= perceived donor salience
x_5 = age of respondent
x_6 = size of institution
x_7 = years respondent employed in institution

The results show that, as expected, model #2 explains a small amount of variation in the dependent variable; in this case, 14.40 percent. The F statistic of 2.585 and a corresponding p value of 0.021 indicate that the regression model is significant.

As well, only one of the predictor variables, size of institution, proved to be significant at p = 0.05.

Table 5.10

Model #2 – Summary and ANOVA Results

Model	R^2	Adjusted R^2	Standard Error of Estimate	df	F Statistic	Sig (F)
2	0.235	0.144	1.026	59	2.585	0.021

Table 5.11

Model #2 – Regression Results

Model 2	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	5.057	0.975		5.185	
Perceived faculty salience	-0.407	0.241	-0.244	-1.690	0.096
Perceived student salience	0.313	0.182	0.241	1.725	0.090
Perceived staff salience	-0.235	0.171	-0.198	-1.375	0.174
Perceived donor salience	-0.105	0.161	-0.081	-0.654	0.516
Age of respondent	0.234	0.250	0.118	0.936	0.353
Size of institution	0.169	0.075	0.265	2.254	0.028*
Years employed	-0.205	0.108	-0.236	-1.906	0.062
Note: DV = PI Use					

Model #3 (Please refer to Table 5.12 and Table 5.13)

Given this result, a stepwise regression was conducted to determine whether another model would produce significant coefficients. Stepwise regression, a method of fitting regression models in which the choice of predictive variables is carried out by an automatic procedure, extracts the best subset of independent variables from an initial set of variables. In each step, a variable is considered for addition to or subtraction from the set of explanatory variables based on some pre-specified criterion, usually a sequence of *F*-tests or *t*-tests. Starting with the four initial independent variables, this procedure resulted in an estimated model #3 that included only one predictor variable,

perceived staff salience. In this model, the coefficient of staff salience is significant at 0.018. The estimated model #3 using stepwise regression is:

$$\hat{Y} = 5.718 - 0.341\ x_1$$

Where,
x_1 = perceived staff salience

The results show that, as expected, model #3 explains a small amount of variation in the dependent variable, in this case 6.90 percent, and perceived staff salience proved to be significant at p = 0.05. The F statistic of 5.86 and a corresponding p value of 0.018 indicate that the regression model is significant. In addition, the predictor variable of perceived staff salience proved significant at p=0.05.

Table 5.12

Model #3 - Summary and ANOVA Results

Model	R^2	Adjusted R^2	Standard Error of Estimate	df	F Statistic	Sig (F)
3	0.083	0.069	1.07	65	5.86	0.018

Table 5.13

Model #3 – Regression Results

Model 3	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	5.718	0.483		11.834	
Perceived staff salience	-0.341	.141	-0.288	-2.422	0.018 *
Note: DV = PI Use					

Model #4 (Please refer to Table 5.14 and Table 5.15)

After running three regressions, the only significant coefficients identified were size of institution in model #2 and perceived staff salience in model #3. As mentioned

earlier, the correlations between size of institution, perceived staff salience and PI use also proved significant. Therefore, a fourth regression was performed using these two variables. The estimated model #4, using significant coefficients from models #2 and #3 is:

$$\hat{\mathbf{Y}} = 4.936 - 0.29\, x_1 + 0.160\, x_2$$

Where,
x_1 = perceived staff salience
x_2 = size of institution

The results show that, as expected, model #4 explains a small amount of variation in the dependent variable; in this case, 11.8 percent. The F statistic of 5.405 and a corresponding p value of 0.007 indicate that the regression model is significant. Also, both predictor variables, perceived staff salience and size, proved significant at p = 0.05.

Table 5.14

Model #4 Summary & ANOVA Results

Model	R^2	Adjusted R^2	Standard Error of Estimate	df	F Statistic	Sig (F)
4	0.144	0.118	1.042	64	5.405	0.007

Table 5.15

Model #4 – Regression Results

Model 4	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
Constant	4.936	0.595		8.298	
Perceived staff salience	-0.297	.138	-0.251	-2.150	0.035 *
Size of institution	0.160	.074	0.251	2.149	0.035 *
Note: DV = PI Use					

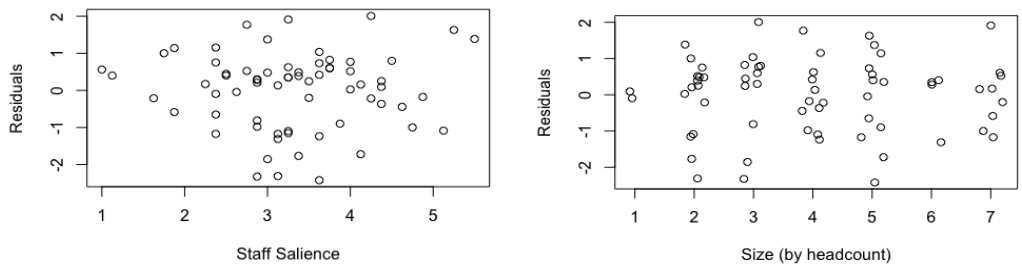
Multiple Regression Assumptions

The four assumptions of multiple regression analysis are:

1. A linear relationship exists between the dependent and independent variables
2. Constant variance of the error terms (homoscedasticity)
3. Statistical independence of the errors
4. Normality of the error term distribution

The linearity assumption was verified by examining the residual plots shown in Figure 5.2, which indicate the absence of a curvilinear relationship between the dependent and independent variables.

Figure 5.2. Residual plots to verify for linearity.



Homoscedasticity is present when the residual terms have the same variance for each predicted value of y. Tabachnick and Fidell (2007) explained that the residuals (the difference between the obtained DV and the predicted DV scores) and the variance of the residuals should be the same for all predicted scores. If this is true, the assumption of constant variance is met and the scatter plot takes the (approximate) shape of a rectangle where scores will be concentrated in the center (about the 0 point) and distributed in a rectangular pattern. More simply, scores will be randomly scattered

about a horizontal line. In contrast, any systematic pattern or clustering of scores is considered a violation. Based on these criteria, the residual plot in Figure 5.3 indicates that the assumption of homoscedasticity has been met.

The third assumption is that the residuals are independent of each other and do not affect each other. This assumption can be verified by examining the residual plot by the number of respondents. If there is no clear pattern, as is indicated in Figure 5.4, it may be assumed that the residuals are independent.

Figure 5.3. Residual plots to verify for homoscedasticity.

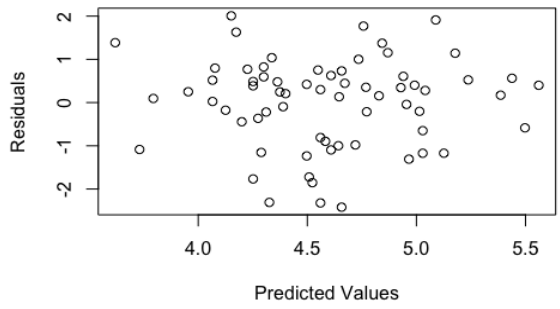
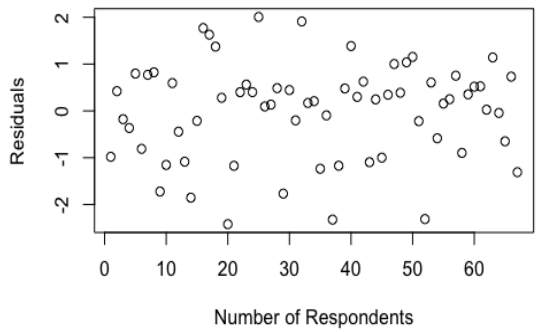
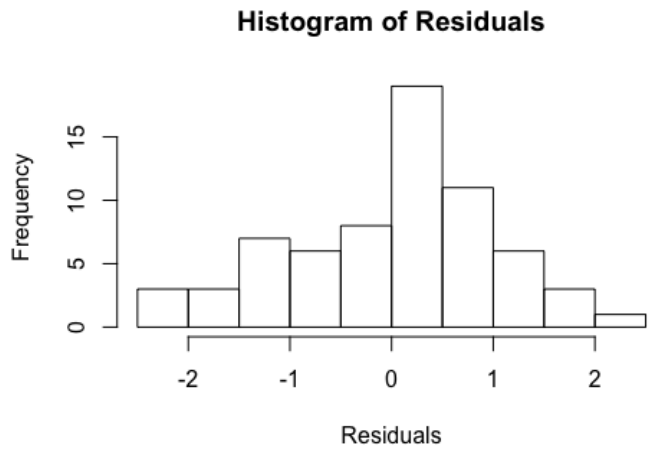


Figure 5.4. Residual plots to verify for independence of error terms.



The fourth and last assumption that must be met when using multiple regression analysis is that the residuals must have a normal distribution with a mean of zero. The histogram of residuals shown in Figure 5.5 indicates a nearly normal distribution.

Figure 5.5. Histogram of residuals.



Question #3

Question #3: What strategies do university leaders use to manage stakeholder reactions to PI use?

The objective of this research question was to give more depth to the results of this research study. Specifically, I wanted to enquire about the stakeholder management strategies used by senior university leaders to deal with reactions to the idea of data-driven decision-making in the higher education sector.

