A DELPHI STUDY OF PROGRAM MANAGERS' PERSPECTIVES OF MANAGEMENT INNOVATION IN PROJECT MANAGEMENT OFFICES (PMOs)

by

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Abstract

The current business environment is volatile, uncertain, complex, fiercely competitive, dynamic, and ambiguous. Organizations must have clear, well defined, and optimal strategies in place to survive and thrive in this type of environment. Although product, process, and technology innovation often come to the fore as common strategies in the current business environment, management innovation is also emerging as a key contributor to the success and continuity of organizations. Management innovation is anything that changes the manner management work is executed. Birkinshaw, Hamel, and Mol's (2008) definition of management innovation guided this study. Project and program management practitioners who carry out projects and programs in organizations need to understand how to leverage management innovations to execute organizational strategies effectively. The purpose of this study was to understand and describe the perspectives of project management offices (PMO) program managers on management innovation. During three survey rounds, the Delphi methodology was used to gather opinions and gain consensus from 12 experts with an average of over 13 years' PMO program management experience. Study participants indicated the resolution of a perceived challenge, or the enhancement of a beneficial lever, stimulates management innovation. Findings from the study indicate technology-enabled solutions, leadership, and agile philosophies are future opportunities while resistance to change is a future challenge with PMO management innovation. Training, stakeholder communication, collaboration, leadership, and nurture of human capital are examples of recommendations to help mitigate and leverage future challenges and opportunities respectively. However, there are no one size fits all recommendations because organizational context is critical in determining types of management innovations to select, implement, and adopt in PMOs.

Dedication

To JJ, your insight and provision for me made it possible for me to finish this work. Your gentle nudges to remain a critical thinker even at my most tired have helped me grow in leaps and bounds. I can't thank you enough.

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CHAPTER 1. INTRODUCTION

Background of the Study

Organizations operating in today's tumultuous business environment must remain viable, achieve success, and sustain success. To accomplish these goals, organizations must become and remain agile (Bajer, 2010). They must also gain and maintain their competitive edge. Innovation within an organization is the creation and or implementation of novel concepts (Van de Ven & Poole, 1995). The concept of innovation is expansive and applies to tangible and intangible entities, and the multidisciplinary nature of innovation is a consistent theme in academic literature (Crossan & Apaydin, 2010; Kreindler & Peyton Young, 2014). A common denominator across all notions of innovation is that an innovation is either an entirely new or newly modified output (Grego-Planer & Glabiszewski, 2016).

Innovation is as central to (Volberda, Van Den Bosch, & Heij, 2013), and a crucial underpinning of competitive advantage (Dess & Picken, 2000; Tushman & O'Reilly, 1996). Management scholars have credited an organization's ability to innovate as the top factor influencing the organization's performance profile (Mone, McKinley, & Barker, 1998). Continuous and constant product, process, service, technological and management innovation (Damanpour & Aravind, 2012; Paulsen, Callan, Ayoko, & Saunders, 2013) are therefore imperative for organizations hoping to survive in the current and future business landscape. Management innovation is the induction of management practices, processes, and structures that foster and promote organizational goals (Birkinshaw et al., 2008). Management innovation is the

sole type of innovation responsible for organizational performance over the past two decades (Hamel, 2006). Examples of management innovation include total quality management (Zbaracki, 1998), self-managed teams (Hamel, 2012), and project management (Thomas, Cicmil, & George, 2012)

Although innovation within organizations is widely studied, the focus of many of these studies has been on product, process, service, and technological innovations (Crossan & Apaydin, 2010). Academic interest in management innovation is an emerging and more recent development (Volberda et al., 2013). More recent management innovation research has shed more light on the types of management innovation (Birkinshaw et al., 2008); the process of management innovation from creation to implementation to adoption (Damanpour & Aravind, 2012); environmental factors influencing management innovation (Grant, 2008); management innovation outcomes (Gebauer, 2011); and management innovation antecedents such as leadership (D'Amato & Roome, 2009) and change agents (Mol & Birkinshaw, 2009).

More and more, businesses are leveraging projects as important vehicles for realizing and sustaining strategic business and organizational success (Brown & Hyer, 2010). One of the ways organizations have responded to competitive market stress, the pressure to be more agile, and the increase in quantity, complexity, and strategic value of projects is to establish organizational entities to help oversee multiple projects within the overall organization (Hobbs, Aubry, & Thuillier, 2008). Project management offices (PMOs) and project management organizations are often used interchangeably to describe these temporary organizations.

PMOs can be described as one of many possible "formal or informal organizational units" (p. 410) whose activities and services traverse multiple organizational subunits within a single organization (Artto, Kulvik, Poskela, & Turkulainen, 2011) describe. Project

Management Offices (PMOs) are sub-organizations responsible for sharing and promoting the adoption of project management innovation (Daniel, Myers, & Dixon, 2012).

Innovation within project management organizations falls into two distinct categories (Hobbs et al., 2008) of process and product innovations. Management processes are the practices that help administer the work of managers, "drawing from abstract ideas and turning them into actionable tools, which typically include strategic planning, project management, and performance assessment among others" (Vaccaro, Volberda, & Van Den Bosch, 2012, p.31). Within the PMO, management process innovations can include but are not limited to new or modified management procedures, business procedures, business processes, management and business techniques, and methodologies; while product innovations include templates and tools often used for the execution of management process innovation.

Program managers are at the helm of leadership in project management offices and play a role in creating, implementing, disseminating, and facilitating the adoption of management innovation in project management offices. Understanding the perspective of program managers is of interest since it could potentially provide expert insight from professionals who are engaged in management innovation within PMOs.

Innovation in organizations is an area of interest not only to management practitioners but also to management scholars. However, the focus of academic research has mostly been on technological innovations (Henderson & Clark, 1990) in the form of product and process innovations. In more recent times, there has been increased interest in the field of management innovation and the diversity of theories that influence innovation and management innovation within organizations is as vast as the assortment of domains where innovation is studied. Management innovation theories on what management innovation is, how management

innovation occurs in organizations and coevolution factors of management innovation provide the basis for the framework for this study. The theoretical frameworks this study is based on are Birkinshaw et al.'s (2008) theory of management innovation and Volberda, Van Den Bosch, and Mihalache's (2014) co-evolutionary framework of management innovation.

Birkinshaw et al.'s (2008) theory of management innovation provides a non-broad definition of what management innovation is and how management innovation occurs. Birkinshaw et al. (2008) define management innovation as the "invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals" (Birkinshaw et al., 2008, p. 825). This framework has been used by other scholars to streamline and identify examples of management innovations and the process of creating and implementing them (Damanpour & Aravind, 2012; Thomas et al., 2012). This study will leverage the management innovation definition provided by Birkinshaw et al., (2008) to understand types of current and future management innovations in PMO type organizations.

Volberda et al.'s (2014) co-evolutionary framework of management innovation incorporates: (a) different stages of management innovation including "generation, diffusion, adoption, and adaptation" (p. 250); (b) different general types of management innovation including those " new to the world" (p.1250), new to the organization and adapted to organizational context, and new to the organization but with no adaptation; (c) different levels within the organization and its environment and; (d) different change agents (internal and external to the organization). The key aim of Volberda et al.'s (2014) framework is to amplify understanding the interaction between all the elements of the framework and how the interaction contributes to and influences management innovation. This study will leverage the change

agent components of the framework to understand the change agency role of program managers implementing management innovations in PMO type organizations. This study will also leverage the framework's management innovation types to understand what types of current and future management innovations are for PMO type organizations.

Need for the Study

Management innovation is hailed as a key contributing factor in fostering organizational performance and success (Damanpour & Evan, 1984; Damanpour, Walker, & Avellaneda, 2009), and although academic interest in management innovation has risen (Camisón & Villar-López, 2014; Volberda et al., 2013), management innovation research within organizations is still in its infancy with a dearth of scholarly activity (Mamman, 2009) with only about three percent of innovation scholarly publications focusing on management innovation (Crossan & Apaydin, 2010). The scarcity of management innovation academic work may be in part due to the nebulous, heterogeneous, and sometimes confusing (Birkinshaw & Goddard, 2009) nature of management innovation.

While there has been a notable increase in the quantity of practitioner-based explorations into management innovations, there remains a divide between academic research and practitioners' experiences and findings (Crossan & Apaydin, 2010). Also, there have been calls to encourage diversity of research methods and carry out more qualitative studies on management innovation in general (Volberda et al., 2013) and specifically project management innovation (Thomas et al., 2012).

Previous management innovation research indicates that project management, which is the main activity project management offices (PMOs) oversee and govern, is viewed as a management innovation (Thomas et al., 2012). Prior management innovation research has also

been focused on what practitioners' theoretical knowledge of management innovation is versus practitioners' hands-on experience of management innovation (Crossan & Apaydin, 2010).

Understanding what current and future management innovations are needed, and how management innovations are created and leveraged within organizations (Vaccaro et al., 2012) from the perspective of practitioners could help gain more insight into the broad domain of management innovation.

Purpose of the Study

The purpose of this Delphi technique qualitative research is the following: a) to understand and describe perspectives of program managers on types of management innovation that have been implemented and will be needed in the future; b) how management innovation is executed and delivered; c) what the future management innovation challenges and opportunities are; and d) what strategies can help mitigate future problems as well as help leverage future opportunities in project management offices (PMOs). This study was informed by management innovation theory. For this study, management innovation will be generally defined according to Birkinshaw et al. (2008) as the "generation and implementation of a new management practice, process, structure, or technique" (p. 829) anticipated to help promote organizational objectives.

Significance of the Study

The global economic landscape in recent years has been not only unpredictable but also dynamic and turbulent. Strides in technology have irreparably altered the manner and the environment in which organizations conduct business. For organizations to maintain the ability to remain relevant, they must not only continue to leverage innovation for competitive advantage

(Damanpour & Schneider, 2006; Pil & MacDuffie, 1996) but must also ensure that viable strategic objectives are executed accurately, precisely and with agility.

Management innovation is fast becoming a critical factor in achieving successful organizational performance; through the introduction and adoption of new management processes, structures, tools, and techniques, and or through the modification of existing management processes, structures, tools, and procedures, (Hamel, 2006; Mol & Birkinshaw, 2009; Su & Lin, 2010; Vaccaro et al., 2012). However, in many cases, management innovations have been unsuccessful with achieving organizational plans and goals (Marks, 2006) with only about one-third of management innovation efforts viewed as successful by their organizational leadership (Lin, Chen, & Su, 2017). Therefore, enhancing and developing the effectiveness and success rate of management innovations could ultimately help organizations increase their competitive advantage and potentially help them in creating an enduring competitive edge.

Project management has been viewed as an example of management innovation (Hobbs et al., 2008; Thomas et al., 2010; Thomas et al., 2012) and beginning in the last two decades, projects have become a primary means of executing strategic goals within organizations (Hurt & Thomas, 2009). The increasing use of projects in organizations has increased projects, programs, and ultimately an increase in the role and influence of project management offices (PMOs) within organizations (Hobbs et al., 2008). The pressure to deliver multiple projects simultaneously at less cost and greater speed has also fueled project complexity (Aubry, Hobbs, & Thuillier, 2007). Project management offices (PMOs) are responsible for oversight of multiple projects and are described as organizational vehicles that serve many functions including "strategic management" (Aubry, Müller, Hobbs, & Blomquist, 2010, p.770), as organizational structural hybrids of "temporary and permanent organizing forms" (Bakker,

DeFillippi, Schwab, & Sydow, 2016, p. 1706) that are the emerging and leading choice for facilitating strategic change (Pande, 2012; Pellegrinelli, 2002).

Successful execution of organizational goals via projects and programs is often the main reason for which projects, programs, and project management offices (PMOs) have been set up. Management innovation, therefore, becomes imperative for PMOs that must fulfill their role as agents of strategic business change and realization. It is therefore critical for project and program offices to maintain an edge that affords for efficacy and efficiency. This means all expert and experienced personnel involved in performing project management work within project and program offices are therefore responsible for ensuring projects and programs are successful so that organizational goals are satisfied. Unfortunately, projects continue to fail with timeline and budget overruns (Anantatmula, 2010) and with astronomical monetary loss values up to 13.5 percent (Elena, Arnone, Boccardelli, & Napolitano (2014). Providing insight into management innovations can help project management practitioners within project management offices (PMOs) increase their project success rates. By increasing success rates on projects and programs, project management offices (PMOs) and their personnel can help create a positive domino effect on strategic organizational goals. Increasing the probability of accomplished strategic organizational goals can also help an organization achieve and maintain its competitive edge.

This study's research questions and study findings sought to provide answers to what management innovations currently exist, what management innovations will be needed in the future, and how management innovations are created and leveraged within organizations; for example, project management office organizations. Since management innovations have been suggested as vehicles to help enhance organizational performance (Walker, Chen, & Aravind,

2015), PMO practitioners and organizations with PMOs may benefit from findings of the study to better understand what types of management innovations can help increase PMO throughput and therefore help increase the realization of organizational targets. Understanding future challenges and opportunities for PMO management innovations can help PMO practitioners better craft strategies that are specific to PMO organizations, help remediate PMO management innovation challenges, and help maximize PMO management innovation opportunities. Although management innovation quantitative research exists, this study filled the qualitative gap in management innovation research highlighted by Volberda et al., (2013) by exploring perspectives of program managers on management innovation within project management offices (PMOs). Finally, this study will help further close the gap in scholarly work on project management as an innovation in organizational contexts (Blomquist, Hällgren, Nilsson, & Söderholm, 2010).

Research Questions

The primary research question this Delphi technique qualitative research addressed is as follows:

1. What is the perspective of program managers on management innovations within project management offices (PMOs)?

The subordinate research questions this Delphi technique qualitative research addressed are as follows:

2. What types of management innovations exist within PMOs?
3. What types of management innovations will be needed in PMOs in the future?
4. What role does program management play in the development and implementation of management innovations within PMOs?
5. What are future challenges with and opportunities for management innovations within PMOs?
6. What are strategies to mitigate future challenges with management innovations within PMOs?
7. What are strategies to leverage future opportunities for management innovation within PMOs?

Definitions

The terms and definitions below provide the basis of interpreting this Delphi qualitative study:

Innovation. An "idea, practice, or object" (p.768) that is new to a specific audience (Rogers, 1995); a new product, a new method of production, a new market, a new source of supply and a new way to organize business (Schumpeter, 1983); or "regeneration" (p.95) of an entity (Wright, 2012).

Management Innovation. The "invention and implementation of a management practice, process, structure, or technique new to the organization and is intended to promote organizational goals" (Birkinshaw et al., 2008).

Management Practices. The daily management activities within an organization including "rules, procedures, tasks, and functions" (Su & Baird, 2017, p.4) leveraged to aid and foster organizational growth and success (Cabrera & Cabrera, 2005).

Management Processes. The "practices that help administer the work of managers, "drawing from abstract ideas and turning them into actionable tools, which typically include strategic planning, project management, and performance assessment among others" (Vaccaro et al., 2012, p.31) or; the "routines" (p.4) used to run management work (Su & Baird, 2017).

Management Tools and Techniques. The "tools, approaches" (p.5) or systems leveraged by management (Su & Baird, 2017).

Organizational Structures. The structures that govern how activities are "organized" (p.4) and the arrangement of "communication and responsibility lines" (Su & Baird, 2017, p.4)

Program. A collection of related projects coordinated in a manner that yields combined project gain versus individual project gain (PMI, 2016).

Program Management. The integration and management of a group of related projects with the goal or realizing gain that would otherwise not be realized if projects were independently managed (Lycett, Rassau, & Danson, 2004).

Project. A temporary endeavors undertaken and intended to create distinct outcomes completed by a project team (PMI, 2016).

Project Management. The activities and processes set up to coordinate and oversee resources required to complete a project within defined scope, quality, and time constraints (Samset & Volden, 2016).

Project Management Office (PMO). A department of group that identifies and preserves the standards of project management processes within an organization; aims to standardize and create economies of scale in the execution of projects; and serves as the "source of collateral, guidance, and metrics" (p, 427) for project management practice and execution (Pande, 2012).

Project Management Practitioner. An individual who is assigned a role of the program manager, portfolio manager, project manager, or project leader and who uses project processes, practices, and guidelines for the management of a project (PMI, 2016).

Research Design

The Delphi method involves a recurring process of collecting and compiling opinions from a group of anonymous experts until some consensus is reached or until it is determined confluence is unlikely (Brady, 2015; Gill, Leslie, Grech, & Latour, 2013; Hadaya, Cassivi, & Chalabi, 2012; Worrell, Di Gangi, & Bush, 2013). According to Linstone and Turoff (2011) the Delphi method has its roots in the business world at RAND Corporation in the 1950s where "a technique to apply expert input in a systematic manner using a series of questionnaires with controlled opinion feedback" (p. 1712) was created by Olaf Helmer, Norman Dalkey, Ted Gordon, and associates. A wide range of disciplines leverage this method for research including education, health care, social sciences, management, business, and organizational contexts (Graham, Regehr, & Wright, 2003; Keil, Lee, & Deng, 2013; Lohuis, Van Vuuren, & Bohlmeijer, 2013; Nielsen & Thangadurai, 2007; Sitlington & Coetzer, 2015).

The research questions this study addressed include a) what management innovation occurs in PMOs, b) PMO management innovation future challenges and opportunities, c) strategies to mitigate future challenges, and d) strategies to leverage future opportunities. These research questions necessitated gathering data from a population that is made up of PMO program management practitioner experts. Some of the criteria that applied to this study that Grisham (2009) prescribes to help determine when to use the Delphi methodological approach include:

> the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis; the individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse backgrounds with respect to experience or expertise; time and

> cost make frequent group meetings infeasible; and the heterogeneity of the participants must be preserved to assure the validity of the results (p. 116).

This study's research questions were answered by soliciting the subjective opinions of a group of experts. The study's participants were expected to have multidisciplinary backgrounds without any bias for a specific industry and with no established knowledge of each other.

According to Lohuis et al. (2013), "Anonymity, iteration, controlled feedback, and statistical group response" (p.707) are four central characteristics of the Delphi method. This study's research design includes a) the use of electronic questionnaires in the second and third rounds to secure anonymous responses, b) multiple interview rounds to allow for refinement of opinions, c) facilitated interchange of information between the experts to allow for reduction of extraneous data, and d) statistical type processing of collected data to aid the identification of average representation of opinions.

A literature review of seminal and extant literature was used to develop and design the draft questionnaire used for round one of data collection. Panel experts included PMO personnel whose expertise is qualified by the number of years of experience working within PMOs, number of years as a program manager, and professional certifications that indicate skill level and proficiency. Experience was not limited to PMOs within a specific industry in order to promote multidisciplinary perspectives. Data analysis occurred using qualitative data analysis software such as NVivo for thematic data analysis and coding and descriptive statistical methods.

Assumptions and Limitations

Assumptions

There were four assumptions made by the researcher for this study. The first assumption was that all participants provided pertinent and as accurate as possible responses to interview questions. A review of the anonymous method of capturing and storing the interview data was conducted with all participants. This was to encourage participants to feel comfortable enough to provide detailed and relevant responses. Before each interview began, each participant was given the opportunity to ask questions about the data collection and storage procedures. They were also given the opportunity to ask any new questions about the informed consent forms they had previously signed when they agreed to participate in the study.

The second assumption was that all participants had a basic understanding of what management innovation meant. Feedback from the pilot process for creating the interview questions for round one highlighted the need to ensure all participants had a shared and common understanding of what management innovation meant for this study. A definition of management innovation was provided to all participants at the beginning of each interview. This was done to facilitate the shared and common understanding of management innovation with all participants.

The third assumption was that participants were experts with program management experience in project management office (PMO) type organizations. One way of corroborating this assumption was to understand if participants had professional certification with the Project Management Institute (PMI, 2016), the main professional body in North America responsible for project and program manager certifications. However, it is important to note that a certification does not always translate to actual and valuable experience. Therefore. the criteria for

participants to have at least seven years of experience working in project management office (PMO) type organizations was important especially since the objective with a Delphi method is to understand phenomenon based on expert opinion and consensus (Linstone & Turoff, 2011).

The fourth assumption was that participants' responses were subjective with inherent bias. The Delphi method of qualitative inquiry is engaged with understanding the nuances and details facts of a phenomenon (Creswell, 2014). Qualitative inquiry is guided by the interpretivist world view (Creswell, 2014); a worldview that observes and experiences phenomenon subjectively and with individual bias. It was, therefore assumed that individual subjective experiences and individual bias were inherent attributes of the data collected from participants.

Limitations

Four limitations were identified for this study. The first limitation was the arduous administration and execution of the study (Ven & Delbecq, 1974). With multiple rounds of data collection and analysis, the time commitment from participants was a challenge to getting as many participants as desired. Some eligible and potential participants were willing to commit to the initial round but unwilling to commit to second and third rounds even when it was explained they would not need to spend in person or phone time with the researcher.

The small number of participants lends itself to poor generalizability, the second limitation of this study. Although it is expected that the Delphi method leverages a "non-representative sample of experts to opine on complex, multi-disciplinary problems, generalizing the opinions of a non-representative group can be problematic at best" (Worrell et al., 2013, p. 206).

The third limitation is inability in the near term to corroborate predictions on future challenges and opportunities identified in the study for management innovations in project management offices (PMOs). Estimating the "accuracy" (p.206) of Delphi study projections is tricky and complex (Worrell et al., 2013).

The fourth limitation is the potential researcher bias. The researcher is an experienced project management professional with some, albeit limited exposure to PMO organizations. To mitigate researcher bias, Hays and Wood (2011) suggest practicing bracketing; a process where the researcher sets aside all their personal assumptions about a topic aside when conducting research. Bracketing was practiced to help increase awareness of researcher bias, and reflexivity was employed to help limit possible bias.

Organization of the Remainder of the Study

This dissertation consists of five chapters. Chapter 1 introduces the background of the study, research questions, the need for, the purpose of, and the significance of the study, definition of terms, and research design. Chapter 2 provides an overview of the theoretical frameworks that guide this study. It also provides a review of seminal and extant literature that provides some insight about project management office (PMO) organizations and management innovations. Chapter 3 outlines the research methodology employed for this study, including sample selection, data collection procedures, and ethical considerations. Chapter 4 provides a presentation of data and results of the data analysis conducted. Chapter 5 concludes the dissertation with a presentation of the study findings and recommendations for additional research.

CHAPTER 2. LITERATURE REVIEW

The purpose of this chapter is to present a summary of seminal and extant literature on management innovation and project management offices (PMOs) in the organizational context. This chapter is divided into six separate sections with the first section describing the process and methods used to locate literature for the study. The second section describes the theoretical underpinning and perspective for the qualitative method used in this study. The third section of the review covers organizational performance and how organizational performance is driven by innovation with an emphasis on management innovation. The third section of the review also includes the use of projects, programs, and PMO organizational entities as vehicles that drive organizational performance. Finally, PMO roles such as project and program managers, and their role in management innovation will be reviewed.

After the literature review section, the fourth section will present a synthesis of findings from the research articles reviewed. A discussion of overarching concepts, inconsistencies or relevant themes and patterns identified in literature will also be done in the fourth section.

The fifth section will present a critique of the research methodology used in the literature that was reviewed for this study. It will also provide insight into how research methods in the literature reviewed constitute the basis of justification for this research study. In the final section of this chapter, a summary of conclusions about project management offices (PMOs) and management innovations in organizations gleaned from seminal and extant literature will be presented.

Methods of Searching

There were multiple methods used to search for literature for this study. Summon was heavily leveraged as the primary and initial starting point to search for peer-reviewed articles. Summon is a search engine provided by Capella library that supports a single and extensive search through all available journals and databases. Individual words searched for include innovations, management innovations, organizational structures, project management organization, and project management office. To limit the nature and content of articles retrieved by the search to peer-reviewed scholarly articles, 'scholarly and peer reviewed' and 'journal article' filters were applied as search criteria. Combined words were also used to narrow down the search further and to increase the precision of results. A combination of words used is management innovation and organizations, management innovations and project management organizations, and management innovation and project management offices.

In addition, to Summon, databases made available via Capella library were used to conduct specialized searches for innovation, business management, and project and program management topics. The databases searched include ABI/INFORM Collection, Academic Search Premier, Business Source Complete, ProQuest Central, SAGE Journals Online, and Google Scholar. With the Google Scholar database, the criteria to show Capella owned content was selected. SAGE Research Methods and Dissertations within Capella databases were searched for content on research methods and examples of how research methods had been used in management studies.

During the search in Summon and the databases, some specific journals seemed to recur in the results with the most pertinent content. These journals include The Academy of Management, The Academy of Management Review, Project Management Journal, Organization

Studies, Journal of Management and Innovation, International Journal of Management and Innovation, International Journal of Organizational Innovation, and Review of Management Innovation and Creativity. Additional searches were conducted within these journals for seminal and extant literature on the research topic.

Finally, leveraging references contained in articles reviewed helped to increase the efficiency of the search process for pertinent literature and for seminal work on the research topic. When an article that had not come up in previous searches was referenced in more than a couple articles, the referenced article was always reviewed.

Theoretical Orientation for the Study

Theoretical Frameworks

This study is based on two theoretical frameworks. The first framework is based on Birkinshaw et al.'s (2008) theory of management innovation. This framework provides the basis for the definition of what management innovation is, and the basis for valid examples of management innovation in this study. Birkinshaw et al. (2008) define management innovation as the "invention and implementation of a management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals" (Birkinshaw et al., 2008, p. 825).

The second framework is Volberda et al.'s (2013) multilevel co-evolutionary framework on management innovation. Their co-evolutionary framework explains the relationship between different types of management innovations, different phases in the management innovation lifecycle, and the multilevel role of human change agents in the management innovation process. Volberda et al.'s (2013) framework has its origins in co-evolution theory which posits that the

Darwinian selection and adaptation processes are not necessarily mutually exclusive and conflicting but can occur concurrently (Volberda & Lewin, 2003). Although co-evolutionary theory's roots are steeped in the biological sciences and positivist epistemological influences, co-evolutionary theory has been extended and applied to other disciplines, including organizational science and management (Luse & Mennecke, 2014).

Review of the Literature

Introduction

This Delphi qualitative study is about understanding the perspectives of PMO program managers on management innovation. The study is approached from an interpretivist view since the individual experiences of the PMO program managers is the researcher's interest and the source of the study's data. By describing the lived experiences of PMO program managers with management innovation, this study hopes to close the following gaps in management innovation research. Firstly, there is a gap in research in understanding the influence and function of individuals in creating and executing management innovations (Kunz & Linder, 2015). Secondly, there is a gap in research on the "micro-foundations of management innovation" (Volberda et al., 2013, p. 1259). By "micro-foundations" (Volberda et al., 2013, p. 1259), the authors mean the "the individuals who identify problems, search for solutions, provide ideas, and make ideas" (Volberda et al., 2013, p. 1259) related to management innovation, for example, PMO project and program managers. Thirdly, there is a gap in research on management innovation occurring at the organizational level with most of the research occurring at the industry levels (Kunz & Linder, 2015; Scarborough, Robertson, & Swan, 2015; Volberda et al., 2013).

Innovation has always garnered significant interest from both management and organizational scholars and practitioners. This is especially the case because innovation is viewed as a source of competitive advantage (Schumpeter, 1983) and a facilitator for growth (Jain, 2010). Because of the role management innovation plays in contributing to organizational performance (Volberda et al., 2013) it has recently started to gain the attention of management and organizational scholars and practitioners.

In addition to organizations and management scholars and practitioners investigating how management innovation can promote economic growth and productivity (Hamel, 2006; Teece, 1980), the vehicle of projects and programs for executing organizational work is another development in organizations looking for ways to remain viable and profitable, in spite of unpredictable and evolving environments.

The literature review covers a number of different themes, including organizational performance, innovation, management innovation, projects and programs, project and program managers, and project management offices (PMOs). First, the review of organization performance is completed. This is meant to lay the foundation for understanding the advent of management innovation, projects, programs, and project management offices (PMOs), Second, a review of innovations in general followed by a review of management innovations in organizations is completed. Third, a review of projects in comparison to programs and a review of project managers in comparison to program managers is completed. Finally, a review of project management offices (PMOs) and their role within organizations is completed.

Innovation

Innovation is a broad and multidisciplinary concept with as many definitions as the influencing fields. As a research subject, innovation has occupied scholarly interest from diverse disciplines (Tang, 1998). According to Azar and Ciabuschi (2017), innovation is a “multifaceted construct” (p. 325).

Innovation is the process of taking an idea from conception and converting it to tangible or intangible value in a commercial or widely used format (Ionescu & Cornescu, 2015). O'Sullivan (2000) defines innovation as the "process through which productive resources are developed and utilized to generate higher quality and lower cost products than had previously been available" (p. 393). Tidd and Bessant (2009) mention innovation is much more than crafting a valuable idea. Innovation is the complete progression of a good idea from a theory to a concrete and real-world application (Tidd & Bessant, 2009). Daft (1978) defined innovation as the "creation or adoption of an idea or behavior new to the organization" (p. 197).

A common denominator across all notions of innovation is that an innovation is either an entirely new or newly modified output (Grego-Planer & Glabiszewski, 2016). Jimenez-Jimenez and Sanz-Valle (2011) view innovation as both a process and an outcome (p. 408). Seelos and Mair (2016) argue that innovation is predominantly a “process” (p. 27) with uniqueness and promise versus an “outcome” (p. 27) that is evidenced by a new or modified product. Although the term ‘innovation’ is sometimes used interchangeably with the term ‘invention,’ Şimşit, Vayvay, and Öztürk (2014) make the distinction between both terms. They describe invention as the generation of a "new idea or concept" (p. 691) while innovation is transforming the "new concept into commercial success or widespread use” (p. 691).

Innovation and Organizational Performance

Innovation is the process of creating and generating new outcomes from an idea. Innovation is a broad concept, and typical classifications of innovation include product, process, administrative innovation (Damanpour & Evan, 1984; Damanpour & Gopalakrishnan, 2001) and incremental and extreme innovation (Henderson & Clark, 1990). Organizational performance appears to be one of the galvanizing factors for innovation in organizations. There does not appear to be any dispute whether innovation is the lifeblood of organizations that expect to remain relevant and expect to achieve and maintain market share leadership (Hogan & Coote, 2014). However, there seems to be a debate on the nature of the relationship between innovation and past and or future organizational performance (Bowen, Rostami, & Steel, 2010). In fact, research studies abound that indicate both significant (Bolton, 1993; Greve, 2003) and, insignificant (Ettlie, 1983) associations between past organizational performance and innovation. Likewise, research studies abound that indicate significant (Balkin, Markman, & Gomez-Mejia, 2000; Matsuo, 2006;) and, insignificant (Hitt, Hoskisson, & Kim, 1997) associations between future organizational performance and innovation.

Factors that Influence Innovation

Many organizational determinants and variables play a role in the quality, pace, and continuousness of organizational innovation. Crossan and Apaydin (2010) posit "mission, goals, and strategy, structure and systems, resource allocation, organizational learning, and knowledge management tools, and organizational culture" (Crossan & Apaydin, 2010, p. 1172) serve as leverage to facilitate principal innovation procedures.

Innovation and Organizational Structure. According to Ikeda and Marshall (2016), "organizational structures and functions" (p. 9) and, "cultural environments" (p.9) that support the stimulation and flourishing of innovation are important determinants for organizational innovation. The impact of organizational culture on innovation is an area of scholarly interest (Damanpour & Gopalakrishnan, 1998; Farahmand, 2010; Menguc & Auh, 2010; Sahay & Gupta, 2011; Tushman, Tushman & Nadler, 1986). Marín-Idárraga and Cuartas' (2016) study found that a flat and decentralized organizational structure is an incentive for innovation.

Innovation and Organizational Culture. Hult, Ketchen, and Nichols (2002) incorporate culture in their definition of organizational innovation when they describe organizational innovation as "part of an organization's cultural competitiveness" (p. 5). The relationship between organizational culture and innovation is not as straightforward, especially because both concepts are multidimensional. In addition, there are different views about the correlation between organizational culture and organizational innovation. According to Büschgens, Bausch, and Balkin (2013), it is "common sense" (p. 763) that organizational culture is essential for successful innovation. Daher (2016), cites the positive relationship between organizational innovation and the following organizational values: "breaking tradition, autonomy, result-oriented, tolerating mistakes, valuing novelty, speed of action, effective group reward recognition, valuing new ideas, flexibility, future-oriented, entrepreneurship, creativity, support for risk-taking, dynamism, participative decision-making, learning and development, adaptability, and empowerment" (p.5). On the other hand, some studies present a negative correlation between organizational culture and organizational innovation (Berson, Oreg, & Dvir, 2008; Jaskyte, 2004).

Innovation and Human Capital. Novel ideas that originate and are propagated within and outside of an organization require human agency and the role of quality human capital in organizational innovation cannot be overlooked. In fact, Lukeš (2012), mentions one of the main challenges for organizational innovation is determining the type of team members to lead and be part of an innovation project. Amabile and Pratt (2016) highlight the relationship between human capital creativity and organizational innovation and, suggest individual and group human capital creativity encourages "organic innovation" (p. 160) in an organization. Arena, Cross, Sims, and Uhl-Bien (2017) emphasize the crucial function social employee networks play in stimulating innovation, even in organizations where formal innovation processes are in flight.

Arena et al., (2017) stress how much of a "social phenomenon" (p. 40) innovation is. Organizations that desire consistent innovation must be deliberate about empowering employees so that they can relate with one another in a manner that prompts and develops ideas that result in innovation (Arena et al., 2017). Arena et al., (2017) describe three classifications of organizational roles that participate in organizational innovation; "brokers" (p. 41) who develop connections within different organizational groups and investigate and search for new ideas; "connectors" (p. 42) who belong to and are strongly connected within groups and, execute ideas; and "energizers" (p. 43) who exist across all groups and, champion innovations within the organization.

The Innovation Process

The innovation process is often described as a linear process with steps that occur in a successive sequence. Lendel, Hittmára, and Siantová (2015) explain that the innovation process is "a sequence of activities aimed at creation and implementation of innovation" (P.864). The activities include creating and assessing new ideas, developing the idea into an innovation, and,

making sure the innovation is disseminated (Utterback, 1971). Mol and Birkinshaw (2006) indicate a lack of satisfaction with the status quo is a requisite and antecedent activity to the creation and evaluation of new ideas. According to Salerno, De Vasconcelos Gomes, Da Silva, Bagno, and Freitas (2015), there are multiple models of the innovation process. This is contrary to the typical depiction of the innovation process as a single linear model. In support of multiple models, several other authors (Andres & Zmud, 2002; Kok & Biemans, 2009; Sauser, Reilly, & Shenhar, 2009; Shenhar, 2001) from the project management discipline concur with Salerno et al., (2015).

Levels of Innovation

Innovation occurs at multiple levels within organizations. Three of the more discussed levels in innovation literature are the individual, group, and organizational innovation (Gupta, Tesluk, & Taylor, 2007; Jain, 2010). Individual creativity, along with social and work context, is central to and ignite individual innovation (Oldham & Cummings, 1996). Group level innovation occurs within organizational teams and, is the least studied level of innovation (Jain, 2010). According to Jain (2010), "leadership, group cohesiveness, group structure, group longevity, and group composition" (p. 86) are perquisites for group level innovation. Organizational innovation applies to all units and operations of an organization. According to Jain (2010), some of the most impactful influences on organizational innovation include "organizational culture, organizational climate, organizational structure, organizational priorities, organizational mission and vision, organizational strategies, and leadership styles.

Types of Innovation

Given the diversity of classifications that exist and, the subsequent challenge of understanding the different types of innovation, innovation typology is a major source of

discussion among innovation researchers (Rowley, Baregheh, & Sambrook, 2011). Knight (1967) identifies organizational configuration, "production process, people, product or service innovations" (p. 482) as types of innovation. Organizational configuration innovation refers to the kind of innovation that occurs when new ideas applicable to reward and communication methods are implemented. Production process innovation refers to the kind of innovation that occurs when new ideas applicable to manufacturing procedures and operations are implemented. People innovation refers to the kind of innovation that occurs when new ideas applicable to employee roles and behaviors are implemented. Product or service innovation refers to the kind of innovation that occurs when new ideas applicable to novel services and products are implemented.

Francis and Bessant (2005) group innovation into position, process, product, and paradigm types of innovations. Oke, Burke, and Myers (2007) classify innovation as radical product innovation, incremental product innovation, service innovation, and administrative process innovation, and production process innovation. Rowley et al., (2011) do not agree that 'radical' innovation and 'incremental' innovation are types of innovations. Instead, they view 'radical' and 'incremental' as attributes of innovation types.

Organizational innovation includes any innovation that occurs at the collective organizational level. Management or managerial innovation is sometimes wrongly used interchangeably with organizational innovation. Management innovation is described by Damanpour and Aravind (2012) as " new organizational structures, administrative systems, management practices, processes, and techniques that could create value for the organization" (p. 424).

Management or managerial innovation is also sometimes more appropriately used interchangeably with administrative innovations. Kimberly and Evanisko (1981) describe administrative innovation in terms of management. Naveh, Meilich, and Marcus (2006) highlight administrative innovations as the vehicle through which organizations propagate new "rules and procedures" (p. 276), change "roles and structures" (p. 276), and, institute "new relationships" (p. 276). Jaskyte (2011) defines administrative innovation as the execution of a new "structure, procedure, system, or process" (p. 78) to the existing "organizational practices" (p.78). These characterizations of administrative innovation are more commonly related to management innovation.

Management Innovation

According to Hamel (2006), a management innovation must test current management conventions, must cover a broad group of practices and procedures and, must be a component of an active program where growth is a factor over time. Hamel (2006) describes management innovation as creating alternate ways for management to do what they do. Hamel (2006) mentions that management innovation carries a lot of weight as relates to the organizational performance and, suggests that over the past 10 decades, management innovation is the sole type of innovation responsible for organizational performance.

Birkinshaw et al., (2008) describe management innovation as the "invention and implementation of a management practice, process, structure, or technique that is new to state of the art and is intended to further organizational goals" (p. 825). The difference between a management innovation and an everyday alteration to a process, practice, technique, or structure must be emphasized, especially with regards to the newness component of the management innovation definition. Vaccaro, Jansen, Van Den Bosch and Volberda (2012), clarify the

difference when they mention downsizing as an example of organizational change that should not be viewed as management innovation, because it is a "predictable managerial response in certain circumstances" (Khanagha, Volberda, Sidhu, & Oshri, 2013, p. 52). A change in process, practice, technique, or structure can only be considered a management innovation if according to (Khanagha et al., 2013), it alters 'regular and predictable behavior patterns' (p. 52) within the organization, or if it alters 'organizational routines' (p.52) that result in pervasively leveraged organizational processes, practices, techniques, or structures. Examples of management innovation include the total quality management (TQM) practices (Zbaracki, 1998), and, the spaghetti organizational structure (Foss, 2003).

Basile and Faraci (2015) point out the increasing trend to study non technology innovations including administrative innovations (Damanpour, 1987; Pisano, 2015), organizational innovation (Damanpour, 1987; Damanpour & Aravind, 2012; Damanpour & Evan, 1984), and management or managerial innovations (Birkinshaw & Mol, 2006; Hamel, 2006). Management or managerial innovations are specific to the work management does and may also be administrative innovations. Administrative innovations are similar to management innovations with regards to the domains of processes, practices, procedures, structure, tools, and techniques they cover. Administrative innovations differ from management innovations in their scope as they are not limited to the work management does. Both management and administrative innovations can fall under the umbrella of organizational innovations when the organizational unit where the innovation is conceived and implemented is the organizational level versus individual employee levels or workgroup levels.

Seminal studies on management innovation have focused on what management innovation is and how it occurs (Birkinshaw & Mol, 2006; Hamel, 2006). More recent extant

studies have focused on the numerous dependencies between technological and management innovations (Volberda et al., 2013), frameworks and models to explain the precursors for, dimensions of, and outcomes of management innovation (Basile & Faraci, 2015; Damanpour & Aravind, 2012; Volberda et al., 2013), and, the role change agency plays in management innovations (Volberda et al., 2014).

The Management Innovation Process

The overarching point of view from literature on innovation in general and management innovation specifically is that generation and adoption are the two main processes involved in management innovation (Camisón & Villar-López, 2014; Damanpour, 1991; Damanpour, 2014; Mol & Birkinshaw, 2009). Damanpour and Aravind (2012) distinguish between the generation and adoption processes. They describe the generation process as one that encompasses all the work directed at the conception, execution, and dispersion of fresh ideas. Citing Roberts (1988) and Tornatzky and Fleischer (1990), Damanpour and Aravind (2012) outline stages of the generation process as "recognition of opportunity, research, design, commercial development, marketing, and distribution" (p. 425). The adoption process is explained as one that involves how an organization becomes socialized. It is also explained as a process that describes how an organization gains, modifies, and employs fresh ideas. Citing Damanpour and Schneider (2006) and, Klein and Sorra (1996), Damanpour and Aravind (2012) outline stages of the adoption process as "initiation, decision adoption, and implementation" (p. 426).

"Motivation, invention, implementation, and theorization and labeling" (p. 832) are identified as management innovation processes and integrated into a management innovation process framework by Birkinshaw et al. (2008). The motivation process entails understanding what business or organizational problem needs to be solved for. The invention process entails

validating and trying out new or modified management innovations. The implementation process entails the deployment of management innovation. The theorization and labeling process entails ensuring the management innovation is "institutionalized" (Birkinshaw et al., 2008, p. 837). Damanpour (2014) and Volberda et al., (2014) expand the two-step process of generation and adoption to a four-step process of generation, adoption, adaptation, and diffusion.

Volberda et al., (2014) view the management innovation process through the lens of "degree of newness" (p. 1251) and use this lens to differentiate between the generation, adoption, and adaptation processes. They perceive the generation process as one that occurs with a fresh idea that does not currently exist in the internal or external organizational environment; the adoption process as one that occurs with a fresh idea that is new to the internal organizational environment and is executed without any modifications; and, the adaptation process as one that occurs with a fresh idea that is new to the internal organizational environment but is executed with modification. Roehrich, Davies, Frederiksen, and Sergeeeva (2018) extend and apply Birkinshaw, Hamel and Mol's (2008, p. 7) model of management innovation to management innovations with complex products and systems. In their longitudinal case study, the authors outline "motivation, motivation and early search, continuous search and adaptation, and implementation and validation" (Roehrich et al., 2018, p. 5) as management innovation processes.