For this question, I used a theoretical framework developed by Savage, Nix, Whitehead and Blair (1991), that calls for an assessment of stakeholder views on a

specific issue and then, depending on that assessment, proposes one of four stakeholder management strategies. Table 5.16 reproduces the four possible assessments and the strategies proposed in Chapter 1, the details of which were discussed in the theoretical framework section of Chapter 3.

Table 5.16

Stakeholder Assessment and Strategies (Savage et al., 1991)

Type of Stakeholder	Characteristics	Threat/Cooperation	Strategy
Supportive	Ideal stakeholder; supports organizational goals and actions; usually includes board members, managers and staff employees	Low on potential threat/high on cooperation	Involve
Marginal	Not usually concerned about most issues; may include stockholders and consumer interest groups depending on the issue	Neither highly threatening nor highly cooperative	Collaborate
Non-supportive	Most distressing for an organization and its managers; usually includes labor unions, governments and sometimes the news media	High on potential threat/low on cooperation	Defend
Mixed Blessing	Plays a major role in organization; can transition into a non-supportive or supportive position	High on potential threat /high on cooperation	Monitor

The data used to answer this question consisted of 15 interviews and 14 open-ended survey questions. As discussed in Chapter 4, all the interviews were transcribed, analyzed alongside the responses to the open-ended questions and coded using certain aspects of grounded theory.

Stakeholder Reaction to PI Use

Faculty and staff were identified as the stakeholder groups most likely to resist or negatively influence PI use. Conversely, donors and students were identified as

groups that would be more likely to embrace the idea of performance measurement and PI use:

> Most of the pushback comes from faculty. They say what we do is not measureable and recoil at the idea of being considered as factory line assembly producers of students. There is also some push back from staff but not as much as faculty – some of them come from industry so they may be used to KPIs. Students are the most open to KPI data. It allows them to evaluate and compare institutions…they've created the ultimate KPI – *Rate My Professor*.
>
> Goldie, Dean
> (telephone interview, March 21, 2017)

> We have an anti-KPI culture. It is very invasive – if you know what I do then you have a lot of power over me. There is a natural resistance to personal measurement… Our board members, they don't have a clue about what we are doing, what a professor does, what teaching is or what service is.
>
> Amelia, Faculty
> (personal interview, March 31, 2017)

> …there are requests from students…showing evidence that universities are doing work that is appropriate and aligned with their strategic goals and that is showing evidence of improvement over time…
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

> …students are saying, "Well, we are paying this money, what are we getting?" Same for donors.
>
> Patricia, Executive Director
> (personal interview, April 5, 2017)

> Donors want their money to make this world a better place…When they hear of mismanagement or wasteful activities, it is great cause for concern. When we made the papers that we were going to report a deficit, a lot of donors were on hold.
>
> Rocco, Director
> (personal interview, June 5, 2017)

Stakeholder Management Strategies

Seven respondents mentioned themes of sharing, shared goals, teamwork, working by consensus, partnerships, engagement, transparency and collegiality:

> I encourage my faculty, staff, and students to see themselves as part of a team dynamic. To this end, everyone gets along very well with one another. This is facilitated by having a faculty that is non-departmentalized. Without disciplinary silos, we are able to realize the value of being a transdisciplinary team with regards to teaching, research, and service. We have a wonderful work environment. Hence, there is no doubt that my stakeholder groups have power, but it is rarely exercised in an effort to leverage an outcome. We work by consensus.
>
> Dean
> (survey response)

> I think that engagement with any of these groups, even when experienced as strong resistance, can inform one's decision-making by contextualizing performance information if you foster genuine dialogue with shared goals in view.
>
> Dean
> (survey response)

> I have only been in my position for 5 months, so I cannot say with certainty... I have just started to initiate a culture of assessment here, and we have used the preliminary results in developing partnerships with all three of the groups mentioned.
>
> Librarian
> (survey response)

> The rub is when the administration tries to beat the unions over the head... if you are going to use performance information to carry out a war or effect significant, sudden and substantive change, I think there would be tremendous pushback. When I became CFO I went around to all the faculties and schools and had presentations about the budget… be very direct and open about it.
>
> Patricia, Executive Director
> (personal interview, April 5, 2017)

Information is always helpful when shared appropriately.

> Dean
> (survey response)

Focus on Supportive Stakeholders to Promote the PI Use Agenda.

Nine of the 15 respondents specified that junior faculty members were accustomed to the notion of accountability measures:

> As a dean, I pick my battles. It is the 80/20 law. I focus on the 80 percent who are awesome and who contribute.
>
> Issey, Faculty
> (Personal interview, June 22, 2017)

> I feel that more junior faculty are more receptive to change and to work with objectives to move the university forward… Some donors have mentioned that some of our senior faculty members are too complacent or too comfortable.
>
> Rocco, Director
> (personal interview, June 5)

> I do think we are at some kind of transition stage where new faculty members, perhaps, understand better the needs of the public for these accountability measures than, perhaps, people who have been working in the academy for a number of years when they were working in different circumstances and where there was more money to go around.
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

> For the younger members, they are more instrumental in some ways. They are trained differently than when we were trained and joining a society which is different too, so for them it is less of an issue … And they are more practical in some ways.
>
> Mitch, Faculty
> (personal interview, April 18, 2017)

> There is no question in my mind that younger faculty members have been conditioned to this (measurement) through their development.
>
> Patricia, Executive Director
> (personal interview, April 21, 2017)

Peer Influence to Persuade Non Supportive Stakeholders

Two respondents referred to the influence of supportive faculty on non-supportive faculty members:

> Ultimately the younger people or other people in your department will have to say that it's not in the unit's best interest to have colleagues like that.
>
> Brianna, Faculty
> (personal interview, June 5, 2017)

> Faculty members comply with what our profession tells us we should do. We submit to the profession, not the institution.
>
> Issey, Faculty
> (personal interview, June 22, 2017)

Ivan commented that due to the tension between faculty and senior administration, faculty members who understand the importance of PI use would be in a better position to influence non-supportive stakeholders:

> …but it needs great facilitation skills and also needs some faculty in the group who understand the importance of KPIs and who can then help facilitate that conversation, because faculty are significantly impacted by other faculty and their perspectives…more so than they are affected by executive members… so as a VP Academic, my ability to influence is limited by the confrontational role we see between faculty and administration.
>
> Ivan, Vice president
> (telephone interview, April 5, 2017)

Summary

This chapter presents the main findings for each research question asked in this study. The next chapter discusses and analyzes those findings.

The main findings of this study are:

- On a 7 point scale (1= never 7= every time) the mean of PI use among Canadian university leaders is 4.50.
- The qualitative data indicates that accountability is the main driver of PI use.
- The four stakeholder groups examined in this study are perceived as salient or very salient. Faculty are perceived to be the most salient, followed by students, staff and donors.
- The results of the regression analysis indicate that the coefficients of perceived staff salience and organizational size are significant. However, given the small sample size it is uncertain whether these results are representative of the population.
- The stakeholder strategies for PI use involve aspects of sharing information and goals, teamwork, consensus, partnerships, engagement, and collegiality. To promote the PI use agenda the findings show that focusing on supportive stakeholders works best while peer influence is used to persuade non-supportive stakeholders to be more accepting of PM and PI use.

CHAPTER 6: ANALYSIS, DISCUSSION AND CONCLUSION

Introduction

This final chapter analyzes, discusses and concludes on the findings of this study that were outlined in Chapter 5. First, I present the analysis, discussion and summary of the results for each research question, using both qualitative and quantitative data. This is followed by an overall summary of the findings, recommendations for practice, limitations of the study, directions for future research and final remarks.

Question # 1

Question # 1: To what extent do university leaders use PI?

The quantitative results of this study demonstrate that Canadian senior university leaders do engage in some form of PI use. Based on seven possible survey response choices (1= never, 7 = every time), the mean of 4.50 indicates that, on average, senior university leaders use PI between some of the time (choice # 4) and frequently (choice #5). The data further show that the main driver of PI use is accountability.

As discussed in Chapter 3, empirical studies have demonstrated that several variables strongly influence PI use. However, the qualitative evidence gathered in this study suggests that another variable, context, may explain the quantitative results. The theory of evidence-based decision-making (EBDM) (Baba & HakemZadeh, 2012) posits that the context of an organization might influence whether evidence makes its way

into decision options. In other words, context may ease or hinder the process of EBDM. The qualitative data indicate that the context in which Canadian universities operate may indeed be driving university leaders to engage in higher than average PI use; this overarching context is New Public Management (NPM).

New Public Management – Focus on Accountability

Frink and Klimoski (2004) defined accountability as a focus on the conduct or decisions that are observed or evaluated by some audience. There is also the expectation that whoever is being held accountable may need to answer for, justify or defend his/her decision. Similarly, Lerner and Tetlock (1999) defined accountability as "the implicit or explicit expectation that one may be called on to justify one's beliefs, feelings and actions to others."

The spirit of NPM is to make the public sector more accountable. Indeed, accountability is reflected in six of the seven dimensions of NPM (see Table 2.2). The first NPM dimension calls for the dismantling of larger units into separate smaller units, which increases accountability because performance data are more targeted or less diluted. The second dimension emphasizes greater competition between public sector organizations and the private sector. The third dimension recommends that the public sector adopt more private sector techniques such as PM. To be sure, PM, of which accountability is a large part, has been adopted in one form or another in many institutions of higher learning. The fourth NPM dimension calls for accountability and emphasizes caution when spending taxpayers' money. The fifth dimension, which promotes a more hands-on style of management to create a link between clear duties

and accountability, is a clear directive for increased accountability. The sixth dimension, which recommends more explicit and measureable standard of performance, eventually leads to accountability in the event of below par performance. The seventh dimension recommends that units be evaluated on outputs rather than inputs, which increases accountability as it focuses on outcomes. Thus, overall, as accountability is reflected in six of the seven NPM dimensions, it may be argued that the overarching theme of NPM is accountability.