Determinants of Management Innovation

Studies on antecedent factors for management innovation appear to be more focused on the adoption phase versus the generation phase of management innovation (Damanpour & Aravind, 2012). This may be because management innovations can be random occurrences that occur to solve for an unplanned business obstacle (Birkinshaw & Mol, 2006). It may also be because, unlike the adoption of management innovation, the generation process can be slower and more difficult to quantify (Damanpour & Aravind, 2012).

Management innovation determinants are grouped into "managerial, inter and intra organizational" (p. 4) categories by Volberda et al., (2013). Examples of managerial determinants of management innovation include but are not limited to leadership styles (Vaccaro, Jansen, Van Den Bosch et al., 2012), top management team attributes (Mihalache & Mihalache, 2012), and, management attributes (Damanpour & Schneider, 2006). Examples of inter-organizational determinants of management innovation include but are not limited to external change instruments (Damanpour & Aravind, 2012), interaction with people and teams that are initial implementers of management innovations (Walker, Damanpour, & Devece, 2010), and, participation in industry and professional groups and knowledge sharing organizations that are external. Examples of intra-organizational determinants of management innovation include but are not limited to internal change instruments (Vaccaro et al., 2012), and employee training (Mol & Birkinshaw, 2009).

Damanpour and Aravind (2012) concur with Volberda et al., (2013) that external environmental, organizational, and management attributes are management innovation determinants. They, however, highlight "innovation attributes" (p. 436) as an additional management innovation determinant and, mention that organizational and management attributes

have been investigated more often than external environment and innovation attributes. Damanpour (2014) mentions five innovation attributes propagated by Rogers (2002). These innovation attributes include "relative advantage, compatibility, trialability, and observability, and complexity" (Damanpour, 2014, p. 1271). Relative advantage is what competitive advantage the innovation can provide. Compatibility is how well suited the innovation is to the environment and business problem. Trialability is how easy it is to test and validate the innovation. Observability is how easy it is for organizational players to see the management innovation being executed. Complexity is how easy it is to conceptualize, implement, and diffuse the innovation.

In a quantitative study to determine the determinants of management innovation in the political domain, Hansen (2011) indicates that the degree to which a determinant predicts generation and adoption of management innovation varies based on the type of management innovation. Also, Hansen's (2011) study finds that managerial attributes appear to hold the most sway in determining management innovations. In another empirical study, Ganter and Hecker (2013) leverage Mol and Birkinshaw's (2009) model to investigate the determinants of organizational innovation. Ganter and Hecker's (2013) study findings reveal that employee education and training, and, organizational size are important determinants of organizational innovation. However, results of Ganter and Hecker's (2013) study do not support Mol and Birkinshaw's (2009) proposition that internal organizational context and "external search for new knowledge" (Mol & Birkinshaw, 2009, p. 1269) are significant determinants of organizational innovation.

Types of Management Innovation

While there have been studies that review determinants of management innovation, the management innovation process, and the impacts and outcome of management innovation, a categorization of the types of management innovation has hardly been explored. Subsequently, management innovation typology has not evolved beyond the generic types referenced in the management innovation definition. These generic types are either discussed in terms of process, practice, structures, routines, and techniques, or are discussed in terms of newness to the organization. Damanpour and Aravind (2012) acknowledge the lack of management innovation typology (p. 434) and consider options for classifying management innovation types. Damanpour and Aravind's (2012) attempt to provide a starting point for management innovation typology falls short though as it appears to be more of an exercise in contrasting and comparing management innovation types instead of creating a management innovation typology. The authors provide a comparison of management innovations in organizational strategy versus management innovations in organizational structure, a comparison of management innovations in organizational structure versus management innovations in organizational procedure, and, a comparison of management innovations driven by information technology (IT) versus management innovations driven by administrative processes.

Gebauer, Haldimann, and Jennings Saul (2017) make a focused attempt at creating a management innovation typology and base their typology on innovation components such as "innovation process and related activities, internal and external change agents, and organizational and environmental context" (p. 518). In their case study research results, Gebauer et al., (2017) group management innovations into four types. First, "efficiency-driven" (p. 521) management innovations which come about due to inefficiencies observed and experienced by

organizational members. Second, "externally recommended" (p. 521) management innovations which originate from the influence of external change agents. Third, "problem-oriented" (p. 521) management innovations which are birthed as a result of problem solving by internal change agents. Fourth, “opportunity oriented” (p. 521) management innovations which are created to develop new organizational opportunities.

Impact of Management Innovation

There appears to be some level of consensus that management innovations have a positive impact on and within organizations. Management innovation study findings have identified that management innovation has a positive outcome for the growth of organizational dynamic capabilities (Gebauer, 2011). Management innovation is also credited for an increase in organizational productivity (Mol & Birkinshaw, 2009) and organizational performance (Walker et al., 2010). The proficiency and efficacy of inward facing organizational procedures have been attributed to management innovation (Adams, Bessant, & Phelps, 2006). Vaccaro, Volberda, and Van Den Bosch (2012) point out that management innovation is not only beneficial for quantitative measures associated with the organizational bottom line. Management innovation can positively influence organizational qualitative measures such as customer satisfaction (Linderman, Schroeder, Zaheer, Liedtke, & Choo, 2004) and stakeholder approval (Mele & Colurcio, 2006).

Mariano and Casey (2015) dispute the idea that management innovation is always beneficial to an organization and suggest there are scenarios where the effect of management innovation is negative. This notion is supported by other academic researchers who hint that sometimes management innovation carries a prohibitive creativity cost (Galunic & Rodan, 1998), and, can potentially increase the risk of organizational instability resulting from

constrained timelines, absence of leadership backing, and unfavorable organizational culture (Adner, 2006; Hoskisson, Hitt, Johnson, & Grossman, 2002; Swan, Scarborough, & Robertson, 2002).

Projects and Programs

Increasingly, organizations are leveraging projects and programs as vehicles to complete organizational work and to achieve and sustain organizational success (Brown & Hyer, 2010). In the past two decades, projects and programs have become a primary means of executing strategic goals within organizations (Hurt & Thomas, 2009). Orwig and Brennan (2000) describe projects and programs like the "wave of the future for global business' (p. 352). Miterev, Turner, and Mancini (2017) highlight that society at large is significantly "projectified" (p. 480) and, that approximately 40 percent of worldwide economic efforts are project-based (p. 480).

The marked departure from using ongoing operating units to complete most of the work and instead using project and programs is being attributed to competitive landscape (Bocean, 2011), precipitous, unpredictable, and unstable business environments (Gardner, Gino, & Staats, 2012), complicated products and processes, severely constrained market visibility timelines, and resource skills and allocation requirements (Pinto & Kharbanda, 1995). Also, the structure of projects can help an organization bypass some of the challenges associated with different types of organizational structures. Packendorff and Lindgren (2014), agree that project structures are sometimes more attractive to organizations because projects are "perceived as a controllable way of avoiding all the classic problems of bureaucracy." (p.7).

For organizations to sustain their relevance, strategic objectives must be implemented with accuracy, precision, and agility. The increase in the use of projects to meet organizational objectives has ultimately resulted in an increase in programs within organizations (Pellegrinelli,

Murray-Webster, & Turner, 2015). According to the Project Management Institute (2016), projects are temporary endeavors intended to create distinct outcomes while programs are a collection of related projects coordinated in a manner that yields combined project gain versus individual project gain. Shao and Müller (2011, p. 947) agree programs can be "effective governance" tools for projects but also suggest that programs serve as "bridges between projects and organizational strategy" (p. 947).

Project Management versus Program Management

Project Management. Pellegrinelli et al., (2015) describe project management as a "formal and codified method" (p. 153) for completing tasks and activities with constrained "scope, time, cost, and quality" (p. 153). Hanisch and Wald (2011) study various theoretical views and factors that have shaped the project management practice. They propose three project management perspectives that have different theoretical perspectives. Firstly, Hanisch and Wald (2011) mention the "strategic or business view" (p.6). This view treats project management as the management of strategic work that aids or executes organizational objectives. According to Hanisch and Wald (2011), this second view has its roots in "economics, resource-based view, and strategic management" (p.6). Secondly, Hanisch and Wald (2011) mention the "operational or process view" (p.6). This view treats project management as the management of processes implemented to achieve individual tasks that subsequently provide a means of accomplishing the overall project and or organizational objectives. According to Hanisch and Wald (2011), this second view has its roots in process "process theory, optimization, and network theory" (p.6). Thirdly, Hanisch and Wald (2011) mention the "team or leadership view" (p.6). This view treats project management as the management of human resources and emphasizes the human capital component of project management by treating leadership, team organization, and,

synchronization as focal points. According to Hanisch and Wald (2011), this third view has its roots in "psychology, behavioral theory, leadership, and organization theory" (p. 7).

Program Management. Pellegrinelli et al., (2015) describe project management as a "formal and codified method" (p. 153) for completing tasks and activities that must be completed with constrained "scope, time, cost, and quality" (p. 153). Program management has become more prevalent in organizations because the increase in projects has subsequently increased the necessity to organize and oversee an assortment of sometimes competing activities, the necessity to manage resources efficiently, and, the necessity to obtain and improve abilities to help in the management of multiple organizational projects (Pellegrinelli, 2011).

While the popular description for program management focuses on coordination of organizationally connected projects (Ferns, 1991; Gray, 1997), there are many other attributes of program management. In complicated organizational contexts where projects are the main means of doing work, program management helps managers make meaning of complexity and helps them provide meaningful direction to their teams (Maylor, Brady, Cooke-Davies, & Hodgson, 2006). Program management also helps to align and establish closely knit associations between organizational strategy and organizational projects as a collective unit (Gaddie, 2003). Additional advantages of program management include better "clarity and control over spending, and, deployment of resources" (Pellegrinelli, 2011, p. 233).

Walenta (2016, p. 365) provides five key differences that distinguish program management from project management. The differences include:

- incorporation of benefits realization and management in program management
- the focus of projects on "deliverables" (p, 365) that are not guaranteed to generate value versus program management focus on value and benefits

- capabilities and competencies vary for project and program managers
- education and training vary for project and program managers
- project managers mostly engage with project team members while program managers engage with organizational stakeholders that are external to the project team.

Project Managers versus Program Managers

We know from the literature on project and program management that there are differences between both domains. The singular commonality between the project and program domains is that leadership is necessary to complete the project and program management activities. Project management practitioners are often referred to as project managers and, program management practitioners are often referred to as program managers

Project Managers. Due to recurring and unforeseen events that plague many of today's projects, the role of the project manager is to promote teamwork and partnership, incorporate past and future assessments when determining knowledge acquisition plans, avert and mitigate impactful interruptions to project work, and preserve the drive to keep looking ahead to project goal realization (Laufer, Hoffman, Russell, & Cameron, 2015). Crawford (2005) proposed two facets of project management competence; "attribute-based" (p. 8) and, "performance-based" (p. 8). The "attribute-based" (p.8) component addresses "knowledge and understanding, skills and abilities, and core personality characteristics" (Crawford, 2005, p. 9). The "performance-based" (p. 8) component addresses " the ability to perform the activities within an occupational area to the levels of performance expected in employment" (Crawford, 2005, pp. 8-9).

Program Managers. Many organizations make the mistake of assuming that since program management is oversight of multiple and related projects then, the logical career progression for project managers is to advance to program management (Partington,

Pellegrinelli, & Young, 2005). Some studies have highlighted the fact that there are challenges associated with the conjecture that project management competencies are the same as program management competencies (Artto, Martinsuo, Gemünden, & Murtoaro, 2009; Pellegrinelli, 1997). According to Partington et al., (2005), program manager competencies include an ingenious combination of "interpersonal skills and personal credibility" (p. 87), a profound comprehension of "political dynamics" (pp. 87-88) that are interwoven into organizational networks and contexts, and, an extensive understanding of the "strategic context" within organizations (p. 88).

In contrast with project managers, program managers should accept and welcome uncertainty (Pellegrinelli, 2002). Also, they should balance concurrent short term utilization of current knowledge and long term investigation of new ideas (Pellegrinelli et al., 2015; Rijke et al., 2014). Program managers have to be creative and adjust to unpredictable organizational environments, acquire and retail superior leadership skills, and be adept at developing good stakeholder relationships (Pellegrinelli, 2011; Shao & Müller, 2011).

Project Management Office (PMO)

Desouza and Evaristo (2006) suggest there is no common and unanimous definition or description for a project management office (PMO). This is likely because PMOs differ so much in “size, structure, and accountability” (p. 415). Project management offices (PMOs) are subordinate organizational entities and are described as “independent” (Desouza & Evaristo, 2006, p. 416) and, “specialized organizational units” (Artto et al., 2011, p. 409). According to the Project Management Institute (PMI, 2016), the principal objective of a PMO is to align projects and programs to organizational requirements and, to satisfy stakeholder requirements for a plethora of stakeholders. The Project Management Institute (PMI, 2016) characterizes a project

management office (PMO) as an “organizational entity assigned various responsibilities related to the centralized and coordinated management of those projects under its domain. The responsibilities of the PMO can range from providing project management support functions to being responsible for the direct management of a project".

Organizational Role and Function of PMOs

With the emerging trend of using projects and programs to implement business strategy, organizations are also utilizing project management offices (PMOs) to help ensure that projects and programs can succeed with driving organizational strategy. In Aubry et al.’s (2010) qualitative study on organizational change and project management offices, project management offices (PMOs) are described as organizational vehicles that serve many functions including “strategic management” (p.770). PMOs are organizational structural hybrids of “temporary and permanent organizing forms” (Bakker et al., 2016, p. 1706) that are the emerging and leading choice for facilitating strategic change (Pande, 2012; Pellegrinelli, 2002). Aubry et al., (2007) imply that project management offices (PMOs) are structural entities that take part in the organizational innovation process.

Müller, Glückler, Aubry, and Shao (2013) describe the role of a PMO as support, authority, and collaboration. Desouza and Evaristo (2006) group PMO roles and functions into “strategic, tactical, and operational” (p. 416). The strategic function of the PMO is to make sure projects and programs are in sync with strategic organizational goals and, to create an effectual knowledge acquisition and management process. The tactical function of the PMO is to ensure uniformity in the quality of project and program deliverables, tight coordination between projects and programs, and, distribution of knowledge among project and program team members. The operational function of the PMO is to ensure a) the provision of project management expertise to

projects and programs, b) the completion of assessments of projects and programs, c) an amalgamation of knowledge acquired from projects and programs into a single and accessible knowledge base, and d) the consistency in customer satisfaction tracking. Artto et al., (2011) group PMO functions based on the tasks they help support. The groups include “managing practices, providing administrative support, monitoring and controlling projects, training and consulting, and, evaluation and analysis of a project choice” (p. 412). Hurt and Thomas (2009) provide an alternate grouping of PMO functions. These groups include “monitoring and controlling project performance, development of project management competencies and methodologies, multi-project management, strategic management, organizational learning" (Hurt & Thomas, 2009, p. 58), and, a catch-all bucket of "other functions" (p. 58) to capture for example, tasks like customer engagement.

Types of PMOs

In Monteiro, Santos, and Varajão's (2016) analysis of some different PMO typology models available in scholarly and professional literature, the authors mention how much of a wide variety of PMO type definitions are available and identify twenty-five distinct models. Desouza and Evaristo (2006) propose four types of PMOs. First, the supporting PMO whose main focus is to provide administrative support. Second, the information managing PMO whose main focus is to monitor and share aggregated information about project advances. Third, the knowledge management PMO whose main function is to serve as a central library of project collateral and expertise for training and developing PMO and organizational project personnel. Finally, the coaching PMO whose main focus is continuous improvement and quality.

Monteiro et al.’s (2016, p. 1089) mention that per Garfein (2005), there are four types of PMOs including; the “project office” which supplies information to another supervisory PMO

for organizational aggregation. Second, the "basic PMO," which establishes procedures and conditions for choosing projects and assembles data from projects. Third, the "mature PMO", which ensures projects are in lockstep with corporate strategy, executes a method to evaluate and assign project resources and creates a means to rank projects. Finally, the "enterprise PMO" which facilitates fast and quality decisions, and, builds a complete view of the project portfolio pipeline.

The Project Management Institute (2016) proposes four PMO types. First, the project restricted PMO, whose primary role is to support particular projects or programs exclusively. Second, the organizational unit PMO, whose primary role is to exclusively support particular business units by providing human resource, operational, and project portfolio support. Third, the project support office (PSO), whose primary role is to leverage formal authority to oversee organizational methodology and to provide managerial and clerical support for project execution. Finally, the company-wide or enterprise PMO whose primary role is to ensure project and program activities are based on organizational business strategy, and to create the right type of formal and global authority for managing organizational projects and programs with the main goal of aligning with corporate strategy

Synthesis of the Research Findings

Synthesis of the literature review covers the domains of (a) innovation in general, (b) management innovation, (c) organizational performance, (d) projects and programs, and (e) project management offices (PMOs). Management innovation research is still virgin and "under-researched" (Volberda et al., 2013) as the majority of attention has been on technological innovations (Crossan & Apaydin, 2010). The importance of management innovation especially with regards to creating value (Birkinshaw et al., 2008; Kimberly & Evanisko, 1981) and with

regards to improving and sustaining organizational performance (Evangelista & Vezzani, 2010; Mol & Birkinshaw, 2009; Volberda et al., 2013) has been established. There is, however, the argument that management innovation's contribution to organizational performance has not been sufficiently validated by academic studies. Reports of management innovation positively contributing to organizational performance are anecdotal and, an effect of a preconceived bias about the positive effect of innovation on corporate performance carried over from technological innovation (Damanpour, 2014).

Also, although there mostly appears to be a consensus that the scope of management innovation includes process, practice, technique, structure (Birkinshaw et al., 2008) there is no well-defined and mostly agreed to definition of types of management innovation. Instead, there is still quite a bit of overlap and confusion in distinguishing between organizational innovation, administrative innovation, and management innovation (Damanpour, 2014). In Gebauer et al.'s (2017) multi-case study to attempt to gain an understanding of management innovation types, the authors point out that a lot of the existing research explores management innovation generically and "surprisingly, this research does not distinguish between different types of management innovation" (p. 515).

Another area where there seems to a lack of congruence in the management innovation literature reviewed is with the management innovation generation versus adoption process. Damanpour and Aravind (2012) mention that the management innovation generation process "has not been examined specifically until recently" (p. 432). On the other hand, Rasmussen and Hall's (2016) qualitative study mentions that prior management innovation studies have been "primarily concerned with generation…" (p. 358).

There appears to be strong consensus in the projec, and program management literature reviewed that projects and programs are here to stay and have a role to play in helping organizations meet strategic objectives (Tsaturyan & Müller, 2015; Winter & Szczepanek, 2008) Also, most of the scholarly articles agree the PMO is a type of an organization (Monteiro et al., 2016), agree there is a difference between projects and programs (Pellegrinelli, 2011; Walenta, 2016), and, agree there is a difference in the capabilities needed to be a project versus program manager (Laufer et al., 2015; Miterev, Engwall, & Jerbrant, 2016).

Recommendations from management innovation literature are in harmony with this study's research goals. Some of such recommendations for future and deeper inquiry span but are not limited to:

- the role of change agents during the management innovation process (Birkinshaw et al., 2008)
- the "dynamics of the implementation process" (Thomas et al., p. 84) for management innovations and "impact of the organizational context" (Thomas et al., 2012, p. 84) on management innovation events
- continuing conceptualization of management innovation (Volberda et al., 2013)
- the generation process of management innovations (Damanpour & Aravind, 2012)
- types of management innovations and the circumstances and influences that stimulate management innovations (Damanpour & Aravind, 2012)
- the impact of management innovations (Damanpour, 2014)

There appears to be a balance between quantitative and qualitative research methods in the innovation literature reviewed. However, there was an overwhelming tendency toward qualitative research methods for management innovation articles. Within management

innovation literature, the three predominant categories of articles were literature reviews (Crossan & Apaydin, 2010; Damanpour, 2014), theory building (Birkinshaw et al., 2008; Damanpour & Aravind, 2012; Hollen, Van Den Bosch, & Volberda, 2013; Volberda et al., 2013; Volberda et al., 2014), and case studies (Rasmussen & Hall, 2016; Thomas et al., 2012)

According to Brady (2015), there are multiple philosophical influences on the Delphi research method, including Locke, Kant, and Hegel. The Locke epistemological perspective lends itself to the method's requirement for subjective opinion of experts who have gained their knowledge from experience; the Kant epistemological perspective lends itself to the method's requirement of having multiple viewpoints from more than one expert; and the Hegel epistemological perspective lends itself to the method's requirement of anonymity which helps to incorporate multiple opinions even if they are conflicting. Locke's epistemological outlook of subjectivism also informs the theoretical orientation of this study.

The interpretivist lens guides this Delphi qualitative study. Qualitative research involves inquiry about phenomena "in its everyday context" (Smythe & Giddings, 2007, p.37) with the goal of listening to the "voices" (Smythe & Giddings, 2007, p. 37) of the people living and experiencing the phenomena. The interpretivist lens, therefore, aligns with qualitative studies, especially since the epistemological foundation of interpretivism is subjectivism, which is based on real-world phenomena (Scotland, 2012, p.11).

This study leveraged the qualitative Delphi method. This method affords the option of collecting data from experts in a manner that encourages consistency of responses (Linstone & Turoff, 2011). With so much confusion and diversity about management innovation concepts, processes, and precursors, the Delphi method seemed a good fit since getting data from

management innovation experts can possibly help contribute to the gap in research data in these areas.

Critique of Previous Research Methods

A critique of the research methods employed in the literature reviewed revealed a number of points for additional scrutiny. First, the recurring and overarching theme in all of the management innovation literature reviewed was that there is famine in scholarly research on management innovation. Second, the seeming predominance of theoretical models as the qualitative method of choice, and third the stark absence of quantitative studies in management innovation in comparison to other types of innovation, for example, technological innovation.

Scarcity of Management Innovation Research

Although management innovation research is nascent, it is still severely under-researched in comparison to other innovation domains such as product innovation. In Crossan and Apaydin's (2010) review of innovation studies, they discovered that of the 50% of overall literature reviewed that called out innovation types; only a meagre 3% was dedicated to management innovation. Keupp, Palmié, and Gassmann (2012) report that only 7% of innovation articles they reviewed were management innovation articles. This poor showing of management innovation in research studies does not entirely come as a surprise especially since compared to other innovation types it can be an ambiguous and tough concept to study (Volberda et al., 2014). Management innovation presents a difficulty to scholarly effort because of its "tacit" (Volberda et al., 2014, p. 1246) nature and because it is a borderless domain which makes a standard characterization problematic (Birkinshaw et al., 2008). Nevertheless, scholarly research advances must continue to be made so that as much about management innovation can be understood. Unique and refreshing management concepts and solutions continue to emerge

from practitioners (Barley, Meyer, & Gash, 1988) and academia must remain passionate and engaged about providing their contributions to the management discipline.

Inadequate Diversity of Qualitative Management Innovation Research

Another critique of management innovation literature reviewed is the minimal variation in types of qualitative studies. Qualitative research methods include ethnography, phenomenology, case study, narrative, and grounded study (Creswell, 2014). Also, generic exploratory and Delphi studies fall under the qualitative research method umbrella.

The majority of the management innovation literature seemed to be theoretical (Birkinshaw et al., 2008; Hamel, 2006; Volberda et al., 2013; Volberda et al., 2014), followed by literature reviews and case studies. Damanpour and Aravind (2012) highlight the need for more longitudinal case studies to understand the influence of management innovation on organizational performance better. Other qualitative methods, including longitudinal case studies, are advocated because management innovation is incessantly evolving.

Underrepresentation of Quantitative Management Innovation Research

The smattering of management innovation studies using quantitative research methods is glaring. This may be as a result of how challenging it is to operationalize management innovation attributes. According to Damanpour (2014), "the measurement of management innovation is more complicated than that of technological innovations because of its attributes" (p.1272).

Justification for Selection of Delphi Qualitative Method

The uniqueness of management innovation implies its relevance is specific to the organizational, environmental, and managerial context (Volberda et al., 2013). This study's qualitative Delphi method expects to contribute to management innovation research by providing insight into the management innovation in a specific organizational context. There has been some frustration expressed at the lack of connection between the scholarly and practitioner worlds. Corley and Gioia (2011) recommend that management innovation research should have "practical utility" (p.17). By collecting and analyzing data from the management experts who live and breathe the management innovation process, this study hopes to contribute practical and useful academic knowledge that can be leveraged by practitioners.

Summary

Without question, innovations and management innovations specifically will continue to play a major role in organizational performance. Likewise, project and programs and project management offices (PMOs), the organizational unit responsible for project and program oversight will continue to occupy a prominent position in the organizational landscape. The intersection of management innovation and projects and programs is inevitable since projects and programs are becoming the main vehicle through which organizational work is carried out. This chapter reviewed innovation, management innovation, project and program management, and project management offices (PMOs). Understanding gaps in the literature on if and how organizational performance is driven by management innovation, and how projects and programs can help deliver organizational strategy is useful for this study.

To advance the body of management innovation research, this study investigated perspectives of management innovation stewards, for example, program managers within the

organizational context of project management offices (PMOs). By using the Delphi method, this study contributed to the diversity of research methods used to investigate management innovation and, also provide practical insights beyond theoretical propositions posited by existing management innovation research. Details of this study's methodology, including design and execution, will be covered in chapter three.

CHAPTER 3. METHODOLOGY

This chapter describes in detail the research methodology and research design used to gather and analyze data for this study. Firstly, a summary of the study's purpose and the research questions the study aims to address are presented. Secondly, the study's target population and sample, how participant selection and protection was carried out, how data was collected and analyzed, and what instrument was used to collect and analyze data are addressed. Finally, this chapter concludes with the study's ethical considerations and a summary of the chapter's key points.

Purpose of the Study

As mentioned previously, the business and economic landscape continue to be unpredictable and fast changing. Organizations that expect to realize and sustain viability and profitability rely on many factors to do so. Management innovation is credited with being an important influence on organizational performance (Hamel, 2006) and as pointed out previously, businesses are increasingly leveraging projects to achieve and maintain strategic business and organizational success (Brown & Hyer, 2010). One of the ways organizations have responded to competitive market stress; the pressure to be more agile; and the increase in quantity, complexity, and strategic value of projects is to establish organizational entities like project management offices (PMOs). According to Hobbs et al., (2008) PMOs help oversee multiple projects within the overall organization. Because organizations are increasingly utilizing projects to complete organizational work, organizational entities like project management offices

(PMOs) have become responsible for overseeing ensuring the alignment of organizational work and organizational strategy and ultimately organizational success (Hobbs et al., 2008).

The purpose of this qualitative Delphi research was to identify and describe within a PMO organizational context: (a) what types of management innovations exist and what will be needed in the future; (b) how management innovation is implemented; (c) what the future challenges and opportunities are for management innovation implementers; (d) what ideas and approaches exist for minimizing the impact of future problems; and (e) what ideas and approaches exist for taking advantage of future opportunities. The aim is to understand and describe these management innovation details from the perspective of experienced PMO personnel who have been involved in management innovations.

Learning the perspectives of experienced PMO personnel may help projects, and program management practitioners (a) expand their knowledge about management innovations in PMO organizations, (b) craft better plans to prepare for the future, and (c) contribute to reducing the dearth of academic studies on management innovation.

Research Question

This qualitative Delphi study focused on the perspectives and experiences of PMO personnel who have been engaged in management innovation. The following main and sub-research questions guided this study.

The primary research question this qualitative Delphi study addressed is as follows:

1. What is the perspective of program managers on management innovations within project management offices (PMOs)?

The subordinate research questions this qualitative Delphi study addressed are as follows:

2. What types of management innovations exist within PMOs?

3. What types of management innovations will be needed in PMOs in the future?
4. What role does program management play in the development and implementation of management innovations within PMOs?
5. What are future challenges with and opportunities for management innovations within PMOs?
6. What are strategies to mitigate future challenges with management innovations within PMOs?
7. What are strategies to leverage future opportunities for management innovation within PMOs?

Research Design

Researchers often rely on qualitative research to conduct detailed investigations about research problems involving subjective experiences (Corbin & Strauss, 2008; Goldkuhl, 2012). Creswell (2014) suggests that qualitative research can aid researchers with providing insight into individual perspectives. This is because qualitative data is a collection of unique and individual opinions. Given that this study seeks to understand the perspectives of PMO program managers, a qualitative research design was considered most appropriate. Specifically, the qualitative Delphi technique was selected as the research design for this study.

The Delphi technique involves a recurring process of collecting and compiling opinions from a group of anonymous experts until some consensus is reached or until it is determined confluence is unlikely (Brady, 2015; Gill et al., 2013; Hadaya et al., 2012; Worrell et al., 2013). It is important to understand that although one of the possible outcomes of the Delphi Technique is expert consensus (Brady, 2015), gathering dependable expert group opinion is the primary purpose of the Delphi technique (Landeta, 2006). This study is focused on using the Delphi

technique to gather expert group opinion on current status, future challenges, and future opportunities of management innovations in PMOs. According to Linstone and Turoff (2011) the Delphi method has its roots in the business world at RAND Corporation in the 1950s where "a technique to apply expert input in a systematic manner using a series of questionnaires with controlled opinion feedback" (p. 1712) was created by Olaf Helmer, Norman Dalkey, Ted Gordon, and associates. The Delphi technique affords the ability to collect data anonymously and in a controlled manner from a group of experts. These Delphi technique characteristics afford opinions that are less influenced by group think or group pressure. These Delphi technique characteristics also afford leveraging experience to inform future problem solving and risk mitigation.

The Delphi technique was selected as the optimal qualitative research method for this study firstly because it is hailed as being suitable for acquiring meaningful insight on “complex phenomenon” (Brady, 2015, p. 1) such as organizations, and for its wide use in “organizational contexts” (Brady, 2015; Lohuis et al., 2013, p. 707). The project management office (PMO) is an example of an organizational context with many inherently complex components. Secondly, the Delphi technique is a good fit for this study as it helps seek answers to this study’s research questions. What management innovation occurs in PMOs, PMO management innovation future challenges and opportunities, strategies to mitigate future challenges, and strategies to leverage future opportunities are research questions this study seeks to address.

Brady (2015) suggests the Delphi technique is well suited to for uncovering details, facts, and opinions from a group. This study expects to address its research questions by gathering information from a group of PMO program management expert practitioners. Information gathered from the group of experts is expected to help uncover details, facts, and opinions

(Brady, 2015) on what and how management innovations occur in PMOs. The group will also provide their expert opinions on future PMO management innovation opportunities and challenges.

Finally, Grisham (2009) prescribes specific criteria to help determine when to use the Delphi technique. Criteria that apply to this study include:

> the problem does not lend itself to precise analytical techniques but can benefit from subjective judgments on a collective basis; the individuals needed to contribute to the examination of a broad or complex problem have no history of adequate communication and may represent diverse backgrounds with respect to experience or expertise; time and cost make frequent group meetings infeasible; and the heterogeneity of the participants must be preserved to assure the validity of the results (p. 116).

This study's research questions could only be answered by anonymously soliciting subjective opinions of a group of PMO program manager expert practitioners. This study's participants are expected to have multidisciplinary backgrounds without any bias for a specific industry and with no established knowledge of each other. The heterogeneity of the participants in this study was preserved with the diversity of PMO practitioner expert participants. Study participants were from multiple industries, multiple PMO types, and had diverse PMO program manager experience profiles.

Target Population and Sample

Although management innovation occurs in all types of organizational environments (Lohuis et al., 2013), the focus of this study is the organizational setting of a PMO (project management office). This section will describe the target population and sample for this study.

Population

PMO program managers and PMO personnel who fulfill the role of a program manager but do not necessarily have the title of 'program manager' were the target population for this study. The literature on PMOs highlights different types of PMOs including: supporting, information managing, knowledge management, and coaching PMOs (Desouza & Evaristo, 2006); project office, basic, mature, and enterprise PMOs (Garfein, 2005); project restricted, organizational unit, project support office, and enterprise PMOs (Project Management Institute, 2016). In this study, the type of PMO program managers and PMO personnel worked in was not criteria for identifying PMO personnel included in the target population.

Sample

Purposive sampling, a non-probability sampling method, was used to select participants from the population. Purposive sampling can be useful for recruiting participants from target populations that are more specific with specialized attributes. It also facilitates recruiting participants who have experience and an understanding of the phenomenon being researched.

Palinkas et al., (2015, p.534) mention that purposeful sampling is commonly used in qualitative studies to successfully find and choose expert participants with a constrained set of resources. Although Okoli and Pawlowski (2004) advocate a precise and multi-step method for selecting experts, this study will base the selection of expert participants on Skulmoski, Hartman, and Krahn's (2007) criteria for determining an expert. The criteria are "knowledge and experience with the issues under investigation, capacity and willingness to participate; sufficient time to participate in the Delphi; and, effective communication" (Skulmoski et al., 2007, p. 4).

Program executives and program managers who have more than seven years of experience managing programs as well as project managers and PMO personnel who do not have

the ‘program manager' title but have been fulfilling the role of a program manager for over seven years are included in the sample. Although PMO personnel with program manager certification were welcomed as part of the sample, program manager certification was not an inclusion criterion for the sample. All participants had worked or were currently working for a PMO that had been in operation for more than one year. Also, the PMOs participants worked in could not be in consideration for dissolution. Additional inclusion criteria were availability for up to six hours over a period of three months and, a keen interest in the study was used to narrow down and identify the sample population. Participants who did not return signed informed consent forms were excluded from the sample. Also, any participant that did not complete questions for a specific round within a specified period was excluded from subsequent rounds.

There does not appear to be an existing and specific standard for determining the sample size for a qualitative Delphi study. In fact, one of the drawbacks of the Delphi technique is the absence of standard recommendations for sample size (Hung, Altschuld, & Lee, 2008; Paré, Cameron, Poba-Nzaou, & Templier, 2013). A survey of literature indicates a range of six to 329 participants depending on the scale of the study and availability of experts (Baldwin & Trinkle, 2011; Gill et al., 2013; Hadaya et al., 2012; Okoli & Pawlowski, 2004; Skinner, Nelson, Chin, & Land, 2015). Saturation is a point in qualitative studies where additional data collection becomes redundant (Gentles, Charles, Ploeg, & McKibbon, 2015). This study sampled 9 to 12 respondents over the two to three rounds of interviews until saturation was realized. This was in alignment with Linstone and Turoff’s (2011) recommendation that the rounds should be terminated when there is a stability in responses versus when consensus is realized. Linstone and Turoff (2011, p. 1714) reiterate that the “value of the Delphi is not in reporting high-reliability consensus data."

Instead, its value is in giving participants and ultimately academic and practitioner community a heads up on the "complexity of issues" (p. 1714).

Procedures

This section will present a step by step description of (a) how participants for this Delphi technique qualitative study were selected, (b) how participants were protected, (c) how expert review of the interview protocol was conducted, (d) how data was collected, and (e) how data was analyzed.

Participant Selection

Since participants for this study were required to have specific criteria, purposive sampling was employed to recruit Delphi panel participants. Purposeful or purposive sampling is a non-random sampling technique used in qualitative research to identify participants who have a particular set of defined attributes (Higginbottom, 2004). This technique was especially suited for this study since PMO resources with program management skills and more than seven years of experience made up the panel for the Delphi analysis. The study was advertised at the Project Management Institute (PMI) chapters, and PMI members and officials interested in the study contacted the researcher. The following procedures outline the steps followed to recruit participants:

1. The recruitment process began with requesting permission to advertise the study to PMI members. Even though the researcher is a member of the PMI and could access the PMI member directory, approval to advertise the study to PMI members was still solicited from PMI chapter officials. An email was sent seeking permission to advertise the study to PMI members. The email provided an overview of the study and of panel participants' expectations.

2. Once confirmation was received to advertise the study, PMI members were sent an email advertising the study. The email provided an overview of the study, including concepts to be addressed in the study, and expectations of panel participants, including time commitments and overall duration expected for the multiple Delphi rounds. The email also provided inclusion criteria, instructions to contact the researcher and a response deadline for those interested in participating in the study. Four potential participants who responded after the deadline were sent a thank you note explaining that sample requirements for the study had been satisfied and recruitment for the study was closed.
3. Fifteen participants who indicated interest within the recruitment deadline were sent a follow-up email letter thanking them for choosing to participate in the study. A recap of the study overview including concepts to be covered in the study, inclusion criteria, and time commitment was shared. In addition, a timetable for the three Delphi rounds, how participant anonymity and confidentiality would be assured, and the informed consent form was shared. Participants were requested to sign and send the informed consent form via email as the final step to confirm their interest in participating in the study. Participants were also asked to provide a preferred method of conducting the round 1 interview. Audio telephone, Face time video, and Skype were all options offered to participants. All participants opted for the audio telephone interview.
4. Once informed consent forms were received, an interview schedule was set up to conduct round one of the Delphi technique. Only 12 informed consent forms were received back. Therefore, round one of the Delphi was commenced with only 12 participants.

Protection of Participants

PMI members often receive requests to participate in academic research; therefore, PMO personnel with program management experience were not viewed as a vulnerable human research population. However, care was taken to ensure the protection of participants. Informed consent forms had to be signed and countersigned by the researcher prior to scheduling and conducting round one interviews. Informed consent forms provided details about the study and gave participants an opportunity to ask further questions about the study by contacting the researcher and or the researcher's mentor. Additionally, prior to the start of each round one interview contents of the informed consent form were reviewed with emphasis on how participant anonymity and confidentiality would be preserved. To ensure participant privacy and confidentiality, anonymous identifiers were used to identify each participant, and all study documents containing participant information was password protected. All email communication was restricted to secure VPN (virtual private network) environments, and the laptop used was password protected. Finally, hard copies of any study documents containing email correspondence or participant contact information was never printed.

Expert Review

In qualitative research, expert review, or field testing can help increase the validity of research questions (Creswell, 2014). Expert review can also help establish the reliability of research design (Cooper & Schindler, 2010). Expert review affords the researcher an opportunity to update the interview protocol prior to the start of data collection (Polit & Beck, 2010) based on an evaluation by resources who are familiar with the research topic (Daly, Adams, & Bodner, 2012).

For this study, two PMO program management personnel familiar with management innovation in PMOs field tested the interview questions to be used in round one of the Delphi study. One of the experts runs a global PMO and has over 20 years of experience running PMOs. The other expert is an academic with over 16 years of experience teaching and consulting on PMO operations. Both experts were excluded from the actual sample population. Clarity, ease of use of interview questions, and alignment between research questions and interview questions were focused on in the expert review evaluation. After the review, the following suggestions were made and incorporated in the final interview protocol:

1. One demographic related question was reframed to be more open-ended. The original demographic question was used as a follow-up guide during the interviews in case there was specific demographic data that was not provided in response to the open-ended question.
2. Another demographic related question requesting participants to provide certification credentials was removed. The assessment of both expert reviewers was that it was not necessary to ask participants to provide their program management certification identifiers. This suggestion was based on the premise that the project and program management certifying body publishes a publicly available list of certified practitioners, and the researcher could confirm participant credentials if needed.
3. A definition of management innovation that was specific to the scope of this study was introduced as part of the instructions for the round 1 interview questions. Feedback from the expert review was that 'management innovation' is a broad term, and sharing the definition that was applicable to the scope of the study could help increase the quality of data collected.

Data Collection

Hallowell and Gambatese (2010) suggest up to six rounds of data collection and analysis are plausible for a Delphi study. However, they point out that the more rounds a study has, the less reliable the results are. Kalaian and Kasim (2012) indicate three rounds of data collection suffice for reaching consensus. Hasson, Keeney, and McKenna (2000) suggest three processes make up the distinct data collection phases of a Delphi study. These are "discovery of opinions, the process of determining the most important issues, and managing opinions" (p.4).

In the first round of this Delphi technique study, "the discovery of opinions (Hasson et al., 2000, p.4) was the focus. The field test validated questionnaire was used to collect ideas from participants. Although the forecasted duration of the study was 12 to 14 weeks for all three rounds, 4 participants that had signed the informed consent forms and scheduled round one audio interviews rescheduled numerous times to accommodate their convenience and schedules. This resulted in a setback with overall timelines and subsequent attrition of participants who did not last the actual 37-week data collection and analysis duration of this Delphi technique study. The following data procedures were used to collect data once round 1 interviews were scheduled and confirmed with participants:

1. At a mutually agreed to date and time, the researcher conducted audio calls with participants for round one. Each interview lasted between 30 and 75 minutes, and the conference call recording service was utilized to record the conversations. Prior to starting the interview, participants were once again reminded as part of the informed consent review that the conversation would be recorded.
2. After each round one interview, the recorded audio files were downloaded as mp3 files onto a secure laptop drive that is password protected.

3. The files were then uploaded into NVivo Pro 12 qualitative data analysis software tool, and the transcription service in NVivo Pro 12 was used to transcribe each mp3 file into a text format. Each audio and transcribed file was stored with a unique identifier to secure participant privacy and confidentiality.
4. The researcher then manually compared and reviewed the mp3 interview recordings with each text formatted transcribed file for accuracy. In addition to reviewing the files for accuracy, references to specific individual, company, or location names in transcribed files were replaced with anonymous codes.
5. Thematic analysis was conducted on data collected from round one in NVivo Pro 12 qualitative data analysis software tool using word frequency analysis.
6. Round 1 data collection and analysis lasted 27 weeks. Summarized round 1 results along with round 2 questionnaires were shared by email with participants. Participants were requested to complete the questionnaire within 10 business days. Participants were sent follow up reminder emails after 10 working days if all questionnaires had not been completed.
7. At the end of 15 working days, the researcher collated all available responses. Any participant that had not returned a completed questionnaire was treated as attrition. As a result of attrition, there were only 9 participants in round 2 of this study.
8. Survey Monkey was used to distribute the round 2 questionnaires. The Survey Monkey utility for sending questionnaire links by email to participants was used to send the round 2 questionnaires to participants. Round 2 consisted of 20 semi-structured interview questions based on themes identified in round 1. This gave participants an opportunity to review and confirm their original opinions from the round. This chance for Delphi panel

participants to validate and perhaps change their opinions in subsequent Delphi rounds is one of the advantages of the Delphi technique in complex problem solving (Linstone & Turoff, 2011). Although consensus was not the goal of this study, round 2 also helped narrow themes identified in round 1 and evaluate consensus patterns. Descriptive statistics, including percentages and mode, were used to evaluate consensus patterns.