Main Drivers of PI Use: Focus on Accountability

In this study, interview respondents were asked to identify what they perceived as the main drivers of PI use (see Table 5.4). In total, 11 drivers were identified with a total of 35 mentions. Five of the 11 PI use drivers identified by respondents – accountability, NPM, justification of decisions, resource allocation and accreditation – are all in some way, directly or indirectly, related to the theme of accountability. In addition to the obvious connection of NPM drivers to the theme of accountability, the need to justify decisions is a means of responding to accountability demands. Similarly, the need for PI to make resource allocation decisions allows one to justify decisions so that accountability demands may be fulfilled. Additionally, accreditation has become a form of public accountability by providing assurances that an institution has the capacity to offer its programs (Lejeune & Vas, 2009). In general, accreditation is a quality assurance process and certifies that accredited schools have the necessary structures and processes to meet their stated objectives and to continually improve performance.

Table 6.1 shows that, with 23 mentions out of a possible 35, accountability-related responses represent over 65 percent of the total. Furthermore, the data indicate push and pull factors in place with respect to PI use. Often associated with migration issues, push factors are forceful while pull factors are voluntary. In terms of PI use, calls for increased accountability and the need to demonstrate that accountability appear to be pressuring university leaders into using PI; therefore, accountability is a push factor. The data also indicate that the potential ability of PM systems to improve organizational performance, a pull factor, is not a major driver of PI use, as this factor was mentioned only four times out of a possible 35.

The connection between NPM and the qualitative data is evident, as the recurring and predominant theme in both is the need for the public sector to demonstrate accountability to its stakeholders. In other words, NPM, with its overarching theme of accountability, is driving universities to engage in PI use.

Table 6.1

Main Drivers of PI use - Accountability-Related and Non-Accountability-Related

PI use driver identified by respondents	Mentions	Relationship to Accountability
Accountability Related		
• Accountability	10	Direct
• Justify decisions	5	A way to respond to accountability demands
• Accreditation	4	Form of public accountability by providing assurances that capacity exists to offer programs (Lejeune & Vas, 2009).
• Resource allocation	3	Use of PI to allocate resources so that decisions are justifiable and respond to accountability demands
• New Public Management	1	Overarching theme of NPM is accountability to the public (see Seven Dimensions of NPM Change, Table 2.2)
Subtotal	23	
Non Accountability Related		
• To improve performance/ quality control	4	
• Desire to create a data-driven culture	2	
• Current leadership regime	2	
• IT capacity	2	
• Rankings	1	
• Fad	1	
Subtotal	12	
TOTAL	35	

Summary

Based on the scale used in this study Canadian university leaders are engaging in above-average levels of PI use. This can be explained, in part, by the context in which universities operate, characterized by increasing demands for accountability so as to demonstrate value for the public funds invested in higher education. This context is the essence of NPM, and this is reflected in six of the seven dimensions of NPM change. In addition, it is clear that five of the main drivers of PI use, as identified by the respondents, are heavily influenced by NPM and its overarching theme of accountability. Therefore, this study shows that, in accordance with the theory of EBDM, context does influence PI use in the case under discussion.

Question #2

Question #2: Do Canadian university leaders' perceptions of stakeholder salience influence their level of PI use?

This study reveals several interesting findings with respect to stakeholder salience and its effect on the PI use habits of Canadian university leaders. On a seven-point scale (1= strongly agree, 7 = strongly disagree), the means of perceived salience for each stakeholder groups are all above 3.5. In particular, faculty is perceived as very salient, with a mean of 2.52 and a standard deviation of 0.66. However, the effect of perceived stakeholder salience on PI use is not what was expected. The results indicate that staff salience is a significant independent variable, even though staff is perceived as the third most salient group, after faculty and students.

The discussion of this question begins with the classification of stakeholders according to the theoretical typology presented in Chapter 1, followed by explanations for the perceptions of stakeholder salience observed here and by discussions and explanations of the multiple regression analysis.

Classification of Stakeholders Using Theoretical Typology

According to Mitchell, Agle and Wood's (1997) typology of stakeholders, the results of this study indicate that faculty, students, staff and donors can all be considered, at least, expectant stakeholders. That is, they all possess at least two of the three attributes of salience: power, legitimacy and urgency. Furthermore, given the means of perceived faculty and student salience of 2.52 and 2.9, respectively (based on a 7-point scale), these groups could also be considered definitive stakeholders who possess all three of these attributes. The qualitative evidence strongly supports the quantitative results for perceived salience. All but one respondent agreed that faculty is salient; the one who did not mentioned that faculty did not have power due to a lack of representation on university boards.

Therefore, as shown in Table 6.2, based on Mitchell, Agle and Wood's (1997) typology of stakeholders, these groups will likely receive management attention if they are expectant stakeholders, but will receive undivided management attention if they are definitive stakeholders.

Table 6.2

Classification of University Stakeholders (using typology by Mitchell, Agle & Wood, 1997)

Stakeholder Group	Type of Stakeholder	Level of management attention expected
Faculty	Definitive	Undivided
Student	Definitive	Undivided
Staff	Expectant	Likely to receive attention
Donors	Expectant	Likely to receive attention

Explanations for Stakeholder Salience

At the outset of this study, it was not my intention to investigate the outcome of measuring perceived stakeholder salience. However, with the results in mind, particularly the high scores for faculty and students, I decided to seek explanations for these elevated levels of perceived salience among faculty, students and donors. However, due to the lack of available data or research I was not able to provide an explanation for the results of perceived staff salience.

Faculty

Mintzberg's (1980) description of a university as a professional bureaucracy may explain why faculty is perceived as very salient. According to Mintzberg (1980), the higher education sector, as an organizational structure, is considered a professional bureaucracy in which work is largely coordinated by requiring individuals to possess a certain standard of skills usually before they begin to do the work. In higher education, most faculty, by virtue of having doctoral degrees, possess research and teaching skills when they are hired. This reliance on standardization of skills is the hallmark of the

professional bureaucracy, and is usually found in school systems, social work agencies and accounting firms, to name only a few (Mintzberg, 1980).

Thus, the operating core of a professional bureaucracy consists of highly trained specialists (in this case, faculty) who enjoy a considerable amount of autonomy in the way they carry out their work. These specialists work largely independently of the administrative hierarchy and also of their own colleagues, which is largely true of most faculty members and is confirmed by the interview data. Mintzberg (1980) further argued that much of the formal and informal power of the professional bureaucracy rests in its operating core, and that professionals control their own work and tend to maintain collective control of the administrative apparatus of the organization.

Students

After faculty, students are perceived as the next most salient group. The high level of student salience may be explained by the fact that students are often conceptualized not only as consumers but also as empowered consumers. Two factors contribute to this conceptualization: the level of tuition fees and the availability of information, including PI.

For most students, the value of higher education is often translated into dollars and cents (Cain, Romanelli & Smith, 2012). This is particularly true when tuition fees are costly. It has been suggested that governments or universities forcing students or their families to shoulder an increasing portion of the cost of higher education represents a decision to treat education more like a consumer investment (Glater, 2013). Gokcen (2013) states that because universities present themselves as providers of tangible

products and services such as housing, career services and degrees, it is not surprising that students interpret this as a cue to act as consumers. Similarly, calculating the return on investment on a university education is becoming an increasingly commonplace exercise (see Ashford, 2014; Maple, 2013).

Students are increasingly viewed not merely as consumers, but as empowered consumers. At a basic level, consumers become empowered when they are able to make informed choices. Empowerment increases when consumer resources and skills together create situations to which organizations are compelled to respond (Cova & Dalli, 2009; Dholakia & Firat 2006). The mechanisms that contribute to the empowerment of students (Naidoo, Shanker & Veer, 2011) are related to the availability of information, including PI. First, students have greater access to information about university programs, so that they know what they are getting at the outset of their studies. Second, performance indicators, including those regarding graduation and job placement rates, academic and social facilities, are often available to students and are sometimes required by government. Third, many national and international rankings measure various dimensions of university performance. Finally, student satisfaction surveys may also increase student empowerment; in addition to providing information to assist students in making choices about their education, these surveys may empower students to influence how other consumers or potential consumers perceive individual Chaschools.

Donors

Of the four stakeholder groups, donors are perceived as the least salient. However, with a mean of 3.43, they are still slightly above the 3.5 mid-mark of the 7-point scale. There are several categories of donors and donations, including private gifts from wealthy individuals, corporate and foundation gifts, in-kind gifts, matching gifts, small gifts and planned gifts.

Although for the purposes of this study, donor stakeholders were considered as one group, it is plausible to suggest that perceived donor salience may be influenced by the value of the gift or the extent of any strings attached to the gift. Indeed, it is generally agreed that donor-controlled philanthropy is becoming more widespread (Ostrander, 2007).