9. Round 2 data was downloaded into an excel document and subsequently uploaded into SPSS software for statistical analysis. Round 2 data collection and analysis lasted 5 weeks. Once round 2 data analysis was complete, round 2 results and round 3 questionnaires were shared with participants.
10. Round 3 consisted of 5 questions. These questions were based on consensus themes on future management innovation challenges and opportunities identified in round 2. Survey Monkey was used to distribute round 3 questionnaires. The Survey Monkey utility for sending questionnaire links by email to participants was used to send the round 3 questionnaires to participants. Round 3 questions solicited for recommendations on PMO management innovation challenges and opportunities identified in previous rounds.
11. Round 3 data was first downloaded into an excel document and then loaded into NVivo Pro 12 qualitative data analysis software tool, and thematic analysis was conducted using word frequency analysis.
12. All files and laptop used for the study were password protected. Once the files were no longer required for analysis, they were moved from the laptop and saved on a password protected and secure external drive. The files and external drive will be destroyed after a seven-year period.

Data Analysis

Data analysis was completed in iterative cycles (Tufford & Newman, 2012) for all three rounds of data collected in this study. Also, the researcher leveraged inductive analysis to complete the data analysis phase of this study. In contrast to deductive analysis where types and groups of data are defined prior to data collection, inductive analysis affords the researcher an opportunity to tease out and uncover themes and patterns from data collected (Marshall & Rossman, 2011). Sequential steps for inductive analysis are analyzing data, identifying themes, and data reduction.

The process of analyzing qualitative data requires moving the data into a format that can be easily analyzed so that themes can be more easily identified and presented in a meaningful manner once data reduction is complete. Interview data from the first round and responses to structured format questionnaires in the second and third rounds respectively made up the types of data collected in this qualitative Delphi study. The following are the procedural steps the researcher used to complete data analysis:

1. Raw interview data in round 1 was transcribed into Microsoft Word 2016 document using NVivo 12 transcription service. Then the researcher compared each transcribed file with the raw interview data to ensure accurate transcription and to ensure participants' original data captured had not been changed (Noble & Smith, 2015).
2. Fielding, Fielding, and Hughes (2013) recommend coding as an important component of qualitative studies. Coding is the process of grouping data so that themes and patterns can emerge from qualitative data. The researcher took manual notes and created codes to group together correlated data. These codes ultimately helped reveal themes and patterns in the data.

3. The researcher immersed in the data and read through transcribed files multiple times in order to uncover themes (Ganong & Coleman, 2014).
4. Additionally, the researcher then leveraged NVivo 12 Pro to complete word and sentence frequency analysis. Themes and patterns identified were then documented.
5. Creswell (2014) describes the process of data reduction as using visual aids such as charts to present the main themes and patterns identified in data. The researcher completed data reduction of round 1 data and shared summarized results in chart format with participants along with the round 2 questionnaires.
6. Leveraging the themes identified in round 1, the researcher created a structured questionnaire for round 2. According to Birko, Dove, and Özdemir (2015), the statistical mode is one of 9 indices that can be used to evaluate consensus in Delphi studies. Data collected from the round 2 questionnaires was analyzed using the mode.
7. Based on round 2 themes that were most frequently occurring a questionnaire was created for round 3. The researcher completed data reduction of round 2 data and shared summarized results in chart format with participants along with the round 3 questionnaires.
8. Round 3 responses were in text format already and did not need to be transcribed. However, the researcher immersed in the data by reading the text responses multiple times and examining the data for themes and patterns. The researcher did by taking manual notes and creating codes to group together correlated data. These codes ultimately helped reveal themes and patterns in the data.
9. Prevailing themes and patterns were identified and documented. The researcher completed data reduction of round 3 data. Chapter 4 will present actual data findings.

Instruments

Instruments leveraged for this qualitative Delphi study include the researcher, interview questions, and structured format questionnaires. In Round 1, the researcher asked the participants structured conversational questions. The researcher leveraged the questions to gather data that would address this study's research questions. Before using the interview questions for Round 1 of this study, the researcher field tested with two experts and made updates to the questionnaire based on feedback from the experts. Round 1 interviews were conducted over the phone on conference calls and audio recordings completed via the conference call recording utility.

The researcher leveraged themes identified during Round 1 data analysis to create a structured questionnaire for Round 2. The goal of Round 2 questions was to gather opinions, and if it made sense to uncover areas where there was consensus in the panel's opinions. The statistical mode was used to determine consensus on themes. The researcher leveraged a structured format questionnaire for Round 3. Round 3 questions were aimed at collecting data about the panel's recommendations for future PMO management innovation challenges and opportunities that had been identified in Rounds 1 and 2.

The Role of the Researcher

Qualitative studies view the researcher as integral to data collection and analysis and even consider the researcher as an instrument (Chan, Fung, & Chien, 2013) since they must comprehend participants' experiences and perspectives (Agar, 2010; Fielding et al., 2013; Goldkuhl, 2012; Tufford & Newman, 2012). In round 1 of this study, the researcher conducted interviews with participants. The interviews were conducted on the phone via a recorded conference call.

Background and experience: Prior to completing this study, I did not have any prior experience completing academic research. However, in my current job, I spend a lot of time with clients making enquiries about their business. I also conduct health checks with clients where individual interviews have to be conducted with diverse stakeholders. I leveraged this experience to conduct the round 1 interviews. I also received guidance from my mentor on enhancing data saturation by allowing participants to talk about their experiences in great detail. I took a refresher webinar in effective listening to help me take notes as I listened to the recorded audio interviews.

I had no experience with NVivo 12 Pro qualitative data analysis software tool. In order to learn how to use NVivo 12 Pro for data analysis, I attended multiple live webinars on how to use NVivo 12 Pro to organize, code, and analyze data. I also watched multiple YouTube tutorial videos on how to use NVivo 12 Pro for qualitative research.

Finally, I leveraged Capella's dissertation resources. There was a research technique seminar series made available on the dissertation resources. As part of this series, there was a qualitative Delphi method seminar available that I listened to. This helped me hone in on word and sentence frequency as one of the mechanisms I used to analyze data for this study

Researcher bias: I have worked in project and program management for many years and therefore, subject to researcher bias. My current job role as a program director means I coordinate multiple projects and programs simultaneously. However, although I have been part of implementations where clients have a PMO organization running their programs, I have not participated in the operations of clients' PMO organizations. Also, within my organization, we do not have a PMO organization that oversees the consulting engagements I manage; therefore, I am not structured within a PMO organization on my job. This limits my bias for this study since it is

focused on management innovations within PMO organizations. However, because of my tenure in program management and my exposure to client PMO organizations, there is still some room for bias (Creswell & Miller, 2000). Hays and Wood (2011) suggest practicing bracketing to mitigate researcher bias.

Bracketing is a process where the researcher sets aside all their personal assumptions about a topic aside when conducting research. In this study, I set aside all assumptions about PMOs based on my interaction with client PMOs and employed reflexivity to help limit possible bias. Lincoln and Guba (1985) suggest one of the ways to practice reflexivity is to have a journal where researcher documents methodological choices and rationale, study logistics, and a reflection on the research process with regards to the researcher's individual values and interests. I kept a journal to especially capture my reflections with regards to my interests and values on management innovations in PMOs and my thoughts on the themes emerging from the data collected and analyzed.

Guiding Interview Questions

Unstructured, semi-structured, and structured interviews are common formats for qualitative research (DiCicco-Bloom & Crabtree, 2006; Doody & Noonan, 2013). Turner (2010, p.754) provides alternate categories for qualitative interview formats: "informal conversational interview", synonymous to the unstructured format; "general interview guide approach", synonymous to the semi-structured format; and "standardized open-ended interviews", synonymous to the structured format. Unlike Doody and Noonan (2013, p.30) who cite the semi-structured format as the most frequently used interview protocol in qualitative research, Turner (2010) suggests, without any cited evidence, that the structured format is more common.

Doody and Noonan (2013) and Turner (2010); however, do agree that structured interviews are the most efficient format for interviewing participants in a qualitative study.

A researcher developed structured format questionnaire with conversational tone questions was used by the researcher in Round 1 of this study. This allowed for consistency with participants. It also afforded participants an opportunity to provide information-rich data desired in qualitative studies. Rounds 2 and 3 also maintained the use of researcher developed structured format questionnaires. All rounds of this study were conducted in an environment that was convenient, comfortable, and chosen by participants (Doody & Noonan, 2013).

Qualitative interview protocols often require a fine balancing act between executing scientific inquiry and allowing the participants' storytelling narrative to be as unconstrained as possible. Castillo-Montoya (2016) refers to interviews that are guided by this balancing act as "inquiry-based conversations" (p.813). The concept of defining an interview protocol that marries scientific inquiry and a conversational flow is part of the interview protocol refinement (IPR) framework; a model Castillo-Montoya (2016) prescribes for conducting semi-structured and structured qualitative interviews. The IPR is recommended as a tool for creating and improving on qualitative interview protocols and comprises of four components this Delphi qualitative study leveraged including a) making sure interview questions were aligned and associated with research questions, b) putting together inquiry supported and conversation stimulating questions, c) obtaining feedback on interview protocol, and d) completing a field study.

Although a structured format was followed by the researcher during the round 1 interviews, the questions were administered in a conversational tone and language. The hope was that a conversational tone would encourage participants to provide as much qualitative detail as

possible when responding to the questions, thus increasing the probability of harvesting information-rich data. A separate set of questions was employed by the researcher to follow up on participants' responses in order to increase the chances of gathering as much detail as possible. This meant there were two sets of questions; one set that was initially administered to the participants and the second set which consisted of follow up question/s that were only asked if more detail was required. Both sets of questions were field tested. For round 1 of this study, structured questions were used. Table 1 below contains both sets of interview questions for round 1. For round 2 (see Appendix A) and round 3 (see Appendix B) of this study, structured questionnaires based on responses from round 1 were used for data collection.

Table 1

Interview Protocol (questions and detailed follow up questions designed by researcher)

Question #	Conversational Questions	Follow Up Question/s
1	Tell me a little bit about yourself and your experience with the PMO	Please provide some background information about yourself, including: a. Age b. Gender c. Educational background including the highest level of education completed d. Project and or program management licensing and certification e. Your current position f. Your experience working within a PMO organization as a program manager or as a resource completing mostly program manager tasks within a PMO?
2	What are examples of innovative and new ways of performing management work within your PMO organization?	What are examples of newly developed and implemented management innovations (practices, processes, techniques, and organizational structures) within your PMO organization? Please use groups below to classify these management innovations. a. Management innovations in current use b. Management innovations in development but have not been implemented c. Management innovations that are conceptual ideas but have not been developed or implemented
3	Who are the key stakeholders involved in the development and implementation of innovative and new ways of performing management work within your PMO organization?	Who are the key stakeholders involved in the development and implementation of new management practices, processes, techniques, and organizational structures?
4	How are innovative and new ways of performing management work developed and implemented within your PMO organization? Please provide some examples if available.	How are the following developed and implemented within your PMO organization? Please provide some examples if available. a. New management practices b. New management processes c. New management techniques

d. New organizational structures

Table 1 Continued

Interview Protocol (questions and detailed follow up questions designed by researcher)

Question #	Conversational Questions	Follow Up Question/s
5	What is the impact of innovative and new ways of performing management work within your PMO organization? Please provide some examples if available.	What is the impact of new management practices, processes, techniques, and organizational structures within your PMO organization? Please provide some examples if available.
6	Looking at the future landscape in your PMO organization, what challenges and opportunities do you foresee with the developing and implementing innovative and new ways of performing management work?	Looking at the future landscape in your PMO organization, what challenges and opportunities do you foresee with the development and implementation of new management practices, processes, techniques, and organizational structures?
7	What are your suggestions for mitigating future challenges with innovative and new ways of performing management work within your PMO organization?	What are your suggestions for mitigating future challenges you foresee within your PMO organization with? a. New management practices b. New management processes c. New management techniques d. New organizational structures
8	What are your suggestions for leveraging future opportunities with regard to new ways of performing management work within your PMO organization?	What are your suggestions for leveraging future opportunities you foresee within your PMO organization with regard to? a. New management practices b. New management processes c. New management techniques d. New organizational structures

Ethical Considerations

Ethical factors such as privacy, consent, confidentiality, and anonymity are key considerations for conducting research within organizations, and it is critical that all research carried out adheres to an ethical code. Section 2 of the professional principles of the Academy of management states, "Prudence in research design, human subject use, and confidentiality and reporting of results is essential". In the Belmont report, the National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research (1979) mentions ethical factors that must be considered for research involving human subjects include: (a) consent, (b) confidentiality, and (c) privacy. This qualitative Delphi study involved human subjects who are program management personnel in PMOs. The level of risk for this study's sample was considered minimal. Capella University's Internal Review Board (IRB) conducted a review of the study's recruitment collateral, data collection and analysis methods, and data security. After review, Capella University's IRB deemed the study minimal risk to the population in question and approved it.

Coded identifiers that did not give away the identity of participants were utilized to preserve anonymity. Consent was secured after initial contact was made with participants and prior to participation in the study. The purpose of the initial contact was to describe the purpose of the study, to seek participation, and to seek consent. The informed consent document provided information on how data collected during the study would be handled and stored during and after the study because it was critical for participants to feel comfortable that their privacy and confidentiality was of utmost importance.

Although electronic data collection facilitates the efficient and reduced cost of data collection in Delphi studies (Kavoura & Andersson, 2016), it can also pose a risk of privacy and

confidentiality. In order to mitigate privacy and confidentiality concerns, password protection, and encryption of data stored virtually was implemented for this study. All data downloaded from the online survey servers and imported into software used coded identifiers to represent participants. Participant names and or email addresses were excluded from downloads, and all the transcribed interview files were scrubbed clean of identifiers that were not coded. Only the researcher was able to associate participant names with coded identifiers. All computers used for analysis were password protected, and the IP addresses of participants was not tracked as part of the study. As soon as data downloads and analysis was complete and finalized, data was deleted from software and computers and stored on a password protected external drive device. The external drive device will be destroyed after seven years.

Summary

In this chapter, a step by step description of how this qualitative Delphi study was carried out was provided. The purpose of this qualitative Delphi study was to understand the perspectives of PMO program managers on PMO management innovation. PMO personnel were the target population, and participants who satisfied specific criteria for the Delphi panel and signed the informed consent form represented the sample. This chapter also provided: (a) details on why the qualitative Delphi research design was applicable to this study; (b) the procedures for collecting and analyzing data; (c) the instrument used to collect data; and (d) the ethical considerations for participants and this study. The next chapter will provide details on actual data collected and analyzed, a presentation of data collected, a presentation of the results of data analysis, and findings of the study.

CHAPTER 4. PRESENTATION OF THE DATA

Introduction: The Study and the Researcher

The purpose of this chapter is to present: (a) the data collected; and (b) the findings based on data analysis during this qualitative Delphi study. First, this chapter provides the researcher's role, including the motivation for studying perspectives of program managers on PMO management innovation. Second, this chapter provides a de-identified description of the sample that illustrates the experience and diversity of the sample; desirable components of a Delphi panel. Third, this chapter outlines how qualitative Delphi was applied to the data analysis process. Fourth and the core of this chapter is the presentation of data collected and the results of the analysis conducted. Finally, this chapter concludes with a summary of findings and conclusions from data analysis, aligned with this study's research questions.

The Researcher

My interest in this study's topic stems from two decades plus of working in project and program management in a consulting capacity. Although I have not worked within a PMO organization, all of my clients have PMOs that I have interfaced with as part of my client work. During my tenure with client engagements and their PMOs and during my PMI member participation through the years, I have noticed a number of trends in project and program management and in the evolution of PMOs.

Organizations are not only doing more work using projects and programs, but they are also increasingly leveraging PMOs to help oversee multiple projects and programs. The client PMOs I have been engaged with vary in size and function. However, a common denominator I have observed is the struggle of the PMOs to establish and or sustain the perception of their value within the parent organizations to which they belong. Some common perceptions and

critique of PMOs by client stakeholders who interact with their PMOs include: (a) the work completed by PMO project and program managers can be bureaucratic and time consuming; (b) the work completed by PMO personnel is routine work and is not innovative enough compared to the work completed by operational managers; and (c) the work completed by PMO project and program managers can be inefficient.

Understanding what kinds of management innovation, the process for developing and implementing management innovation, and the future challenges and opportunities from the perspectives of PMO personnel that have been exposed to and involved in management innovation in PMOs can help inform PMO practitioners in organizations that are questioning the value of the PMO. Management innovation in their PMOs may, for example, be able to improve efficiency, one of the common criticism points of organizational stakeholders in organizations with PMOs.

Although my exposure and experience to PMOs in client organizations is extensive, I have limited experience and exposure to management innovation in PMOs with client organizations I have worked with. Nevertheless, to ensure my objectivity regarding management innovation in PMOs was not negatively impacted, I practiced bracketing and set aside all my assumptions about PMOs. To get ready for this qualitative Delphi study, I needed to familiarize myself with qualitative methods and specifically the Delphi technique.

Apart from the research methods course, I had taken at Capella University that introduced me to qualitative methods; I also reviewed a number of academic articles on qualitative research and the Delphi technique. Some examples of such qualitative articles include Percy, Kostere, and Kostere (2015), Creswell and Miller (2000), and Goldkuhl (2012). Some examples of the academic articles that discussed research design considerations on the Delphi technique include

Okoli and Pawlowski (2004), Hasson et al., (2000), Murry and Hammons (1995), and Brady (2015).

To prepare for data analysis, I listened to two seminars on the qualitative Delphi method from Capella university's DBA research seminar series. Also, I attended QSR international's live training webinars on how to use their software tool NVivo 12 Pro for completing qualitative data analysis. I also viewed the training videos available on QSR international's channel on YouTube.

Description of the Sample

The target population comprised of PMO personnel with experience in PMO management innovation and at least seven years of experience. For this study, PMI (project management institute) project and or program management certification was not a must have but a nice to have. Certification can be validated with the PMI, and it was validated that five of the 12 participants were certified.

For Round 1 of this study, 12 participants were recruited by purposive sampling. All 12 participants completed the informed consent form and made up the Delphi panel for Round 1. All Round 1 Delphi panelists participated in recorded audio interviews. For Rounds 2 and 3, requests using the Survey Monkey email option was used to distribute the questionnaires for each round. Only nine of the 12 Delphi panel participants responded for Rounds 2 and 3.

The sample worked in diverse industries ranging from education to oil and gas with the education industry vertical leading with 30% of the sample and systems consulting industry vertical following closely with 25%. All of the Delphi panel participants were over the age of 30, and 100% of panel participants had over seven years' experience working in PMOs where management innovation occurred. Although responses from all 12 participants were analyzed

and used to create the Round 2 questionnaires, participants P10, P11, and P12 were excluded from Rounds 2 and 3 because they did not complete the Round 2 questionnaire. Table 2 provides a description of key demographic data for Round 1 Delphi panel participants.

Table 2

Demographic description of Round 1 participants

Participant ID	Age Range	Number of years working in PMO	Industry in which their PMO is in
P01	> 60	29	Education
P02	30 - 40	10	Education
P03	30 - 40	9	Oil and Gas
P04	50 - 60	18	Retail
P05	40 - 50	15	Government
P06	40 - 50	9	Education
P07	50 - 60	12	Education
P08	40 - 50	8	Systems Consulting
P09	40 - 50	17	Systems Consulting
P10	40 - 50	8	Systems Consulting
P11	40 - 50	10	Healthcare
P12	40 - 50	11	Oil and Gas

Research Methodology Applied to the Data Analysis

Although there are many variations of the Delphi method, the basic or classical version of the Delphi method was applied for the data analysis conducted during this study. The basic version of the Delphi method usually consists of at least three rounds of data collection and

analysis (Brady, 2015; Okoli & Pawlowski, 2004; Sekayi & Kennedy, 2017). The first round is usually administered with semi-open or open-ended (Brady, 2015) questions. The second round affords participants an opportunity to provide feedback on round 1 responses (Brady, 2015) and final rounds allows Delphi panelists to provide additional clarification (Hsu & Sandford, 2007) and or finalize consensus (Brady, 2015; Hsu & Sandford, 2007; Okoli & Pawlowski, 2004; Sekayi & Kennedy, 2017). Thematic analysis is suggested for analyzing textual data (Brady, 2015; Dalkey & Helmer, 1963) and descriptive statistics are suggested for analyzing quantitative data (Hasson et al., 2000; Hsu & Sandford, 2007).

The goals of leveraging the basic or classical Delphi method for this study include: (a) collect reliable expert group opinion about PMO management innovations (Landeta, 2006); (b) if possible, gain expert consensus (Brady, 2015) on opinions gathered about PMO management innovations or at least gain stability (Sekayi & Kennedy, 2017); and (c) gain insight for future guidance (Loo, 2002) on PMO management innovations. Three rounds of data collection and analysis were completed to realize these goals. In round 1 of this study, open-ended (Brady, 2015; Okoli & Pawlowski, 2004; Sekayi & Kennedy, 2017) structured (Hsu & Sandford, 2007) format questions were used to gather perspectives from the Delphi panel about: (a) what types of management innovations currently exist in PMOs; (b) how PMO management innovations are developed and implemented; (c) who is involved in the development and implementation of PMO management innovations; and (d) future challenges and opportunities for PMO management innovation

Round 1 questions were based on management innovation literature (Hsu & Sandford, 2007) articles including Birkinshaw et al. (2008), Volberda et al., (2014), Su and Baird (2017), and Volberda et al., (2013). In round 1, recorded audio interviews that were transcribed to text

documents in NVivo 12 Pro provided textual data that needed to be analyzed. Thematic analysis was then conducted on the textual data by the use of manual coding by the researcher, automated word frequency searches, and text searches completed in NVivo 12 Pro. According to Fielding et al., (2013), word frequency and text search query utilities are useful for unearthing themes in data collected from open-ended questions. Coding was used to identify terms and concepts (Bazeley, 2009). Concepts and terms were then used to create themes that were subsequently used to create round 2 questionnaires. When round 2 questionnaires were distributed to Delphi panelists, themes identified in round 1 were also shared alongside the round 2 questionnaires.