Ostrander (2007) proposed three social relationships with respect to philanthropy that may be used to explain and examine the current level of donor control. The first is donor exclusivity, manifested by giving circles in which groups of individuals donate their own money or time to a pooled fund and decide together where to give these away. As a result, recipient access to these giving circles can be practically non-existent (Ostrander, 2007). In other words, recipient groups are not often able to present their cases to giving circles, which may provide a basis for today's increase in donor control. The second new type of social relationship that Ostrander (2007) suggests facilitates donor control is the increased use of philanthropic advisors who offer a plethora of services to donors. Many companies, both for-profit and non-profit, have offered advice about charitable giving (Panepento, 2006, as cited in

Ostrander, 2007). These companies try to identify the forces that drive a particular donor to give or identify a donor's most cherished values. Ostrander argues that when advisors focus intently on the donor's personal goals, a possible consequence is heightened donor control relative to recipient influence. The third relatively new type of donor relationship is referred to as high-engagement or high-impact philanthropy, in which donors, often wealthy, involve themselves as active partners with recipient groups. These donors are often referred to as social entrepreneurs, and share power over how resources will be used. This may be considered the pinnacle of a social relations model.

Overall, if donors can exert control over how a gift is to be used, managers may have a heightened perception of donor salience.

Regression Results - Effect of Perceived Stakeholder Salience and Size on PI Use

Organization Size

The multiple regression results indicate that organizational size influences PI use. That is, although the r^2 was low, as expected, the coefficient of the variable organizational size proved significant at $p = 0.05$. This result is not surprising, since larger universities are often very decentralized in structure, and using PI is an efficient means of communicating results and information to senior management. As well, larger universities may have more IT capacity and units that are dedicated to producing PI for use by various units within the institution.

However, as discussed in Chapter 3, previous studies of the relationship between organizational size and PI use have produced mixed results. Furthermore, these results

are inconclusive given the instability of the results produced from a small sample size of n = 67.

Perceived Salience

The regression results indicate that only one of the four independent variables, perceived staff salience, may significantly influence PI use. Model #4 demonstrates that for every one-unit increase in perceived staff salience, there is a -0.297 decrease in PI use. Yet, the means of perceived faculty and student salience are higher and significantly different than that of perceived staff salience. The expected result was that higher perceived salience levels would influence PI use, but the actual result suggests two possibilities.

First, a moderating or intervening variable has been excluded from the analysis. In other words, there is a condition or feature that affects the staff stakeholder group more, or less than, the faculty, staff and donor stakeholder groups. It may be that, unlike staff, faculty members, students and donors are generally not at the heart of the day-to-day decision-making processes of the university. Therefore, such a lack of regular participation in the process may affect the extent to which these groups can exert influence on whether or not PI is used. In most instances, university staff, certainly at the managerial level and above, are close to and often participate in much of the decision-making. This is particularly true of units in the non-academic sector, such as, for example, financial services, facilities management, IT, fundraising, student residence and ancillary services, for which both leaders and subordinates are non-academic staff.

The second possible explanation is that, due to the limited sample size of 67, the results are not representative of the population and the hypothesis that perceived stakeholder salience does not affect PI use cannot be rejected. That is, there is no connection between perceived salience of stakeholder groups and PI use. It may be that these four stakeholder groups have substantial power, but not the power to decide on the extent to which data are used to inform the decision-making process.

The current bicameral governance structure of universities, with the senate and the board serving as government bodies, may explain this result. The senate gives power to the faculty to decide on all academic matters. In most situations, boards are responsible for approving budgets, land purchases, construction projects, appointments, and any significant academic decisions with financial repercussions, such as new faculties. Although faculty, staff and students do have board representation, are consulted on administrative matters and often use their powers of persuasion to influence matters, the final authority on all administrative decisions is the university's board of governors.

Another explanation for this surprising result may be the strategic contingency theory of inter-organizational power (Hickson et al., 1971) which, as discussed in Chapter 2 explains the shift in power from one unit to another unit within the organization. It may be that as a result of the demands by the government and the public for increased governance, transparency and accountability, there has been a shift in power from the faculty to the senior administration, and perhaps, in particular, university boards. That is, yes, faculty are perceived to be salient but it may that

university boards are perceived to be even more salient than faculty. This study did not measure perceived salience of the board but it is worth considering the strategic contingency theory to examine this further.

As with the results of this project's first research question, the context in which universities are operating today, one of financial instability and increased accountability demands, may also explain these perceptions of salience. Thus, it may well be that university leaders are increasingly making decisions that can be supported with PI, whether these decisions be rational or political.

Summary

There is no doubt that the evidence, both qualitative and quantitative, indicate that the four stakeholder groups examined here are perceived as salient or very salient. However, because of the small sample size, the regression results are inconclusive as to whether perceived stakeholder salience and organizational size influence PI use. Nonetheless, the small p value of 0.018 for the coefficient of perceived staff salience suggests a possible statistical significance and warrants further examination in future research on PI use, including the role of non-academic staff in the university decision-making processes for which there is a dearth of information or data.

Question #3

Question #3: What strategies do university leaders use to manage stakeholder reactions to PI use?

The stakeholder strategy framework (Savage et al., 1991) recommends that stakeholders' positions on a specific issue first be assessed. The results of this study

indicate that, in general, students and donors are the groups most likely to support the idea of data-driven decision making, while faculty and staff are more likely to resist it. Then, depending on the assessment outcome, the framework advocates one of four stakeholder management strategies: involvement, collaboration, defend or monitoring.

The analysis and discussion of question #3 begins with the assessment and classification of stakeholders, based on the evidence gathered in this study, as supportive, non-supportive, marginal or mixed blessing with regards to PI use. Then, stakeholder strategies used by respondents are compared to the framework in order to determine whether this framework applies to the higher education sector.

Stakeholder Assessment

Faculty

The evidence suggests that faculty members are most likely to resist PI use; however, it also reveals that many faculty members, particularly junior faculty, support PI use. Junior faculty does not refer to age but represents those individuals who have recently entered academia. These junior faculty members may be more accustomed to notions of accountability and therefore more accepting of PM because accountability has been one of the common discourses in higher education, both in Canada and globally. As explained in Chapter 2, since the 1990's many universities have encountered financial difficulties and have been increasingly scrutinized by the funding bodies and the public in general. Thus, for junior faculty who have only experienced the cash-strapped university environment and all that it entails, PM and PI use may be just business as usual.

As the theory of professional bureaucracy suggests, faculty members are fairly independent individuals who are more committed to their profession than to the institution (Mintzberg, 1980). Therefore, those who fit this description may also be categorized as marginal or mixed-blessing stakeholders.

Students

Universities are facing increasing accountability demands from students who want to see value for the tuition fees they are paying. Thus, it is not surprising that students would support data-driven decision making in the university sector. With this in mind, students can be classified as supportive stakeholders with respect to the idea of using PI to inform the decision-making process. This means that these groups do not pose a threat, but are willing to cooperate on this specific issue; however, students could potentially become non-supportive if PI is used to make decisions that directly affect them, in which case they could also be considered mixed-blessing or marginal stakeholders, who range from highly cooperative to highly threatening. Some examples of situations in which students may become non-supportive stakeholders include using PI to increase fees or class sizes or to cut programs or student aid. This last was the case in Quebec in 2012, leading to student protests that were colloquially nicknamed *le printemps érable,* or the Maple Spring. These student protests, triggered by tuition fee increases, received extensive national and international media coverage (see Lukacs, 2012; Garland, 2012) and resulted in the longest and largest student strike in the history of North America, and the single largest act of civil disobedience in Canadian history (Hallward, 2012). On the other hand, Quebec may well be an exception to the rule, as

Canadians outside Quebec essentially remained bystanders (Charbonneau, 2013). Pin (2013) has suggested several reasons for this regional phenomenon, beginning with Quebec's history of social action regarding higher education, dating back to the Quiet Revolution of the 1960s. University education has increasingly been regarded in Canada as a private benefit accruing to the individual, so that tuition fees and student debt become more of a personal than a social issue. High tuition fees in other provinces may in fact act to stifle protest, because the opportunity cost of protest is higher in these provinces; the students have more to lose.

Staff

The only significant variable that affected PI use in the regression model was the perceived salience of staff. The models indicate that perceived staff salience has a negative effect on PI use, which may be an indication that staff do not support PI use. Conversely, the framework suggests that supportive stakeholders usually include board members, managers and staff employees. However, it is difficult to categorize staff into one category. Whereas decades ago, the majority of staff was clerical, today some of the most senior positions in the university are occupied by staff. Moreover, although most staff are unionized, others are not, and often come from industries in which performance management is more widespread than in the education field. Generally speaking, staff could be classified as supportive of PI use in the university sector, but some staff, particularly if they are unionized, could easily transition to non-supportive or mixed-blessing stakeholders if PI were used, for example, to justify staff cuts and layoffs.

Donors

As a whole, the evidence demonstrates that donors, like other stakeholders, demand accountability and prefer to see universities that are well managed. This would suggest that donors could be classified as supportive stakeholders. However, depending on the terms and conditions of a gift, donors could also be classified as marginal stakeholders who are not concerned with most issues. For example, donors who fund specific chairs, professorships, research centers or other such projects may be uniquely interested in the outcomes of these projects and would be satisfied if these goals are met.

Overall, the framework of four categories of stakeholder types proposed by Savage, Nix, Whitehead and Blair (1991) is comprehensive. However, trying to assign a stakeholder group into one category proved difficult. Therefore, stakeholder groups cannot be viewed as monoliths, and the evidence seems to suggest this. The complexity and sheer magnitude of the university sector may account for the diverse nature of stakeholder groups. Table 6.3 presents the various classifications for each of the four stakeholder groups examined in this study.

Stakeholder Management Strategies

Depending on the assessment outcome, the theoretical framework for stakeholder management recommends one of four strategies: involvement, collaboration, defend, and monitoring strategies for, respectively, supportive, marginal, non-supportive and mixed-blessing stakeholders.

Table 6.3

Assessment of Stakeholder Groups (using framework by Savage, Nix, Whitehead and Blair, 1991)

Stakeholder Group	Assessment
Faculty	Supportive, non-supportive, marginal or mixed blessing
Students	Supportive, marginal or mixed blessing
Staff	Supportive, non-supportive, marginal or mixed blessing
Donors	Supportive or marginal

The results of this study indicate that the strategies used by respondents largely involve notions of teamwork, partnerships, consensus, sharing and genuine dialogue, which all converge in a central predominant theme of collegiality. This result is not surprising, as collegiality is the essence of academic culture and has influenced, to a large extent, how universities are managed and thus how stakeholders are managed. Indeed, Kligyte and Barrie (2014) have noted the significant body of scholarly writing on the embedding of collegiality within university governance and decision-making structures.

Collegiality most often refers to the relationship that exists when faculty members show respect to one another and collaborate in order to achieve a common purpose. Although some studies have indicated that collegiality is on the decline, others have shown that it has endured in academia despite sweeping changes to university practices (Kligyte, & Barrie, 2014). In addition, because collegiality is a foundation of

academia, leadership in higher education is arguably different from other organizational contexts (Kligyte & Barrie, 2014). Therefore, a more collaborative and indirect type of leadership is required due to the structural complexity and decentralization of many institutions of higher learning (Bryman, 2007; Scott 2011). However, collegiality has been presented in both positive and negative lights. For example, it has been cited as a component of effective leadership (Bryman, 2007; Scott, 2011). Tapper and Palfreyman (2010) refer to collegiality as a vital if outmoded university governance and decision-making structure. On the negative side, some have seen collegiality as a problem that can be overcome with good leadership (Burnes, Wend & By, 2014) and a defense against managerialism that has gone astray (Rowland, 2008).

The defend strategy, which is recommended for non-supportive stakeholders, did not feature at all in the qualitative data. This strategy involves attempts to reduce the dependence that forms the basis for stakeholders' interests in the organization. Essentially, the framework recommends that the same strategies that are used to handle competitors be applied to non-supportive stakeholders. Clearly, if faculty and staff exhibit non-supportive attitudes towards PI use, a defend strategy is unlikely, as most universities operate in highly unionized environments whose stakeholders are very powerful. Moreover, the defend strategy is at complete odds with the collegial culture of many universities. As one respondent, Brianna, stated, "if a tenured faculty doesn't want to do something, then one is stuck." This may sum up the situation in many universities. The evidence suggests that peer influence of supportive stakeholders,

rather than a defence strategy, may be used at the departmental level to influence non-supportive stakeholders to be more receptive to PI use.

The monitoring strategy was not directly identified as a stakeholder strategy used by the respondents in this study. The framework recommends that when strategic decisions are made, managers should monitor the interests of typically marginal stakeholders. However, we can also argue that the culture of collegiality and the organization of university governance structures are essentially forms of constant and continuous monitoring, accompanied by strong elements of communication. That is, the bicameral structure of most universities, which includes representatives from all major stakeholder groups, allows senior management to communicate with and then monitor and assess, on a very regular basis, where stakeholders stand on any particular issue.

Summary

In summary, the framework for the assessment and management of stakeholders does not seem to apply to the higher education sector. The classification of stakeholders is appropriate and covers all possible cases, but it is difficult to classify stakeholders into one category on the specific issue of PI use.

The evidence suggests that the involvement and collaboration strategies are the most efficient strategies to manage stakeholders, as they are heavily influenced by the collegial culture of most academic institutions. For non-supportive stakeholders, peer influence, rather than a defence strategy, is best suited to attempt to bring non-supportive stakeholders on board, most likely due to the collegial culture of academia,

stakeholder salience and the highly unionized environments in which most universities operate. The monitoring strategy is embedded into university governance structures because they require representation of all stakeholder groups.

Therefore, the stakeholder management strategy framework as proposed by Savage, Nix, Whitehead and Blair (1991) only partially applies to the phenomenon under discussion here. It appears that an alternative stakeholder management strategy framework applies to the Canadian higher education sector. Therefore, I propose the monitoring strategy, which is achieved through stakeholder representation on boards, senate, faculty councils and various committees, as the overarching model for managing stakeholders. The collaboration and involvement strategies feature predominantly for all stakeholders, while peer influence can prompt unsupportive stakeholders to transition to more supportive positions. A proposed stakeholder management framework for the higher education sector is presented in Table 6.4.

Table 6.4

Stakeholder Management Strategy for the Higher Education Sector (using framework by Savage, Nix, Whitehead and Blair, 1991)

Type of Stakeholder	Overarching Stakeholder Management Strategy	Specific Stakeholder Management Strategy
Supportive	Monitor	Involvement & Collaboration
Non -supportive	Monitor	Peer Influence
Mixed Blessing	Monitor	Involvement & Collaboration, if they transition to a supportive role
		Peer Influence, if they transition to a non-supportive role
Marginal	Monitor	Involvement & Collaboration, if they transition to a supportive role
		Peer Influence, if they transition to a non-supportive role

Summary of Findings and Recommendations for Practice

Table 6.5 presents a summary of the findings and related recommendations for practice.

Limitations of the Study

The first limitation of this study is that the sample size of 67 to assess the relationship between perceived stakeholder salience and PI use was at the lower end of the acceptable limits. Also, the number of responses obtained regarding the extent to which university leaders engage in PI use was 86, which was not as high a number as could be expected. These relatively small samples were partially offset by the qualitative data, but nonetheless, larger sample sizes would have allowed for more definitive results. Another limitation of the study is its low participation rate, with only 28 of 71 institutions responding positively to my invitation. Therefore, it is possible that the participating universities, and the responses received, are not representative of the Canadian higher education sector. However, further analysis, detailed in Table 6.6, shows similar profiles among the participating and non-participating universities. The third limitation is related to the use of self-reported data. The reliability of self-reported data is often regarded as the Achilles' heel of survey research. In this case, it is possible that PI use survey results may be overstated, as respondents may have wanted to be regarded in a good light. However, the qualitative data did provide evidence of a heightened awareness of the need to be accountable and to be able to justify decisions.

Table 6.5

Main Findings and Recommendations for Practice

Main findings	Recommendations for practice
Canadian university leaders do in fact use PI to guide the decision-making process in their work. However, in many cases are pressured into using PI. That is, push factors such as a need to demonstrate accountability, are driving PI use.	We now know that university leaders across Canada engage in a healthy level of PI use. This provides a benchmark that will serve as a useful starting point for conversations about data-driven decision making in general, and about where Canadian universities stand in relation to the results of this study of PI use. Universities may want to survey their own employees to establish their position in terms of PI use. University leaders need to show and demonstrate the effectiveness of PM. Research on whether PM works is scant and the results are mixed, but several studies have shown that PM, if properly executed, can lead to improved organizational performance. Therefore, the pull factor of PM needs to be promoted in the higher education field.
The context of New Public Management, with its focus on accountability and competition, is the overarching driver of PI use.	This study identifies a new variable that drives PI use: New Public Management, of which accountability is a large part. Therefore, more conversations and presentations about what universities need to be accountable for and why, and how to achieve accountability, may help promote the use of PI.
The four stakeholder groups examined in this study are perceived as salient or very salient.	Stakeholders in this study, particularly faculty, are perceived as very salient, and this should be taken into account when developing strategies relating to performance measurement and management.
The results of the regression analysis to determine if perceived stakeholder salience influences PI use are inconclusive. In other words, although the coefficient of perceived staff salience was significant, the results were unstable due to the small sample size. Therefore, the hypothesis that perceived stakeholder salience has no effect on PI use could not be rejected.	Although the results are not definitive university leaders should be aware of the potential influence stakeholders may have on PI use. The events at the University of Manitoba confirm the salience of faculty with respect to PI use.
The predominant stakeholder management strategies are involvement, collaboration, and monitoring, and these are influenced by the collegial culture of governance structures of academia.	A collegial approach to the issue of performance management and measurement will yield a better result than one that does not take collegiality into consideration. This may be evident to experienced senior administrators who hold faculty positions, so this may be more relevant to non-academic senior administrators who are new to academia.
Peer influence is used to encourage non-supportive members to become supportive of PI use.	Encourage supportive members to influence or persuade their non-supportive peers to be more accepting of PI use.

Table 6.6

Profiles of Participating and Non-Participating Universities

	Participating (28 universities)	Percent (of 28)	Non-participating (43 universities)	Percent (of 43)
With:				
Medical Schools	6	21.42	7	16.27
Dental Schools	3	10.71	5	11.63
Law Schools	8	28.57	10	23.26
Graduate Programs	26	92.85	38	88.37
Doctoral Programs	17	60.71	24	55.81
Average Headcount	15,575		15,100	
Standard deviation	14,293		19,383	

Directions for Future Research

As the research field of PI use is only a few decades old, there are many opportunities for further research, especially in the area of higher education in which there is currently a dearth of empirical studies on data driven decision-making. The most obvious direction for future research is to continue testing the theory of EBDM. This study demonstrated that one predictor of PI use – context – influenced PI use. It is still necessary to test the other components of the theory: managerial preference, stakeholder preference and ethical considerations.