The goal of 20 round 2 questions was to determine which themes would gain stability and or consensus from the Delphi panel. A combination of single and multiple choice questions was utilized. An 'other' box was provided for panelists to enter data options that were not part of the selections presented in the round 2 questionnaires. Descriptive statistics (Evans, Rogers, McGraw, Battle, & Furniss, 2004; Greatorex & Dexter, 2000) and specifically, the mode was used to analyze round 2 data. According to Hsu and Sandford (2007), the mode is deemed as 'suitable' (p. 4) and is one of the central tendency measures used to analyze data in Delphi studies (Birko et al.,).

The goal of a Delphi study is not only to achieve consensus among the panelists but also, and primarily to facilitate group brainstorming (Plessis & Human, 2007) that generates a collective opinion (Linstone & Turoff, 2011). Sometimes, the group brainstorming may be for the purpose of generating strategies for the future (Loo, 2002). Plessis and Human (2007) argue that attaining consensus can be controversial, especially when consensus in Delphi studies is not necessarily an objective (Williams & Webb, 1994) concept.

Although Delphi studies do not have a standard metric for defining a level of consensus (Hasson et al., 2000), consensus is often expressed as a percentage of the Delphi panel's agreement (Hsu & Sandford, 2007; Powell, 2003; Sekayi & Kennedy, 2017). For example, Hsu and Sandford (2007) report 70% as the threshold used to establish consensus while Sekayi and Kennedy (2017) mention 80% as the threshold. Stability in a Delphi study is when consensus is unlikely, but the data reflects consistency in the panel's responses.

Unlike consensus, there is little mention of and guidance on how to determine stability in a Delphi study. However, Sekayi and Kennedy (2017) suggest 50% as the threshold for establishing stability. Regardless of how consensus and stability are defined for a specific Delphi study, clearly stating criterion for determining when consensus and stability are achieved, is not only prescribed (Diamond et al., 2014; Hsu & Sandford, 2007; Sekayi & Kennedy, 2017) but is also considered an 'optimal' (Diamond et al., 2014, p. 404) approach for Delphi studies.

For round 2 of this study, the criterion for consensus was when there was at least 70% agreement among the Delphi panelists. The criterion for stability was when there was at least 50% agreement among the Delphi panelists. Agreement was determined by using the mode and identifying the most frequently occurring data. When round 3 questionnaires were distributed to Delphi panelists, results of round 2 were also shared alongside the round 3 questionnaires.

In round 3 of this study, instead of continuing to pursue consensus from the panelists by reconfirming their responses from round 2, round 3 was used to gather more details and specifics for: (a) data that consensus and or stability had been established for in round 2 analysis, and (b) areas the researcher believed could still produce even more qualitative data. Five open-ended but structured format questions were distributed via Survey Monkey's email utility. All

suggestions and recommendations were compiled and shared with the panel at the end of round 3.

Issue Encountered During Data Analysis

The researcher did encounter an issue with the overall timeline, one of the potential drawbacks highlighted for the Delphi method (Brady, 2015; Hsu & Sandford, 2007; Sekayi & Kennedy, 2017). The root cause of the issue was the lengthy data collection and analysis in round 1. A couple of round 1 panelists rescheduled their round 1 data collection interview multiple times.

The impact of rescheduling round 1 interviews multiple times was that the pursuit of consensus was terminated in round 2 of this study. This was not considered to be a hindrance to continuing the Delphi study since Brady (2015), suggested Delphi studies should not be constrained by the Delphi method but should be based on 'aim of the research, design employed, and type of data collected' (p.4). The purpose of this study was not solely to determine consensus but also to understand expert opinion about PMO management innovations.

In addition, it was important to ensure that panelists' time commitment was minimized and this was an important consideration in limiting this study to three rounds. For round 1 of this study, the estimated time commitment advertised in the recruitment material and included in the informed consent forms were already exceeded. It was critical to manage the overall timeline in a manner that did not impact panelists.

Presentation of Data and Results of the Analysis

The overarching guide for how this section is organized by this study's research questions. Data and results of the analysis presented below are presented per the three rounds. Round 1 of this Delphi study collected data on program managers' perspectives on PMO

management innovation including what types of management innovations exist, how management innovation takes place, who is involved in the management innovation process, management innovation impacts, and future opportunities and risks. Round 2 sought consensus and stability on data collected in round 1. Finally, round 3 captured recommendations for leveraging future opportunities and mitigating future risks. Opportunities and risks that gained consensus or indicated the highest percentage of stability in round 2 data analysis were the only ones included in the round 3 questionnaires.

Round 1

In this round of the study, qualitative data was collected to address this study's primary and sub research questions. The sub sections below are organized by this study's research questions. Thematic analysis of data collected from panelists helped tease out answers to this study's research questions

Perspectives of PMO program managers on management innovation. The main research question of this study was, "what is the perspective of program managers on management innovations within project management offices (PMOs)?" Delphi panelists were asked to share their perspectives on PMO management innovation. Drivers, outcomes, and sources of innovation were the key themes identified. Appendix A contains terms and codes used to create themes identified for perspectives of program managers on management innovations within PMOs.

Drivers. Birkinshaw et al. (2008) explain that the management innovation process starts with a "motivation" (p. 831) phase. This phase involves the "facilitating factors and precipitating circumstances that lead individuals to consider developing their own management innovation" (p.831). Birkinshaw and Hamel (2006) suggest that "dissatisfaction with the status

quo" (p. 85) is a necessary predecessor for management innovation. In discussions on how the management innovation process starts, Delphi panelists discussed problems and opportunities that triggered the need for management innovations. The researcher classified the problems and opportunities as management innovation drivers. Appendix A contains all 17 drivers identified. The common denominator for all drivers identified is they were all related to gaining some type of benefit by either by solving a problem or pain point or addressing improvement opportunities.

Problems or pain points. For example, to illustrate how pain points were addressed with management innovations, Participant 12 mentioned:

> So in this particular case, it was, trying to get, um, resolution with discrepancies that would come up in the system. You know, they would escalate that to whatever team needed to get it done, but it wasn't getting done. And so what we had to do to make this process better, was to create somewhat of an accountability matrix where details were captured including owners and the brief description of what the issue is. -it was actually done in a database.

Participant 08 said, “We missed a deadline for delivery, and there were cost impacts. So that became like a clarion call to change how things work.”

Improvement opportunities. For example, to illustrate how improvement opportunities were addressed with management innovations, Participant 01 mentioned:

> I actually turned to a company and a good friend of mine who partnered with me and introduced me to the capability maturity mode, and at the time they had just started coming out with CMMI, which is the capability maturity model for service and was used as a readiness assessment on an organization. We applied it to the PMO to do an evaluation and determine what we needed to grow and improve the organization.

Outcomes. Volberda et al., (2013) highlight “performance, dynamic capabilities, productivity growth” (p. 4), customer satisfaction, and quality as consequences of management innovations. Delphi panelists used a number of different terms, including “impact”, “effect”, and “result” to characterize management innovation outcomes in their PMOs. Appendix A contains the 11 outcomes identified. A summary of the outcomes indicated panelists thought of the outcomes in terms of costs and benefits.

Benefits. For example, when describing how implementing a specific tool had helped team cohesion, Participant 06 stated, “So it makes life easier; the information in project online helps to optimize project plans and deliver better results, so there is seamless integration between our teams.”

Participant 04 credited a recent management innovation with increased efficiency in the PMO and mentioned, “the effect was we were able to get to where a project manager was able to work on four to five change requests simultaneously because the overhead was not so high.”

Costs. For example, when describing one of the outcomes of implementing management innovation, Participant 12 said:

> Initially I will say there was pushback and when I say push back, just how people would feel like instead of looking at it as being accountable for what they were supposed to do anyway, they felt like the way, you know, a light was being put on them, you know, and so, people, you know, when it comes to change like that, people sort of resisted.

Participant 04 also said the impact of management innovation was that it "significantly increased administrative responsibility and that did cause a lot of discontent among the other program managers, especially until they got some of the glitches in the system fixed."

Sources. In their integrative framework on management innovation, Volberda et al., (2013) identify three sources where management innovation originates from including "managerial, intra-organizational, and inter-organizational antecedents" (p. 4). The authors group interfacing with "early adopters, external networks, and external change agents" (p.4) as inter-organizational antecedents. "Internal change agents" (p.4) are grouped under the umbrella of intra-organizational antecedents along with "diagnostic and implementation capability and educated workforce" (p.4). Birkinshaw et al. (2008) mention internal and external change agents when discussing human agency's role in management innovation. Wright, Sturdy, and Wylie (2012) indicate consultants are viewed as one of the main avenues management innovations are introduced in organizations. In this study, industry best practices, external sources, and internal PMO personnel were identified as sources of management innovations in PMOs.

Internal sources. For example, Participant 07 identified the internal PMO personnel as a source of management innovation by stating, "I find that I have been a driver of change because I

understand that, a PMO that is properly trained and motivated can be a great asset to the parent organization."

Industry best practice and external sources. Participant 01 credited an industry best practice introduced by a consultant as the source of a management innovation and mentioned:

> I actually turned to a company and a good friend of mine who partnered with me and introduced me to the capability maturity model, and at the time they had just started coming out with CMMI, which is the capability maturity model for service and was used as a readiness assessment on an organization. We applied it to the PMO to do an evaluation and determine what we needed to grow and improve the organization.

PMO Management Innovation Types. Delphi panelists were asked to describe the types of management innovations in their PMOs. Appendix A shows terms and codes used to determine themes identified for the following research questions: (a) what types of management innovations exist within PMOs; and (b) what types of management innovations will be needed in PMOs in the future. In addition to the demographic data represented in table 2, a number of themes emerged after data analysis was complete.

Based on is a kind of management innovation. According to Su and Baird (2017) management practices are the daily management activities within an organization including management "rules, procedures, tasks, and functions" (p.4); management processes are "routines" (p. 4) used to run Birkinshaw et al.'s (2008) definition of management innovation, a "management practice, process, structure, or technique that is new to state of the art and is intended to further organizational goals" (p. 829) management work; management techniques are

"tools, approaches" (p.5) or systems leveraged by management, and organizational structures reference the manner in which activities are "organized" (p.4) and the arrangement of 'communication and responsibility lines' (p.4). Delphi panelists used a number of different terms to describe similar types of management innovations in their PMOs. These terms were employed in the coding process to abstract themes. To analyze the data, thematic analysis was completed using frequently occurring words or phrases. Software, methodology, and techniques were identified as emerging management innovation types most discussed by panelists.

Software. Software was mentioned by all of the Delphi panelists. Because the term 'system' can mean several different things including automated systems, the researcher used 'software' as a theme instead. Also, although Su and Baird (2017) define management techniques as "tools, approaches, or systems" leveraged by management, none of the participants described software systems as a technique. Some of the participants did reference software as a tool. For example, Participant 03 mentioned, "a lot of the recent innovation is more through software tools and applications."

Participant 02 said, "so we do have like a reporting system that we felt would kind of, you know, provide their progress updates and then there's a dashboard that's created from there." Participant 06 mentioned, "we have collaboration tools to optimize project plans and deliver better results by creating seamless integration between teams and producing better results across projects. "

Methodology. Methodology was also mentioned by all of the Delphi panelists. According to Joslin and Müller (2015), a method is what techniques, tools, processes, and procedures are applied for specific scenarios. Methodology is the sum of all methods and the

related understanding of then (Joslin & M Müller, 2015, p. 1378). When describing methodology, Participant 01 said:

> I actually came up with a methodology that I call 'wagile'. And you'll actually hear that term out there in the marketplace every once in a while now. And I think the world has even moved beyond 'wagile' at this point, but in my mind, you take a look at waterfall and what the principles and practices are and you take a look at agile and the reality is, is we're always using a blend of both of those methodologies.

When Participant 07 discussed methodology as an example of a management innovation type, the description was. "kind of a reference framework that the PMO would kind of use, to deliver projects with some checks and balances and responsibilities."

Techniques. When discussing techniques as a type of management innovation, Participant 04 said:

> The PMO instituted oversight so we had to tie into them for processes and procedures, um, you know, getting more templates and more training on templates that were you know traditional, more PMI, and more project management processes to help with issue management.

While Participant 08 said:

> Another innovation is the use of metrics, how to actually properly set them in a way that is realistic, you know. So that way when we have a deliverable we are tracking to and we're setting an achievement goal, we can say is it realistic, is it reasonable?

Role of PMO program managers in management innovation. Delphi panelists were asked to share the process of management innovation and stakeholders involved in the process. Appendix A shows terms and codes used to determine themes identified for the following research question: what role does program management play in the development and implementation of management innovations within PMOs?

Problem identifier, collaborator, creator/developer, and implementer were coded as emerging themes for the roles program managers' play in management innovation. Volberda et al.'s (2014) "multilevel co-evolutionary framework of the generation, diffusion, adoption, and adaptation process of management innovation" (p. 1254), illustrates that acknowledgement of a "perceived problem" (p. 1254) is the first step in the management innovation process. Every Delphi panelist indicated that challenges encountered in the PMO was a common factor that drove the need for management innovation in their PMOs.

Problem identifier. The problem identifier theme was used to classify PMO program managers who recognized opportunities for management innovation because they had encountered a challenge with PMO management practices, processes, procedures, tools, techniques, and structures. For example, when describing their experience with the management innovation process, Participant 02 stated:

> So every year I'll do an operating strategy for the PMO. So this is my departmental strategy and that process is really around evaluating what I see as the university needs and kind of the skills and the response that the PMO needs to prepare for from that assessment or analysis. What I'll do is put together a formal operating plan for that year to say, okay, so here some areas of development that I should focus on for certain PMO resources to prepare them for certain things.

Collaborator. The collaborator theme was used to characterize PMO program managers who had partnered with other PMO and or organizational stakeholders to create management innovations. For example, when describing what type of management innovation their PMO should leverage, Participant 09 mentioned:

> At the end of the day it was a very collaborative decision-making process and then kind of brainstorming to determine do we use a manual tool? Can we do this with a manual tool and will it meet our needs or do we need to invest in something a bit more robust and automated that is quicker so that we can push out to other individuals from an enterprise standpoint and they can consume and utilize as well?

Generator. The generator theme was used to differentiate PMO program managers who were the sole creators of management innovations. For example, when describing their diverse experience with implementing management innovations across multiple organizations including a startup company, Participant 09 mentioned, "I was a team of one person coming up with templates for the startup company PMO that I worked with." When describing a recent management innovation accomplishment, Participant 02 said, "so there are some standard systems and processes that my team has to use and follow. I am putting together an end to end procedures guide to help them do this.

Implementer. The implementer theme was used to represent PMO program managers who execute and utilize management innovations. For example, when describing some of the PMO management innovations they utilize, Participant 06 mentioned, "We have a scoring system and this is something new that we rolled out and have just started to use in the last two months. We use it for project health checks and can just pick any random project."

All Delphi panelists implied they had played multiple roles concerning management innovation in their respective PMOs. For example, Participant 02 whose narrative showed they played both the problem identifier and generator roles.

Future challenges and opportunities for management innovation in PMOs. One of the uses of the Delphi method is to help suggest solutions for the future (Landeta, 2006). In order to come up with solutions and recommendations for future challenges and opportunities, Delphi panelists must first be able to have insight on what future challenges and opportunities are. Delphi panelists were asked to share their opinions on what future challenges and opportunities exist for management innovations in PMOs. Future challenges and future opportunities were the themes used to group the feedback from Delphi panelists. Appendix A contains 12 future opportunities and the 8 future challenges mentioned by Delphi panelists. Appendix A also shows terms and codes used to determine themes for future opportunities and future challenges. The themes are related to the following research question: what are future challenges with and opportunities for management innovations within PMOs?

Sometimes Delphi panelists presented challenges and opportunities in the same narrative and appeared to view PMO management innovation challenges and opportunities as a single concept. For example, in the same narrative, Participant 01 discussed the use of social tools as an opportunity, and the continuing use of software tools that were no longer considered best practice as a challenge:

> If I'm using an excel spreadsheet and everybody else is leveraging Salesforce to communicate and to map work, all of a sudden project management now has an additional challenge that it's practices are archaic even though the philosophies are modern. How can these social tools become an integrated part of how teams

brainstorm and you take those brainstorm notes when you analyze to produce some type of an output - I haven't, like I said, this is not one that I have cracked yet, but I think that project management organizations around the world are going to be challenged because there's no, no tool, no system, no solution set that has come about that really connects with a large set of audiences

Also, Delphi panelists considered artificial intelligence and agile philosophies as both a future opportunity and a future challenge.

For example, when discussing future challenges, Participant 05 said:

I think one of the, well there's two of them. I think one of them is AI. I think with artificial intelligence coming into play, I think that there are some areas where it's going to start impacting how projects are being managed. I think one of the things I hear a lot about is of people using, um, you know, risk-based tools to go out and evaluate, -, look at a bunch of different data and then come back and be able to build those risks out. So I think that those can start creating some problems if you're not careful, and if your company is moving more towards AI.

When asked to share future opportunities, Participant 05 also said:

The hypocrite in me is going to come out. I do think that there is a lot of value in the AI conversations, I think that as companies start looking at the future which we don't do very much today because most projects are very complex. There are multiple stakeholders, there's multiple moving parts, interfacing with multiple different systems and systems that can be implemented that can help a project manager be a little bit more forward thinking, look at a bunch of different variables and start seeing things and start seeing those red marks and say, hey, this

is something you need to look out for would be helpful. I see from a schedule standpoint, you know, it takes a minute to build out a schedule and then you have to manually walk in there and do all these different permutations to it to figure out what may or may not happen. And so, you know, building out those components, using some of the lessons learned, um, and letting that AI component kind of start running forward-looking components through is going to be very beneficial.

Recommendations for leveraging future PMO management innovation opportunities and mitigating future challenges. Delphi panelists were asked to share their suggestions for leveraging future opportunities and mitigating future challenges with management innovations in PMOs. Appendix A contains terms and codes used to determine themes assigned to the future mitigation and future levers themes. The themes are related to the following research questions: (a) What are strategies to mitigate future challenges with management innovations within PMOs; and (b) What are strategies to leverage future opportunities for management innovation within PMOs?

An interesting output of round 1 data analysis was there was some overlap in the recommendations for mitigating challenges and recommendations for leveraging opportunities. For example, when discussing training as a suggested mitigation for digital disruption and its impact to PMOs, Participant 07 said:

> But because of innovations in technology, so a specific example is cloud-native applications and cloud-native delivery, what has happened is that we are seeing modularization of project and program delivery. When I say modularization, what I mean is that delivery is broken down into a lot more chunks, which is kind of amplified the learning and the knowledge curve that's required to deliver. A

technical person, for example, now, has to have, some project and program management skillsets. And in some cases, people who are in the program space now need to adapt to meet those technical requirements. I think the future of how a PMO will be run would be a lot more focused on the skillsets of teams that deliver. So a typical team, for example, will have a mix of the tech team and the people who deliver. I think the only mitigation is going to be a multi multitalented and multifaceted PMO team. Traditional PMOs must train and prepare their resources and teams for the disability.

Participant 01 also suggested training as a future lever for taking advantage of artificial intelligence and its application to acquiring leadership skills. Participant 01 stated:

I think the other thing is that the project manager requirement, the skillset required for them is going to continue to evolve and how do you create the maturity in project management thinking and application much earlier in a project manager's career so that they have the facilitation etc. skills. I started really young. I got lots of experiences. I guess I could relate to different people in different ways, but how do you condense that down and maybe that's where AI technology and virtual reality technology can expedite the learning process to give people a deeper experiences sooner in their careers to help close that gap and so there's a larger percentage of project managers with the leadership skill set, not just the tool of methods skillset.

Round 1 Summary

Drivers, outcomes, and sources of management innovation identified in this study addressed the primary research question. A problem or an opportunity for improvement drove management innovation. Management innovation outcomes are viewed as costs or benefits to the PMO. External consultants, industry best practices, and internal PMO resources are the sources of management innovations in PMOs.

Subordinate research questions were also addressed. Automated tools and systems (software), and processes and procedures (methodology) were identified by all panelists as existing and planned PMO management innovation types. Program managers often and simultaneously play multiple roles in developing and implementing PMO management innovation including: a) identifying the opportunity for a management innovation; b) collaborating with other resources to create and implement management innovations; c) creating management innovations; and d) implementing management innovations. Panelists seemed to think of future challenges and opportunities as a single concept. For example, technology, leadership, and methodology were discussed both as future challenges and opportunities. Likewise, the recommendations for future challenges and recommendations overlapped. For example, training was recommended as a lever for future opportunities. Training was also recommended mitigation for future challenges.