The effects of perceived stakeholder salience on PI use need to be studied further, especially since the results of this project were inconclusive due to a small sample size. The events at the University of Manitoba discussed in Chapter 1 and the results of this project indicating that faculty and students are perceived as very salient

to PI use demonstrate the need for further study. However, to do so requires cooperation from university leaders in the form of higher survey response rates.

Another area that has not yet been examined in depth is accountability and its relationship to PI use. Frink and Klimoski (1998) have stated that, despite its importance, accountability remains one of the most understudied concepts in this field. The evidence in this study identified accountability as the main driver of PI use, and examples from the psychology literature (see Ford & Weldon, 1981; Rozelle & Baxter, 1981) have confirmed that it can alter behaviour, including organizational behaviours such as PI use.

Probably the most important type of research to advance the field of PM and PI use is that which demonstrates a causal link between PM and improved performance. However, there are relatively few studies addressing the largest and most fundamental question about PM: Does it work?

Final Remarks

This study was driven primarily by my interest in the topic of performance management and my personal experience as a lecturer, then staff and part-time faculty member in my university. I also wanted to engage in a project that would provide practical benefits to the higher education sector, and I believe I have accomplished that. As I have stated in Chapter 1, my general belief is that, despite its flaws, PM and PI are important sources of information for the decision making process in organizations, and the higher education sector is no exception. Indeed, in my 25 years in the higher

education sector, in a wide variety of positions, I have witnessed the good, the bad and the ugly of PI use.

Although I have enjoyed the experience of conducting this project, it did often strike a little close to home. Performance management is a sensitive subject to some people in the academy, and despite this difficulty, I believe it applies to the higher education sector. There are those who vehemently disagree with my position, and I do respect their views, though I do agree with them that higher education is not an assembly line of workers producing graduates and research, nor should students be regarded only as consumers. Even so, we live in an era in which lack of funding, changing demographics, and empowered consumers pose challenges to the higher education sector. On reading Ernst and Young's 2012 study *University of the Future: A One-Thousand-Year-Old Industry on the Cusp of Profound Change,* I reflected that, based on my experience, the university sector is no longer what it was 25 years ago. It is still collegial, but it is also very aware of the demands of New Public Management, and as the title of Ernst and Young's study indicates, may well be on the cusp of a profound change

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Appendix 1 – P Values for Correlation Coefficients

P Values – Correlation Coefficients

	M	L	A	S	PI	Xs	Xf	Xt	Xh	age	size	employed_years
M		0.0000	0.0000	0.0000	0.0000	0.6727	0.2059	0.0193	0.0543	0.9207	0.0871	0.0115
L	0.0000		0.0000	0.0000	0.0000	0.7843	0.2744	0.0788	0.0416	0.7788	0.0126	0.2959
A	0.0000	0.0000		0.0000	0.0000	0.9626	0.3228	0.0310	0.4625	0.5918	0.0296	0.2405
S	0.0000	0.0000	0.0000		0.0000	0.6054	0.0239	0.0294	0.3646	0.9450	0.0324	0.6962
PI	0.0000	0.0000	0.0000	0.0000		0.8368	0.1221	0.0182	0.1214	0.8123	0.0183	0.1468
Xs	0.6727	0.7843	0.9626	0.6054	0.8368		0.0003	0.0000	0.0268	0.0788	0.3884	0.8709
Xf	0.2059	0.2744	0.3228	0.0239	0.1221	0.0003		0.0000	0.0668	0.4826	0.7617	0.1426
Xt	0.0193	0.0788	0.0310	0.0294	0.0182	0.0000	0.0000		0.0026	0.6285	0.2411	0.7033
Xh	0.0543	0.0416	0.4625	0.3646	0.1214	0.0268	0.0668	0.0026		0.9208	0.2122	0.8317
age	0.9207	0.7788	0.5918	0.9450	0.8123	0.0788	0.4826	0.6285	0.9208		0.3156	0.0341
size	0.0871	0.0126	0.0296	0.0324	0.0183	0.3884	0.7617	0.2411	0.2122	0.3156		0.9562
employed_years	0.0115	0.2959	0.2405	0.6962	0.1468	0.8709	0.1426	0.7033	0.8317	0.0341	0.9562	

Legend:
M= Monitoring
L = Legitimizing
A = Attention Focusing
S = Strategic Decision making
PI = PI use
Xs = Perceived student salience
Xf = Perceived faculty salience
Xt = Perceived staff salience
Xh = Perceived donor salience

Appendix 2 - Survey

SURVEY

WELCOME! Thank you for taking the time to complete this survey! For every survey completed the Principal Investigator will donate $5 to the Canadian Red Cross (to a maximum of $ 1,000). Your participation in this research is voluntary. You have the right to withdraw at any point during the study, for any reason, and without any prejudice. If you would like to contact the Principal Investigator in the study to discuss this research, please e-mail Germaine Chan at germaine.chan@concordia.ca. By clicking the button below, you acknowledge that your participation in the study is voluntary, you are 18 years of age, and that you are aware that you may choose to terminate your participation in the study at any time and for any reason.

DEFINITIONS Performance information (also known as an indicator or key performance indicator) is defined as: Financial and non-financial information regularly compiled by your institution on the performance of activities, processes, services, products, departments, programs, business units etc. that can be useful to management in performing their jobs. Examples of performance information for a university bookstore: % defective items received from suppliers; Daily sales; Sales per employee; Sales per sq. ft.

SECTION I - In this section we ask you 26 questions about how frequently you have used performance information, in the last six months, for specific purposes.

In the last six months I have used performance information to: (1= never, 7 = every time)

1. Track progress towards goals
2. Review key measures
3. Monitor results (3)
4. Compare outcomes to expectations
5. Verify assumptions
6. Maintain perspectives
7. Tie my unit together
8. Enable my unit to focus on critical success factors
9. Develop a common vocabulary in my unit
10. Provide a common view of my unit
11. Enable discussions in meetings with superiors, subordinates and peers
12. To identify what problems my unit should be looking into
13. Enable continual challenge and debate underlying results, assumptions and plans
14. Make strategic decisions once the need for a decision was identified and an immediate response was required
15. Make strategic decisions once the need for a decision was identified and an immediate response was NOT required
16. Make decisions when it was difficult to differentiate among plausible solutions to a problem because each had good arguments (IE: they could not be easily ranked)
17. Make decisions regarding an unstructured problem that had not been encountered before
18 To anticipate the future direction of my unit, as opposed to responding to an identifiable problem
19. Make a final decision on a strategic issue of major importance
20. Confirm my unit's understanding of the business
21. Justify decisions
22. Support actions
23. Reinforce beliefs
24. Stay close to the business
25. Increase focus
26. Validate a point of view

SECTION II - In this section we ask you 8 questions about your perceptions of four stakeholder groups - Faculty, Staff (non - academic), Students and Donors - for a total of 32 questions.

DEFINITIONS Stakeholders: Individuals or groups of individuals that can affect, or be affected by, an organization's actions, objectives and policies.

Stakeholder power is defined as a group/person possessing any one of the following three abilities:

- The ability to apply a high level of direct economic reward or punishment to obtain its will (e.g.: offering/withholding funds, resources, goods, services etc.)
- The ability to apply coercive or physical force to obtain its will (e.g.: guns, lockouts, sabotage, including access to legal processes that can invoke the use of physical force)
- The ability to positively or negatively influence the reputation or the prestige of an organization to obtain its will (e.g.: by going to the media)

For each stakeholder group please rate each statement based on your interaction with this group in the past six months1 = strong agree, 7 = strongly disagree)

1. The faculty stakeholder group had power (whether used or not)
2. The faculty stakeholder group had the power to enforce its claims, demands or desires (whether used or not)
3. The faculty stakeholder group had the ability to impact my unit/department (whether used or not)
4. The faculty stakeholder group actively pursued its claims, demands or desires
5. The faculty stakeholder group urgently communicated its claims, demands or desires
6. The faculty stakeholder group actively sought attention regarding its claims, demands or desires
7. The claims, demands or desires of the faculty stakeholder group were viewed as legitimate (proper or appropriate)
8. The claims, demands or desires of the faculty stakeholder group were not proper or appropriate

1. The student stakeholder group had power (whether used or not)
2. The student stakeholder group had the power to enforce its claims, demands or desires (whether used or not)
3. The student stakeholder group had the ability to impact my unit/department (whether used or not)
4. The student stakeholder group actively pursued its claims, demands or desires
5. The student stakeholder group urgently communicated its claims, demands or desires
6. The student stakeholder group actively sought attention regarding its claims, demands or desires
7. The claims, demands or desires of the student stakeholder group were viewed as legitimate (proper or appropriate)
8. The claims, demands or desires of the student stakeholder group were not proper or appropriate

1. The staff (non-academic) stakeholder group had power (whether used or not)
2. The staff (non-academic) stakeholder group had the power to enforce its claims, demands or desires (whether used or not)
3. The staff (non-academic) stakeholder group had the ability to impact my unit/department (whether used or not)
4. The staff (non-academic) stakeholder group actively pursued its claims, demands or desires
5. The staff (non-academic) stakeholder group urgently communicated its claims, demands or desires
6. The staff (non-academic) stakeholder group actively sought attention regarding its claims, demands or desires
7. The claims, demands or desires of the staff (non-academic) stakeholder group were viewed as legitimate (proper or appropriate)
8. The claims, demands or desires of the staff (non-academic) stakeholder group were not proper or appropriate

1. The donor stakeholder group had power (whether used or not)
2. The donor stakeholder group had the power to enforce its claims, demands or desires (whether used or not)
3. The donor stakeholder group had the ability to impact my unit/department (whether used or not)
4. The donor stakeholder group actively pursued its claims, demands or desires
5. The donor stakeholder group urgently communicated its claims, demands or desires
6. The donor stakeholder group actively sought attention regarding its claims, demands or desires
7. The claims, demands or desires of the donor stakeholder group were viewed as legitimate (proper or appropriate)
8. The claims, demands or desires of the donor stakeholder group were not proper or appropriate

SECTION III - Do you have any comments on how stakeholder pressure from faculty, staff, students or donor affect the use of performance information in your department or unit?

SECTION II

1. What is your age? (less than 40, between 41 and 55, over 55)
2. Which of the following administrative positions do you hold? (President, VP, Associate VP, Assistant VP, Dean, Executive Director, University Librarian, Other)
3. Which of the following best describes your status at the university? (Tenured faculty in an administrative, position , staff member in an administrative position, non-tenured faculty in an administrative position, other- please specify)
4. How many years have you been employed by your university? (less than 5 years, between 6 and 10 years, between 11 and 15 years, more than 15 years)
5. In which region in your university located? (Western, Central, Atlantic)
6. Which area of the university do you work in? (Academic sector, non-academic sector, other – please specify)
7. What is the approximate number of students (by headcount) enrolled in your institution?
8. Does your institution have doctoral programs?
9. Does your institution have dental school?
10. Does your institution have medical school?
11. Does your institution have law school?

Appendix 3 – Interview Script

1. Administrative matters: signing of consent form/preparing for audio taping if allowed

2. Explanation of research study

3. Themes/Questions:

    How long have you worked in the university system?

    Prior to your current position, what other positions have you held in the higher education system?

    What are your general thoughts on using performance information to assist in the decision-making process?

    What do you think is driving the use of performance information in the sector or in your institution? Why?

    Your thoughts on stakeholder salience (for these four groups)?

    What stakeholder strategies would you recommend to move the PI use agenda forward? Why?

Appendix 4 – Invitation to Participate in the Study

Date

Dear XXX,

I am a doctoral candidate at Athabasca University and I am seeking your permission to distribute a questionnaire to senior administrators in your university. Attached is a letter of support from Dr. Kay Devine, DBA program director at Athabasca, ethics approval and information about the study.

This questionnaire is part of my doctoral dissertation, which examines the use of performance indicators by university leaders in Canada. My interest in this topic is based on several research studies, which find that although performance indicators are produced, they may not always be used to improve decision-making. I believe this research area is relevant to the Canadian Higher Education sector as many universities are developing performance indicators with the expectation that the information derived from these measures will be used to inform the decision-making process.

As my research requires that I collect data from university administrators I am seeking your permission to distribute (directly or on my behalf) a survey to your senior administrators (deans and above). Please know that all responses will be voluntary, anonymous, and confidential, with no individuals or universities specifically named in the dissertation.

Please let me know if you are willing to collaborate with me on this exciting research. I do hope that you will.

Thank you in advance for your cooperation. If you have any questions please do not hesitate to contact me at this email or at 514-451-8297 or at 514-848-2424 ext. 2737.

Kind regards,

Germaine Chan

MBA, CA
DBA Candidate, Athabasca University

Appendix 5 – Letter of Information / Informed Consent Form On-line Survey

Performance Information Use in Canadian Higher Education

Date

Principal Investigator:
Germaine Chan
Tel: 514-451-8297/514-848-2424 ext. 2737
Email: Germaine.Chan@concordia.ca

Supervisor:
Dr. Fathi Elloumi
1-888-686-6978
Email: Fathi.Elloumi@athabascau.ca

Invitation to take part in a research project entitled Performance Information Use in Canadian Higher Education
Hello! My name is Germaine Chan and I am a DBA (Doctorate in Business Administration) candidate at Athabasca University. As a requirement to complete my degree, I am conducting a research project on performance information use in the Canadian higher education sector. I am conducting this project under the supervision of Dr. Fathi Elloumi**.**

Specifically, I wish to examine how performance information is used and whether certain factors influence a university administrator to use (or not use) performance information to guide and influence decision-making in the course of his/her work.

This form is part of the process of informed consent. The information presented should give you the basic idea of what this research is about and what your participation will involve, should you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks, benefits and what it requires of you to be able to make an informed decision. This is the informed consent process. Take time to read this carefully as it is important that you understand the information given to you. Please contact the principal investigator, Germaine Chan if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part, or if you decide to withdraw from the research once it has started, there will be no negative consequences for you now, or in the future.

Why are you being asked to take part in this research project?
You are being invited to participate in this project because you have been identified as a university leader who may use performance information to make work-related decisions.

What is the purpose of this research project?
The purpose of this research is to examine how performance information is used and whether certain factors influence the use of performance information.

What will you be asked to do?
You will be asked to complete a survey by following the link at the end of this email.
The time required to complete the survey is approximately 10 minutes, requires very little effort and may be completed at any time convenient to you between December 15, 2016 and January 30, 2017.

What are the risks and benefits?
Your participation entails minimal risk.

This research hopes to identify the how performance information is used and the factors that influence performance information use in the Canadian Higher Education Sector. An executive summary of the research

findings will be offered to all participants. These research results may prove to be of benefit to those participants who:

- are interested in finding out what factors influence the use of performance information
- are in positions where changes can be made to increase the use of purposeful performance information (for example: strategic planning processes, information systems, institutional planning offices etc.).
- wish to increase the purposeful use of performance information in their departments/units.

Do you have to take part in this project?

As stated earlier in this letter, involvement in this project is entirely voluntary.

You can simply choose not to participate by ignoring this email. If you begin the survey and decide that you want to end your participation you can exit the survey at any time and any data entered will be deleted and destroyed. It will not be possible to end your participation after the survey is submitted because all data is anonymous. That is, I will not be able to identify and destroy the survey data you submitted.

How will your privacy and confidentiality be protected?

The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use or disclosure.

To protect your privacy and confidentiality all data collected is anonymous and IP addresses will not be collected.

How will my anonymity be protected?

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance. To protect your anonymity all data collected is anonymous and IP addresses will not be collected.

How will the data collected be stored?

All data on electronic files – will be encrypted on a password protected computer in my secure office. Any hard copies of the data will be stored in a locked filing cabinet in my office.

There are no plans to destroy the data as the principal researcher anticipates future secondary use of the data for other research projects for which ethics approval will need to be obtained.

Who will receive the results of the research project?

The results of this project will be part of the doctoral dissertation of the principal researcher and will include direct quotations (with permission only) without any personally identifying information.

The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room and the final research paper will be publicly available.

An executive summary of the research results, posted on the researcher's website will be made available to the participants.

Who can you contact for more information or to indicate your interest in participating in the research project?

Thank you for considering this invitation. If you have any questions or would like more information, please contact me by e-mail at germaine.chan@concordia.ca or by telephone at 514-451-8297. If you are ready to participate in this project, please complete please proceed to the survey.

Thank you.

Germaine Chan

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca **or by telephone at 1-800-788-9041, ext. 6718.**

Appendix 6 – Ethics Approval

Athabasca University
RESEARCH CENTRE

March 15, 2016

Ms. Germaine Chan
Faculty of Business\Doctorate in Business Administration
Athabasca University

File No: 22059

Ethics Expiry Date: March 14, 2017

Dear Germaine Chan,

Thank you for your recent resubmission to the Faculty of Business Departmental Ethics Review Committee, addressing the clarifications and revisions requested for your research entitled, 'Performance Information Use in Canadian Higher Education'. Your application is much improved; thank you for taking the time to address the suggestions.

Your application has been **Approved** and this memorandum constitutes a ***Certification of Ethics Approval***. You may begin the proposed research.

This REB approval, dated March 15, 2016, is valid for one year less a day.

Throughout the duration of this REB approval, all requests for modifications, ethics approval renewals and serious adverse event reports must be submitted via the Research Portal.

To continue your proposed research beyond March 14, 2017, you must apply for renewal by completing and submitting an Ethics Renewal Request form. Failure to apply for **annual renewal** before the expiry date of the current certification of ethics approval may result in the discontinuation of the ethics approval and formal closure of the REB ethics file. Reactivation of the project will normally require a new Application for Ethical Approval and internal and external funding administrators in the Office of Research Services will be advised that ethical approval has expired and the REB file closed.

When your research is concluded, you must submit a Project Completion (Final) Report to close out REB approval monitoring efforts. Failure to submit the required final report may mean that a future application for ethical approval will not be reviewed by the Research Ethics Board until such time as the outstanding reporting has been submitted.

At any time, you can login to the Research Portal to monitor the workflow status of your application.

If you encounter any issues when working in the Research Portal, please contact the system administrator at research_portal@athabascau.ca.

Sincerely,

Tilly Jensen
Acting Chair, Faculty of Business Departmental Ethics Review Committee
Athabasca University Research Ethics Board

Gail Leicht
Research Ethics Officer
Office of Research Ethics
Athabasca University
1.800.788.9041 ext. 6718
Email: gleicht@athabascau.ca
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Appendix 7 – Ethics Renewal

Athabasca University
RESEARCH CENTRE

CERTIFICATION OF ETHICAL APPROVAL - RENEWAL

The Athabasca University Research Ethics Board (AUREB) has reviewed and approved the research project noted below. The AUREB is constituted and operates in accordance with the current version of the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS) and Athabasca University Policy and Procedures.