Round 2

The purpose of round 2 analysis was to determine which data gained consensus and or demonstrated stability. The questions for round 2 were based on round 1 responses that addressed this study's research questions. Only 9 of the 12 Delphi panelists from round 1 completed round 2. The mode central tendency was used to evaluate consensus and stability.

Mode is presented as a percentage of total number of Delphi panelists. Consensus was indicated when the mode was at least 70%. Stability was indicated when the mode was at least 50% but less than 70%. Data collected from Delphi panelists' round 1 data were evaluated for consensus and or stability.

Perspectives of PMO program managers on management innovation. Appendix B shows mode values used to determine consensus and stability on all PMO management innovation drivers and outcomes identified in round 1. Management innovation can improve productivity and increase organizational performance (Birkinshaw et al., 2008; Gebauer, 2011; Volberda et al., 2013). The top 2 management innovation drivers all 9 Delphi panelists indicated are: (a) streamlining processes in order to gain efficiencies and; (b) improving productivity.

Resistance to change was the topmost outcome with consensus from 8 of 9 Delphi panelists. Some of the other notable perspectives the panelists had consensus or stability on include:

Consensus. There was consensus on the following a) PMO leadership involved in management innovations should possess certain attributes including critical thinking, problem-solving, the ability to understand strategic goals and objectives of PMO's parent organization, and the ability to align PMO goals and objectives with strategic goals and objectives of the PMO's parent organization, b) PMO management innovation stakeholders includes everyone who participates in, contributes to, or is impacted by a PMO management innovation, and c) after the initial implementation of a management innovation, feedback is not always incorporated into future versions of the management innovation.

Stability. There was stability indicated for the following a) Management innovations are sometimes piloted on smaller teams before deployment to larger teams, and b) industry best practices introduced by external consultants are the source of management innovations. However, these industry best practices were customized for specific PMO use versus adopted as is.

PMO Management Innovation Types. Appendix B shows the mode values used to determine consensus and stability for PMO management innovation types identified in round 1.

Consensus. Methodology and software tools emerged as the two management innovation types that gained consensus from the panelists.

Stability. Stability was determined for all other management innovation types including a) performance management practices, b) training procedures, c) training, mentoring, and coaching techniques, and d) team and organizational structures.

According to Volberda et al., (2014) a management innovation can be newly created, adapted from an existing management innovation, or simply adopted. When a management innovation is adopted, no changes are made to the management innovation. When a management innovation is adapted, it is customized for the specific organizational context. Although there was consensus that methodology was a top PMO management innovation, none of the panelists indicated methodology was introduced by adoption. However, some panelists did indicate methodology was sometimes implemented or always implemented as an adaptation. In addition, it was indicated that PMO resources can individually determine how to apply methodology and no prescriptive approach was suggested or enforced on PMO personnel employing methodology.

Future PMO management innovation challenges and opportunities. Appendix B shows the mode values used to determine consensus and stability for future PMO management challenges and opportunities identified in round 1.

Consensus (future opportunities). Based on the 70% agreement criteria for consensus in this study, consensus was not gained on any of the future opportunities presented to Delphi panelists. However, based on the range defined as stability criteria for this study, stability was determined for a number of the future opportunities.

Stability (future opportunities). Stability was determined for the following future PMO management innovation opportunities a) artificial intelligence (AI), b) agile philosophies, c) data visualization and analytic tools, d) leadership styles, e) predictive and forecasting tools, and f) continuous innovation. Three of the five opportunities stability was indicated for were technology enabled and suggest the role and influence of technology with future PMO management innovation opportunities.

Consensus (future challenges). Based on the 70% agreement criteria for consensus in this study, consensus was gained on only one of the future challenges presented to Delphi panelists. There was consensus from 8 of the 9 panelists that resistance to change was a future PMO management innovation challenge.

Stability (future challenges). Based on the range defined as stability criteria, stability was determined for the following challenges: a) acquisition and transfer of leadership behavioral capabilities that are difficult to operationalize and measure and; b) unclear and continuously evolving definition of project and program management roles.

Mitigation and lever recommendations for future PMO management innovation challenges and opportunities. Appendix B shows the mode values used to determine consensus

and stability for mitigation of future challenges and leverage of future opportunities identified in round 1.

Consensus (levers for future opportunities). There was unanimous consensus from all 9 Delphi panelists that encouraging flexible and creative problem solving and critical thinking behaviors can help PMO personnel take advantage of future opportunities in management innovation. Based on the 70% agreement criteria for consensus in this study, consensus was also gained on the following recommendations a) training, coaching, and mentoring for less experienced PMO project and program managers, and b) fostering a more collaborative culture.

Stability (levers for future opportunities). Based on the range defined as stability criteria for this study, stability was determined for the following, a) demonstrate PMO value & credibility, a recommendation that can help gain executive level and wide organizational support for management innovations and, b) training PMO personnel on future technology trends.

Consensus (mitigation for future challenges). Based on the 70% agreement criteria for consensus in this study, there was no consensus on any of the recommendations to mitigate future challenges with PMO management innovations. However, based on the range defined as stability criteria for this study, stability was determined for a number of future challenges.

Stability (mitigation for future challenges): Stability was determined for the following challenges, a) promote context specific approaches, b) clarify PMO job functions, roles, and desired behavioral traits, c) train and retrain talent to ensure team is multidisciplinary, and understands and can apply agile philosophies, d) reward and reinforce continuously innovative and collaborative behaviors for example, the practice of sharing lessons learnt, e) employ a variety of methods to mitigate resistance to change including but not limited to training, demonstrating value early, communicating with all stakeholders during all phases of creating and

implementing management innovations, and leveraging successful & relevant industry references to gain buy-in, and, f) promote servant leader and situational leadership styles at all levels of the organization.

Round 2 Summary

A summary of Delphi panelists' key perspectives on PMO management innovations include, a) consideration of leadership attributes necessary for management innovation, b) external consultants introducing industry best practices serving as a main source of management innovations, and c) adaptation versus adoption of PMO management innovations. There was indication from the panelists that all the categories of management innovations defined by Birkinshaw et al.'s (2008) are included in existing and future management innovations. According to Birkinshaw et al. (2008) a management innovation is a "management practice, process, structure, or technique that is new to the state of the art and is intended to further organizational goals" (p. 829). Automated processes and tools (software), practices, procedures, and techniques (methodology, performance management and training), and structures (team and organizational structures) either gained consensus or stability.

Technology enabled solutions, leadership, and agile philosophies were established as future opportunities. Resistance to change was the singular future challenge there was unanimous consensus. Leadership and clarity of PMO roles were also indicated as future challenges.

Panelists agreed that flexible and creative problem solving and critical thinking behaviors would help take advantage of future opportunities. Organization wide support, executive support, and training were also indicated for leveraging future opportunities. Although there was no consensus on what could help mitigate future challenges, there was indication that training,

stakeholder communication, collaboration, and use of industry references could help mitigate future challenges.

Round 3

The purpose of round 3 analysis was to gather additional qualitative data on round 2 data that gained consensus and the most stability. All of the 9 Delphi panelists from round 2 completed round 3. Additional details about data on which the panelists had consensus and or stability on were pursued in round 3.

PMO Management Innovation Types. Panelists were asked to provide specific examples of the following types of management innovation: (a) methodology; (b) software tools; and (c) structures. Appendix C captures all the examples that the panelists provided.

Future Opportunities with PMO Management Innovation. Panelists were asked via open-ended structured format questions: (a) examples of ways AI (Artificial Intelligence) can be a future opportunity for management innovation; (b) examples of how data visualization & data analytics are future opportunities for management innovations; and (c) a description and or examples of agile philosophies can be applied to management innovations.

Efficiency. Efficiency was a common theme that emerged from data analyzed for all three questions about future opportunities.

When discussing an example of how AI can be a future opportunity, Participant 03 said:

> A.I. can improve efficiency in situations where managers use data for decision making. Data analysis using A.I. is 99.9999% more likely to be exact and removed from human error. A.I. can speed up automation processes, which will make it possible for managers to achieve goals faster and more accurately. From a business standpoint, automation will reduce human involvement where needed, which will save and increases both speed and profit.

The efficiency theme also occurred in examples of how data visualization and data analytics are future opportunities for management innovation. Participant 06 said, "we use data visualization and analytic tools for reporting and historical analysis of past programs work to enable more efficient delivery." Participant 04 also stated, "data visualization and analytics can be used to help streamline the project management process and help determine issues."

Finally, the efficiency theme was present in data providing descriptions or examples of how agile philosophies can be applied to PMO management innovations. Participant 07 shared an example where agile philosophies were used to, "speed up the management innovation process and therefore reduce cost and efficiency of management innovation" because work was now done in parallel but logical streams instead of sequential streams with hard dependencies."

Forecasting. Forecasting was another theme that was common in responses to two of the three questions about future management innovation opportunities.

For example, when describing an example of how AI had been used in their PMO, participant 05 said AI had been used in the Earned Value Management (EVM) process and stated, "AI was used to calculate some of the forward-looking variables we use to calculate earned value and to forecast project performance."

In response to examples of how agile philosophies can be leveraged as a future opportunity, Participant 07 stated:

> Today's business environments require continuous improvement which is an agile philosophy. We currently work to leverage this principle in how to prioritize, evaluate, and manage progress of business deliverables, as well as deliverable roadmaps that provide a snapshot of the next number of months to years depending on nature of initiative.

Leveraging Future Opportunities for PMO Management Innovations. Encouraging flexible and creative problem solving and critical thinking behavior was the only recommendation for leveraging future management innovation opportunities where consensus was gained from all of the Delphi panelists. It was therefore important to understand from the viewpoint of the panelists, suggestions or ways to encourage flexible and creative problem solving and critical thinking behaviors in PMO personnel. Open communication, coaching, executive support, organizational culture, and leadership styles emerged as unique themes.

Collaboration. Collaboration was a common theme that emerged. Participant 06, recommended, "encouraging true team collaboration that involves all team members involved in a project, regardless of level, so that the best ideas are sought and adopted."

Participant 04's proposal was to, "consult other teams in the organization about their own creative problem-solving skills. Having different mindsets of what factors into creative problem-solving will help you give a clear head start."

Round 3 Summary

Efficiency, and forecasting emerged as applications of future PMO management innovation opportunities. Open communication, coaching, executive support, organizational culture, and leadership styles were all identified as factors that could influence the ability to effectively leverage future management opportunities. Collaboration emerged as a common theme for suggestions on how to encourage flexible and creative problem solving and critical thinking behaviors in PMO personnel.

Summary

This chapter shared information on how the Delphi qualitative research method was applied to this study. Also, results of three rounds of data analysis conducted in this Delphi qualitative study were presented. Round 1 involved thematic analysis on data collected via open-ended questions. Round 2 sought to get consensus or stability on the data collected from round 1. Round 3 involved thematic analysis on data collected via open-ended questions. The questions in the third round were based on data collected and analyzed in prior rounds. Analysis of data collected in all three rounds provided insight for addressing this study's research questions. Insight provided addressed this study's research questions and includes: (a) the types of management innovations that currently exist and are being planned for the future; (b) roles

PMO program managers play in management innovation implementation; (c) future opportunities and challenges for PMO management innovations; (d) recommendations for mitigating and leveraging future PMO management innovation challenges and opportunities respectively; and (e) general perspectives of program managers on PMO management innovations.

Software tools and methodology emerged as the top PMO management innovation types. All of the panelists indicated they fulfill multiple roles with the problem identifier role emerging as the single role every panelist indicated they had played during the process of management innovations. Drivers, outcomes, and sources of PMO management innovation were the highlights of perspectives shared by Delphi panelists.

Data analysis revealed that improving productivity and increasing operational efficiencies gained the most consensus as drivers of PMO management innovation. Industry best practices, external agents for example, consultants, and internal agents within the PMO were identified as sources of management innovation. Industry best practices and external agents were somewhat linked as it was mentioned that industry best practices were often introduced by peers from external networks or by consultants.

Resistance to change surfaced as the PMO management innovation outcome with the most consensus. Resistance to change was not only identified by panelists as an outcome. It also emerged as the top future challenge with unanimous consensus from all Delphi participants. Although there was no consensus on recommendations to mitigate future challenges with PMO management innovation, training, communication, flexibility in leadership styles, flexibility in management innovation implementation approach, as well as collaborative culture were all indicated as stable data and were therefore considered useful insight.

There was no consensus on future opportunities for PMO management innovations. However, stability was indicated for technology enabled solutions like Artificial Intelligence(AI) and data visualization and data analytic tools. Agile philosophies, and continuous innovation were also indicated as future opportunities. Encouraging flexible and creative problem solving and critical thinking behaviors gained unanimous consensus as a strategy to leverage future PMO management innovation opportunities.

Chapter five will discuss: (a) results and findings presented in this chapter, (b) implications of this study's findings for future research, and (c) limitations of this study, and (d) recommendations for future research.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

The purpose of this chapter is to provide: (a) a summarized review of the study's purpose, research methodology, and findings; (b) a discussion of this study's results presented in the previous chapter; (c) an interpretation of this study's findings relative to previous seminal and extant literature and other research studies; (d) the constraints for this study's research design; (e) the academic and practical implications of this study's findings; (f) the recommendations for future research; and (g) a concise review and conclusion of overall dissertation.

Summary of the Results

Need for Study

To achieve and maintain sustainable growth and success, organizations must find ways to manage volatility, uncertainty, complexity, and ambiguity (VUCA) in the current business environment. Millar, Groth and Mahon (2018) indicate "global demographic shifts, migration, protectionism, intergenerational hand-offs, and life pattern changes" (p.7) have further stoked the VUCA flames thereby creating significant hurdles for how organizations and management accomplish organizational work. Two of the many levers organizations use to achieve and maintain successful performance are continuous innovation (Damanpour & Aravind, 2012; Paulsen et al., 2013) and the use of project-based work (Brown & Hyer, 2010).

Historically, the organizational focus of strategic imperatives to mitigate VUCA has been technological, product and process innovations (Damanpour & Schneider, 2006). In more recent years, management innovation has emerged as an area of increased academic interest (Crossan & Apaydin, 2010; Volberda et al., 2013). Management innovation is also being utilized as a means to insulate organizations from the effects of VUCA type business environments and, has been attributed as a driver of positive organizational performance and success (Camisón & Villar-

López, 2014; Mol & Birkinshaw, 2009). In fact, Hamel (2006) vigorously posits that management innovation can create a powerful advantage for an organization.

At the same time management innovation is emerging as a means of executing strategic objectives, organizations are also leveraging project-based work as a means to realize strategic goals. According to Görög (2016), projects and programs have become generally accepted by academia and practitioners as a main agency for implementing strategic organizational goals. Because of the strategic function of projects and programs, organizations tend to need and utilize organizational structures to help oversee projects and programs (Görög, 2011). These organizational structures are often referred to as project management offices or project management organizations (PMOs).

Prior research on management innovation tackles how management innovation can complement technological innovation (Millar et al., 2018; Mol & Birkinshaw, 2009). Academic studies on management innovation are nascent with research mostly focused on conceptual definitions of management innovation (Birkinshaw et al., 2008; Hamel, 2006), management innovation antecedents (Lin, Su, & Higgins, 2016; Mol & Birkinshaw, 2009; Vaccaro et al., 2012), and management innovation process frameworks (Birkinshaw et al., 2008; Lin & Su, 2014). Some of the extant research articles published while this study was ongoing focused on a) examining the process by which organizational procedures and practices develop and change with management innovation execution (Lin et al., 2017), b) challenges and recommendations for executing management innovation in a volatile, uncertain, complex, and ambiguous (VUCA) environment (Millar et al., 2018) and, c) methodical evaluation and meta-analysis of previous studies on management innovation at multi-levels and management innovation drivers and outcomes (Khosravi, Newton, & Rezvani, 2019).

However, there is still a lot of ground to be covered. Some of the frequently occurring gaps identified in seminal and extant research are a) inconsistent and diverse definitions of management innovation and its associated drivers and outcomes (Damanpour & Aravind, 2012; Hamel, 2006; Khosravi et al., 2019; Volberda et al., 2013), b) lack of a qualitative understanding of the impact and role of individuals in the creation and implementation of management innovations (Khosravi et al., 2019; Kunz & Linder, 2015; Volberda et al., 2013), and c) lack of studies at organizational and sub-organizational unit levels versus studies at industry level (Kunz & Linder, 2015; Scarborough et al., 2015; Volberda et al., 2013).

For example, Millar et al., (2018) generate a catalog of challenges and recommendations for future management innovations in VUCA environments. The authors do so with input from three studies. Two of the studies are geared towards theory development and the third study is conducted at a macro country (China) level. This study on program managers' perspectives of PMO management innovations specifically addresses the gap in research of management innovation micro level unit of analysis. In addition, challenges and recommendations in this study are based on data gathered from practitioners who do the work of management innovations in their day to day jobs.

Significance

Given the forefront roles that projects, programs, and management innovations play in the organizational strategic journey, the intersection of management innovation and programs is inevitable in many organizations. Insights that can help improve the efficacy of management innovations and PMOs will be beneficial for organizations since both project and program management, and management innovation have the potential to contribute to an organization's competitive advantage. This study hopes to provide such useful insights to management

innovation scholars, management innovation practitioners, and project management practitioners.

Insights such as a) types of management innovations that have been and will be implemented in PMOs, b) management innovation drivers, outcomes, and impacts in PMOs, and c) future challenges, opportunities, and recommendations can help highlight more areas to be considered for future research by management scholars. Such insights can also help contribute to the lean but growing management innovation literature. Additionally, learnings from this study can help provide PMO and management innovation practitioners suggestions and ideas to consider for grooming a management innovation culture, enhancing management innovation processes, and strategically preparing for the future.

Methodology Used

A qualitative Delphi method was leveraged in this study to gather perspectives of expert PMO practitioners with management innovation experience. The Delphi method involves a repetitive process of collecting and analyzing viewpoints from a group of anonymous experts until some consensus is reached or until it is determined convergence is improbable (Brady, 2015; Gill et al., 2013; Hadaya et al., 2012; Worrell et al., 2013). It is critical to note that collecting reliable expert group perspectives is the principal purpose of the Delphi technique (Landeta, 2006). A general qualitative design could have been used for this study but the Delphi method was selected as most appropriate since it is suited for gathering meaningful insight on "complex phenomenon" (Brady, 2015, p. 1) such as PMOs and management innovations. This method is also used widely in studies related to organizational and sub-organizational settings (Brady, 2015; Lohuis et al., 2013) which is where PMOs exist and where management

innovations occur. Finally, the Delphi method is helpful with understanding the viewpoints of experts (Grisham, 2009) for example, the experienced PMO personnel participants in this study.

Study's Findings Summary

In Round 1 of this study, data was collected from participants with an average of 13 years of PMO experience in different industries including education, retail, oil and gas, government, systems consulting and healthcare. PMO managers shared their perspectives on management innovations including a) five types of PMO management innovations implemented, b) roles of PMO managers in management innovation, c) 17 drivers, 11 outcomes, and three sources of PMO management innovations, d) Eight and 12 future PMO management innovation challenges and opportunities respectively, and e) recommendations for future PMO management innovation challenges and opportunities. During Round 2 of the study, nine participants selected software and methodology as the top types of PMO management innovations.

In round 2 of this study, improved productivity and increase in operational efficiencies and cost savings due to streamlined processes were selected as top drivers for PMO management innovations. Participants were unanimous in their selection of resistance to change as the top future challenge for PMO management innovation. Artificial intelligence, data visualization and analytics, and agile philosophies emerged as the top future PMO management innovation opportunities. Leadership, training, collaborative culture, and creative and critical thinking, and flexible approaches to implementing management innovation emerged as top recommendations for future PMO management innovation challenges and opportunities.

In Round 3 of this study, efficiency and forecasting emerged as the common themes for how organizations could apply the topmost future PMO management innovation opportunities identified in Round 2. Collaboration emerged as a common theme for leveraging future PMO

management innovation opportunities.

Discussion of the Results

This study was steered by its research questions. The main research question was geared at understanding PMO program managers' perspectives on management innovation. In order to address this research question, a couple of secondary research questions were formulated. First, what types of PMO management innovations currently exist and are planned for the future was addressed in this study.

Process, tools, and structures (Birkinshaw et al., 2008) emerged as the topmost types of current and future PMO management innovations. There was consensus on process and tools with methodology emerging as the top process type, and software as the top type of tool. Both methodology and software were indicated as PMO management innovations that currently existed and were also being planned for the future. There was no consensus gained on structures as a current or future type of PMO management innovation but stability was achieved.

An organization can generate a management innovation that is new to both its own organizational context and also to the industry it exists in. It can also choose to adopt or adapt a management innovation that exists at the industry level but is new to the organization. Even when the idea already exists at the industry level, it is still considered a management innovation within the organization that introduces it for the first time. When an organization adopts a management innovation, they implement the management innovation within their organization without any custom changes (Volberda et al., 2014). When an organization adapts a management innovation, they implement the management innovation within their organization with custom changes (Volberda et al., 2014).

Current and planned methodology and software management innovations were mostly adapted. Adaptation appeared to be the primary means of generating management innovations in PMOs. This is because adoption of management innovation originating from industry may not always address specific organizational contexts. Without making custom changes and adapting them, industry management innovations may not be fully fit for purpose. There was also some differentiation between current and future structures. Current top structures were identified as matrix and virtual structures. Future top structures were described as agile and hybrid structures.