Ethics File No.: **22059**

Principal Investigator:
Ms. Germaine Chan, Graduate Student
Faculty of Business\Doctorate in Business Administration

Supervisor:
Dr. Fathi Elloumi (Supervisor)

Project Title:
Performance Information Use in Canadian Higher Education

Effective Date: December 29, 2017 **Expiry Date**: August 31, 2018

Restrictions:

Any modification or amendment to the approved research must be submitted to the AUREB for approval.

A Project Completion (Final) Report must be submitted when the research is complete *(i.e. all participant contact and data collection is concluded, no follow-up with participants is anticipated and findings have been made available/provided to participants (if applicable))* or the research is terminated.

Approved by: **Date:** January 2, 2018

Joy Fraser, Chair
Athabasca University Research Ethics Board

Athabasca University Research Ethics Board
University Research Services, Research Centre
1 University Drive, Athabasca AB Canada T9S 3A3
E-mail rebsec@athabascau.ca
Telephone: 780.675.6718

Appendix 8 – Invitation to Participate – On-line Survey

Date

Hello XXX!

I am a doctoral student in the DBA Program at Athabasca University and I have received institutional approval from XXX University to invite you to participate in a research study on the use of performance information (or indicators) by university leaders in Canada. My supervisor is Dr. Fathi Elloumi. Attached is detailed information about the survey and ethics approval.

As you have been identified as a university leader I am kindly asking you to complete a survey, which should take **no more than 10 minutes** of your time. Your participation is entirely voluntary.

I **will donate $5 to the CANADIAN RED CROSS for every survey that is completed**

(to a maximum of $1,000)

I fully understand that you are a busy person but I believe this study will be beneficial to university leaders who are interested in moving towards a higher level of evidence-based decision-making. All responses will be kept confidential and your anonymity is assured.

I would truly appreciate your participation. Below is the link to the survey. If you have any questions, please do not hesitate to contact me by email at germaine.chan@concordia.ca or at 514-451-8297.

LINK TO SURVEY (**Please note that this survey will be best displayed on a laptop or desktop computer. Some features may be less compatible for use on a mobile device.)**

Kindest regards,

Germaine Chan
DBA Candidate, Athabasca University

Appendix 9 – Letter of Information and Consent Form – Interviews

Date March 10, 2017

Principal Investigator (Researcher):
Germaine Chan
Tel: 514-451-8297/514-848-2424 ext. 2737
Email: germaine.chan@concordia.ca

Supervisor:
Dr. Fathi Elloumi
Tel: 1-888-686-6978
Email: Fathi.Elloumi@athabascau.ca

Hello,

You are invited to take part in a research project entitled Performance Information Use in Canadian Higher Education.

This form is part of the process of informed consent. The information presented should give you a basic idea of what this research is about and what your participation will involve, should you choose to participate. It also describes your right to withdraw from the project. In order to decide whether you wish to participate in this research project, you should understand enough about its risks, benefits and what is required of you to be able to make an informed decision.

Take the time to read this carefully as it is important that you understand the information given to you. Please contact the principal investigator, Germaine Chan, if you have any questions about the project or would like more information before you consent to participate.

It is entirely up to you whether or not you take part in this research. If you choose not to take part, or if you decide to withdraw from the research once it has started, there will be no negative consequences for you now, or in the future.

Introduction
My name is Germaine Chan and I am a DBA (Doctorate in Business Administration) student at Athabasca University. As a requirement to complete my degree, I am conducting a research project on performance information use in the Canadian higher education sector. Specifically, I wish to determine whether certain factors influence university administrators to use (or not use) performance information to guide and influence decision-making in the course of their work. I am conducting this project under the supervision of Dr. Fathi Elloumi.

Below are questions and corresponding answer about this research project.

Question: Why am I being asked to take part in this research project?
You are being invited to participate in this project because you have been identified as a university administrator and/or a university stakeholder.

Question: What is the purpose of this research project?
The purpose of this research is to obtain your thoughts on the use of performance information in the higher education sector, stakeholder salience and strategies to manage stakeholder reactions to the use of performance information.

Question: What will I be asked to do?
You will be asked to participate in a one-on-one interview with the principal investigator.
If you agree to participate an interview will be scheduled in either in (insert date) at a time and location (if applicable) that is convenient for you. The interview may be done in person if you are located in the Montreal area, or by phone if located outside the Montreal area. The interview will last approximately 45 - 60 minutes, will require little effort and will be audiotaped if you agree. If you do not agree to be audiotaped, notes will be taken. If you agree follow-up conversations may be scheduled if clarification on certain comments is required.

Question: What are the risks and benefits?
Your participation entails minimal risk.

These research results may be of benefit to those participants who:

- are interested in finding out what factors influence the use of performance information in the Canadian higher education sector
- are in positions where changes can be made to increase the use of purposeful performance information (for example: strategic planning processes, information systems, institutional planning offices etc.)
- wish to increase the purposeful use of performance information in their departments/units.

Question: Do I have to take part in this project?
As stated earlier in this letter, your involvement in this project is entirely voluntary.
If you agree to participate in an interview and wish to end your participation before the interview takes place, you can simply inform the principal investigator and the scheduled interview will be cancelled. You may also end your participation at any time during the interview process by informing the principal investigator of your wishes. Any data collected up to that point, including audiotapes if applicable, will be destroyed. You may also end your participation after the interview is completed providing that you inform the principal investigator of your wishes within two weeks of the interview date. Any data collected, including audiotapes if applicable, will be destroyed.

Question: How will my privacy and confidentiality be protected?
The ethical duty of confidentiality includes safeguarding participants' identities, personal information, and data from unauthorized access, use or disclosure.

To ensure your privacy and confidentiality the following steps will be taken:

- All information will be held confidential, except when legislation or a professional code of conduct requires that it be reported
- All interviews and transcriptions will be done by the principal investigator
- You will be able to choose the location and time of the interview
- For telephone interviews, the principal investigator will ensure that her location is secure and has maximum privacy
- Your data will be stored in a locked cabinet in safe location
- Dissertation manuscript will use fictitious names

Question: How will my anonymity be protected?

Anonymity refers to protecting participants' identifying characteristics, such as name or description of physical appearance.

Your name, telephone number and email address will need to be collected. However your anonymity will be protected by:

- Destroying audio-tapes (if allowed) once the data are transcribed.
- Using codes, rather than your name, position, and institution you work for in all notes and transcripts. Master lists of codes will be stored safely in a separate location from the data.
- You will not be identified in publications without your explicit permission.

Question: How will the data collected be stored?

Access to the data is limited to the principal researcher and Dr. Fathi Elloumi, the supervisor.

Audio recordings, hard copy of transcripts and notes will be kept in a locked filing cabinet in the principal investigator's home office. Electronic files will be kept on a password -protected computer located in principal investigator's home office. The principal investigator's home office is in a secure area with a state-of- the art alarm system. The master list of codes that identify interview participants will be stored safely in a separate room/location from the data.

There are no plans to destroy the data as the principal researcher anticipates future secondary use of the data for other research projects for which ethics approval will need to be obtained.

Question: Who will receive the results of the research project?
The final research paper will be publicly available. The existence of the research will be listed in an abstract posted online at the Athabasca University Library's Digital Thesis and Project Room.

Question: Who can I contact for more information?
If you have any questions or would like more information, please contact the principal investigator by e-mail at germaine.chan@concordia.ca or by telephone at 514-451-8297. You may also contact the principal investigator's supervisor, Dr. Elloumi, at the number/email indicated above.

If you are ready to participate in this project, please complete and sign the attached Consent Form and return it to the principal investigator by email at germaine.chan@concordia.ca

Thank you.

Germaine Chan

This project has been reviewed by the Athabasca University Research Ethics Board. Should you have any comments or concerns regarding your treatment as a participant in this project, please contact the Research Ethics Office by e-mail at rebsec@athabascau.ca or by telephone at 1-800-788-9041, ext. 6718.

Consent Form
For participation in a research project entitled:
Performance Information Use in Canadian Higher Education

Informed Consent:

Your signature confirms:

- You have read what this research project is about and understand the risks and benefits
- You have had time to think about participating in the project and had the opportunity to ask questions and have those questions answered to your satisfaction
- You understand what you will be asked to do
- You understand that participating in the project is entirely voluntary and that you may end your participation at any time without any penalty or negative consequences
- You understand that if you choose to end your participation **during** data collection, any data collected from you up to that point will be destroyed.
- You understand that if you choose to withdraw **after** data collection has ended, you can do so by informing the principal investigator within two weeks of the interview.
- You have been given a copy of this Informed Consent form for your records; and
- You agree to participate in this research project.

	YES	**NO**
I agree to be audio-recorded	◯	◯
I agree to the use of direct quotations using a fictitious name	◯	◯
I am willing to be contacted following the interview to verify that my comments are accurately reflected in the transcript.	◯	◯

_____ _____
Signature of Participant Date

Principal Investigator's Signature:

I have explained this project to the best of my ability. I invited questions and responded to any that were asked. I believe that the participant fully understands what is involved in participating in the research project, any potential risks and that he or she has freely chosen to participate.

_____ _____
Signature of Principal Investigator Date