Second, the role of program managers in the development and implementation of PMO management innovations was addressed by this study. The four themes for roles of program managers in PMO management innovations were a) problem identifier, b) collaborator, c) generator, and d) implementer. The problem identifier role represented program managers who desired to introduce management innovations as a solution for perceived challenges. The collaborator role worked with other roles to develop and implement management innovations. The generator role was primarily responsible for the creation of a management innovation from scratch or selection of an industry based management innovation to be adopted or adapted. The implementer role was responsible for diffusing the management innovation within the organization.

All participants indicated they had played multiple roles. The problem identifier and collaborator roles were both roles that participants had all filled while the generator and implementer roles had been filled by some but not all participants. The varying levels of experience may serve to explain why not every participant had filled the generator and implementer roles since it was only participants with 15 or more years of experience who had filled all the roles before.

This may mean that creating and diffusing management innovations may be less of a challenge when a certain type of leader and or resources with the most leadership experience leads the effort. More experienced leaders may have more interpersonal and social network connections; which are required for better diffusion of innovations (Rogers, 1995). More experienced leaders may also be more adept at operating multiple leadership styles. Osayawe-Ehigie and McAndrew (2005) surmised the appropriate leadership style was important in the diffusion and adoption of total quality management (TQM); an example of management innovation (Birkinshaw et al., 2008).

Third, future challenges and opportunities for PMO management innovations was addressed by this study. Of 8 challenges the Delphi panel originally identified, resistance to change emerged as the only challenge that gained consensus. The unclear and continuously evolving definition of project and program management roles emerged as the only challenge to achieve stability. For successful PMO activity including management innovation activities, clarity in project and program management roles, and ultimately clarity in ownership of specific work packages can't be underrated (Zwikael & Meredith, 2018).

Resistance to change as a future challenge was not necessarily a surprise. Management innovation is a new way of doing things and the newness implies change. Change of any sort is often viewed with anxiety both by observers and by those impacted by the change. Schon (1963) suggests resistance to change results from innovations posing a threat to the usual and comfortable way of doing things and familiarity with existing skill sets.

Fourth and final, recommendations to a) leverage future opportunities, and b) mitigate future challenges were addressed by this study. There was no consensus on any the 11 recommendations to mitigate future challenges. However, stability was achieved on the topmost challenge, resistance to change.

Panelists recommended mitigating resistance to change by providing training on management innovations, improving communication with all stakeholders, demonstrating management innovation value early, and referencing successful industry case studies. Training can help to be better prepared for inevitable change (Gratton, 2017) and reduce anxiety associated with the unknown. All stakeholders should receive the appropriate type and frequency of communication about impending change resulting from management innovation. This can be important especially for influential stakeholders who may not necessarily be responsible for implementing the management innovation but a) exert heavy organizational influence, and or b) will be directly or indirectly impacted by the outcome of management innovation.

Demonstrating value early and referencing successful industry cases can help cement executive buy-in and support for the management innovation. Executive leadership can potentially pull the plug on a management innovation effort at any time. Therefore, demonstrating a quick win and or early return on investments to executive leadership is a way to minimize resistance to change coming from the top ranks of the organization.

Of the 9 recommendations to leverage future opportunities the following gained consensus from the panel a) training, coaching, and mentoring less experienced project and program managers, b) fostering a more collaborative culture, and c) encouraging flexible and creative problem solving and critical thinking skills. The panelists' recommendations are not

necessarily surprising. Organizations that place a premium on and nurture innovation encourage skills including flexibility, lifelong learning, collaboration, creativity, critical thinking, and problem-solving (Van Laar, Van Deursen, Van Dijk, & De Haan, 2017, p. 577). One limitation of this study is the possibility that the recommendations are by no means exhaustive. If there were more panelists, then there may have been more challenges, opportunities, and recommendations generated.

Conclusions Based on the Results

Findings and results of this study provide answers to the research questions posed in this study. Although examples of management innovation types were specific to PMOs, the types of management innovation have been characterized in the existing research literature (Birkinshaw et al., 2008). The process of introducing management innovation, drivers, outcomes, and sources of management innovation also exist in previous literature (Volberda et al., 2014). Finally, future challenges, opportunities, and recommendations for management innovation did not vary much from current innovation and management innovation literature (Kuratko, Covin, & Hornsby, 2014; Millar et al., 2018; Smith, 2007).

Two noteworthy themes; efficiency and strategic forecasting, emerged as the objectives fueling the top future management innovation opportunities identified by panelists in the final round of data collection. These objectives resonate with the idea registered in existing innovation and management innovation literature (Birkinshaw et al., 2008; Gebauer, 2011; Volberda et al., 2013), that organizational performance is a major driver of management innovation. Organizations want to improve process and cost efficiencies. They also put a premium on the ability to forecast variables that will help improve the bottom line. Ultimately, performance is the fuel that keeps the quest for efficiencies and effectiveness aflame.

Comparison of Findings with Theoretical Framework and Previous Literature

Results of this study are mostly aligned with seminal and extant literature on innovation and management innovation. Management innovation types identified in this study map to Birkinshaw et al.'s (2008) description of management innovation types of "management practice, process, structure, or technique" (p. 825). In a more recent scholarly article on management innovation typology which was based on management innovation tasks, components and sources, Gebauer et al., (2017) offer up four types of management innovations including "efficiency driven, externally recommended, problem-oriented, and opportunity-oriented" (p. 521) management innovations. Using Gebauer et al., Saul's (2017) typology, existing management innovations identified in this study would be grouped as efficiency driven, problem-oriented, and externally recommended. Planned management innovations identified in this study would be grouped as efficiency driven and opportunity-oriented management innovations.

There are opposing opinions on whether management innovation guarantees organizational performance. In fact, some scholars (Marks, 2006; Paper & Chang, 2005) suggest management innovation has mostly fallen short of targeted objectives. Although panelists indicated experiencing resistance to change, only one panelist mentioned experiencing failure with management innovation. Birkinshaw et al. (2008) take a middle of the road approach and suggest some management innovations could have a higher probability for improving competitive advantage based on how "valuable, rare, and hard to imitate" (p. 841) they are. However, this suggestion needs to be empirically proven.

Another area of alignment between this study's findings and existing management innovation literature is that resistance to change is an almost guaranteed outcome and challenge of management innovations. Zbaracki (1998) mentions that the response to management innovations is usually not positive. Birkinshaw et al. (2008) infer this is probably due to the overwhelming nature of innovations especially when there is insufficient awareness of the possible benefits of such innovations.

The panelists in this study recommend training as one of the ways to alleviate resistance to change. Such training could help increase knowledge of the potential management innovation benefits. Another recommendation to mitigate resistance to change is to secure reference industry case studies. Birkinshaw et al. (2008) suggest if there are examples of successful innovation implementations in other organizations it can help minimize "ambiguity and uncertainty" (p. 830) that contribute to resistance to change.

Interpretation of the Findings

Technology has not only come to stay but has also come to help organizations chart the choppy business environment waters. The interaction between technology and management innovation is co-evolutionary (Khanagha et al., 2013) and Mol and Birkinshaw, 2009 suggest management innovation facilitates technological innovation. Management innovators must continue to craft new ways of doing work as newer technologies become available. This interaction is displayed in two of the top future management opportunities identified by the panelists in this study, artificial intelligence and data visualization and analytics. This implies that technology is likely to play a role in the future of management innovations.

As important as technology may be, it can only still be viewed as an enabler of management innovation. Unlike human capital, which is the stimulating force for management innovation. Technology cannot replace the critical thinking skills that human capital has. The quality and sometimes quantity of human capital is a significant contributor to an organization's ability to innovate (Dostie, 2018). Therefore, the development of human capital through recommendations provided by this study's panelists including training, coaching, and mentoring can help management innovation.

Context is a non-negotiable aspect of management innovation. Birkinshaw et al. (2008) mention “organizational and environmental contexts influence all activities associated with management innovation” (p. 833). In this study, artificial intelligence and agile philosophies were identified both as future PMO management innovation challenges and opportunities. Context can be used to explain this finding. Depending on the organizational context artificial intelligence and agile philosophies could be an opportunity or it could end up a challenge to PMO management innovations.

Limitations

One limitation of this study was that granular level findings may not necessarily apply to other types of organizations engaged in management innovations. However, an abstraction to higher levels of findings may be useful insight for non-PMO organizations. For instance, examples of management innovation types like software and methodology leveraged in PMOs may or may not apply to non PMO organizations. Instead, management innovation categories such as process, procedures, tools, and structures may be more useful insight for non-PMO organizations.

Another limitation of this study was the time constraint. There were a large number of recommendations generated but insufficient time to collect even more qualitative data on how to apply and implement these recommendations for future PMO management innovation challenges and opportunities. The time constraint also meant there was not enough time to conduct more rounds of the study in order to pursue consensus. Although gathering expert opinion is the primary purpose of this study, gaining consensus from experts can be a goal for Delphi studies.

Implications for Practice

Implications for Scholars

First, the findings of this study reinforce the role of context in management innovations. This has scholarly implications. Volberda et al., (2014) mention that "the broad applicability of the management innovation construct is also its weakness" (p. 1258). This study's focus was PMOs. Some of the findings may be abstracted to contribute to management innovations in all organizational types. For example, resistance to change would apply to any organization undergoing change. There are also some findings that are more specific to PMOs. For example, project management methodology as a top management innovation. Continuing scholarly investigations in diverse organizational contexts could help uncover subtleties associated with specific organizational settings. This could in the longer run aid more precise application of the management innovation construct.

Second, the use of the Delphi method for conducting research within organizational environments can be beneficial even when consensus is not gained from a panel of experts. As Grisham (2009) suggested, the Delphi can be used to understand the perspectives of experts. The Delphi can be used for qualitative exploratory inquiry where acquiring the diversity of expert opinion is the focus.

Implications for Practice

Context is also important for management innovation practitioners. Lin et al., (2016) highlight contextual factors such as organizational culture, size, leadership and leadership styles that determine management innovation implementation and adoption. Findings from this study highlight flexible approaches, situational leadership, and hybrid methodologies as recommendations to mitigate future challenges and to leverage future opportunities.

Second, for practitioners, no stakeholder should be overlooked in the management innovation process. Collaboration emerged as the top theme to help develop critical thinking and problem-solving skills necessary to foster innovation. The chances of success are greater when organizations leverage collaboration for management innovation (González-Benito, Muñoz-Gallego, & García-Zamora, 2016).

Third, human capital is at the core of management innovation. Social constructs matter even more with management innovations than with product and technological innovations. Findings from this study imply that building the appropriate formal and informal networks, developing mentoring and coaching relationships, and collaborating with other teams can help generate management innovations.

Fourth, resistance to change does not have only one solution. Management innovation practitioners must equip themselves with as many strategies as are applicable to the organization. Findings from this study recommended multiple strategies including training, referencing industry cases, and securing executive buy-in.

Recommendations for Further Research

Two areas from this study's findings present recommendations for future research a) future opportunities, and b) management innovation roles. Artificial intelligence, data visualization, and data analytics were some of the top future PMO management opportunities. The role and impact of technology and digital disruption on PMO management innovation is an area for future research.

Clarity of management innovation roles is an area that can be investigated in future scholarly studies. Existing management innovation literature does not necessarily outline clear roles. Majority of the studies discuss internal and external change agents (Mol & Birkinshaw, 2014; Volberda et al., 2014). Roles that emerged from this study include problem identifier, innovation generator or creator, collaborator, and implementer.

This qualitative Delphi study may have benefitted from more Delphi rounds and a larger number of panelists. Other Delphi studies following this study may be able to collect even more qualitative data about future challenges and opportunities with PMO management innovation. Also, other management innovation studies following this study can conduct research in other organizational contexts apart from PMOs. This could help continue to contribute to the gap in research on 'contextual variations of management innovation' (Volberda et al., 2014, p. 1259).

Conclusion

Management innovations are critical for organizations in the current business environment. Since projects have increasingly become a vehicle for completing organizational work, and since programs are chartered to execute strategic goals, then management innovations in PMOs is imperative. The findings of this Delphi qualitative study address the main research question which is to understand the perspectives of program managers on PMO management innovations.

Perspectives gained from the panelists also helped address this study's sub research questions. Perspectives uncovered in this study include a) process, tools, techniques, structures, and practices are PMO management innovation types with software tools and project management methodology emerging as the top types, b) PMO management innovation drivers, outcomes, and sources mostly align with existing management innovation literature, c) efficiency

and forecasting emerged as top themes for management innovation drivers, d) resistance to change is a guaranteed outcome and challenge of PMO management innovation, e) PMO management sources are mostly external sources who encourage majority of management innovations as adaptations, f) PMO management innovators usually fulfill multiple roles including identifying problems that trigger management innovation, creating the management innovation, collaborating to design, create, or test the management innovation, and implementing the management innovation, g) technology is a hotbed of future PMO management innovation opportunities for example, artificial intelligence, and h) training, leadership, collaboration, executive support are some of the top strategies to mitigate challenges with PMO management innovation. A major take away this study provides to management innovation practitioners and scholars is that context is unequivocally critical for the success of management innovations in organizations.

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APPENDIX A. ROUND 1 DATA ANALYSIS

Table A1

Emergent Themes for Management Innovation Types

Themes	Terms
Software	Software, application, software tool, database queries, systems, collaboration tools, dashboards.
Methodology	Methodology, methods, approach, framework, templates, project delivery framework and templates, agile, waterfall, wagile, hybrid methodology, process for project delivery, checklist, templates.
Techniques	Tool, technique, template, checklist, training, performance rubric, KPI and metric use.
Procedures	Benchmarking procedure, coaching model, scheduling process, performance management procedure.
Structures	Self-organizing teams, accountability matrix

APPENDIX A. ROND 1 DATA ANALYSIS

Table A2

Emergent Themes for PMO Program Manager Management Innovation Roles

Themes	Terms/codes
Problem identifier	Evaluate, assess, review.
Collaborator	Work with, team, collaborate.
Generator	Came up with, create.
Implementer	Implemented, Rolled out.

APPENDIX A. ROUND 1 DATA ANALYSIS

Table A3

Emergent Themes for perspectives of program managers on PMO management innovations

Themes	Terms/codes
Drivers for Management innovation	Alignment, improve, gain, create, increase efficiency, increase PMO visibility, decrease cost, pain point, collaboration, best practice
Outcomes of Management innovation	Change, resistance to change, impact, effect, outcome, increased, streamlined, better, results
Sources of management innovation	Industry best practices, external consultants, internal PMO personnel

APPENDIX A. ROUND 1 DATA ANALYSIS

Table A4

Terms and Codes for Future PMO Management Innovation Challenges and Opportunities

Themes	Terms/codes assigned to themes
Future opportunities	Data visualization and data analytics tools, artificial intelligence, flexible structures, flexible leadership styles, collaborative culture, interactive and social tools, methodology, predictive and forecasting tools.
Future challenges	Resistance to change, artificial intelligence, methodology, digital disruption, leadership, PMO roles, and PMO relevance.

APPENDIX A. ROUND 1 DATA ANALYSIS

Table A5

Terms and Codes for Mitigation and Leverage Recommendations (Future Challenges and Opportunities)

Themes	Terms/codes assigned to themes
Future mitigation	Training, procedures, software tools and technology, coaching and mentoring, exec sponsorship and buy in, leadership.
Future levers	Training, technology, coaching and mentoring, exec sponsorship and buy in, leadership.

APPENDIX A. ROUND 1 DATA ANALYSIS

Management Innovation Drivers

- Keep up with industry trends, standards, or best practices
- Streamline processes to gain operational efficiencies and cost savings
- Increase capability of PMO based on results of internal OR external evaluation
- Better align PMO's operating strategy with parent organization's strategic goals and objectives
- Resolve pain points with existing tools and processes
- Create a less steep learning curve for new hires
- Seamless execution of operational processes

Management Innovation Drivers

- Improve PMO customer satisfaction with parent organization
- Provide data analytics and visualization
- Resolve project management resource allocation bottlenecks
- Improve collaboration
- Improve productivity
- Create a more efficient lifecycle for project execution
- Gain and increase credibility with parent organization
- Create a continuous improvement culture
- Be better positioned and prepared for upcoming projects
- Improve and enhance performance and effectiveness of PMO team members

APPENDIX A. ROUND 1 DATA ANALYSIS

Management Innovation Outcomes

- Resistance to change
- Better understanding of projects, programs, and portfolio roadmap
- Better accuracy of financial information
- Greater clarity and alignment of career development plans with organizational strategic goals
- PMO credibility with parent organization
- Greater administrative overhead for PMO
- Wider span of responsibilities for business and strategic goals within parent organization and outside of PMO

Management Innovation Outcomes

- Increased leadership visibility into issues
- Better integrated teams
- Increased accuracy of financial data
- Standardized and repeatable processes

APPENDIX A. ROUND 1 DATA ANALYSIS

Future Management Innovation Opportunities

- Artificial Intelligence and its application to learning, scheduling, and time management
- Data Visualization & Data Analytics Tools
- Agile philosophies applied to execution & methodology
- Self-Organized teams
- Flexibility in PMO structures to support synergy between organizational & PMO teams
- Leadership vs Management Orientation
- Flexible Leadership Styles
- Collaborative versus Command and Culture
- Interactive Tools
- Social tools that can connect with wide audiences and provide information in multiple formats for a diverse audience

Future Management Innovation Opportunities

- Management innovations with predictive and forecasting features that not only focus on administrative tasks but also support critical thinking and informed decision making
- Continuous Innovation as a tenet for creating management innovations

APPENDIX A. ROUND 1 DATA ANALYSIS

Future Management Innovation Challenges

- Artificial Intelligence and its application to risk management
- Unclear and continuously evolving definition of project and program management roles
- Cookie cutter/one size fits all application of new and trendy methodologies, tools, and structures (for example agile, software, and self-organized team structures)
- Balancing continuous innovation with stability and progress of ongoing projects, programs, and portfolios
- Resistance to change
- Acquisition and transfer of leadership behavioral capabilities that are difficult to operationalize and measure. For example, agility and critical thinking skills
- Digital disruption and preparedness for its impact to organizations including PMOs
- Declining relevance of PMOs in organizations

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B1

PMO Management Innovation Types

Type	Number of Responses
Methodology	8
Performance Management Practices	5
Techniques used to develop, train, mentor, or coach resources	5
Software Tools	8
Procedures used to train resources and ensure standardization of operational processes	5
Creation of team and or organizational structures	6

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B2

PMO Management Innovation Drivers

Management Innovation Drivers	Frequency of Responses (%)
Improve productivity	100
Streamline processes to gain operational efficiencies and cost savings	100
Improve collaboration	89
Create a more efficient lifecycle for executing projects	89
Create a continuous improvement culture	78
Be better positioned and prepared for upcoming projects	78
Keep up with industry trends, standards, or best practices	67
Increase capability of PMO based on results of an internal OR external evaluation	67
Provide data analytics and visualization to: a) provide better visibility to issues, schedules, invoices, and revenue forecasts and b) support better and more proactive decision making	67

Table B2 Continued

PMO Management Innovation Drivers

Management Innovation Drivers	Frequency of Responses (%)
Improve and enhance the performance and effectiveness of PMO team members including project and program managers	67
Better align PMO's operating strategy with the parent organization's strategic goals and objectives	56
Resolve pain points with existing tools and methods	56
Resolve project management resource allocation bottlenecks	56
Improve PMO customer satisfaction with the parent organization	56
Seamless execution of operational processes	44
Gain and increase credibility with the parent organization	33
A less steep learning curve for new hires	22

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B3

PMO Management Innovation Outcomes

Management Innovation Outcomes	Frequency of Responses (%)
Resistance to change	89
Better understanding of projects, programs, and portfolio roadmap	78
Increased leadership visibility into issues	78
Wider span of responsibilities for business and strategic goals within parent organization and outside of PMO	67
Better integrated teams	67
Standardized and repeatable processes	67
PMO credibility with parent organization	44
Better quality of financial information	33

Table B3 Continued

PMO Management Innovation Outcomes

Management Innovation Outcomes	Frequency of Responses (%)
Greater clarity and alignment of career development plans with organizational strategic goals	22
Greater administrative overhead for PMO	22
Increased accuracy of financial data	11

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B4

Future PMO Management Innovation Opportunities

Future Opportunities	Number of Responses
Artificial Intelligence and its application to learning, scheduling, and time management	6
Data Visualization & Data Analytics Tools	6
Agile Philosophies applied to execution & methodology	6
Self-Organized Teams	3
Flexibility in PMO structures to support synergy between organizational and PMO teams	4
Leadership versus management orientation	4
Flexible leadership styles	5
Collaborative versus Command and Control Culture	4
Interactive Tools	3
Social tools that can connect with wide audiences and provide information in multiple formats for a diverse audience	2
Management innovations with predictive and forecasting features that not only focus on administrative tasks but also support critical thinking and informed decision making.	5
Continuous Innovation as a tenet for creating management innovations.	6

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B5

Future PMO Management Innovation Challenges

Future Challenges	Number of Responses
Artificial Intelligence and its application to risk management.	3
Unclear and continuously evolving definition of project and program management roles.	6
Cookie cutter/one size fits all application of new and trendy methodologies, tools, and structures (for example agile, software, and self-organized team structures).	3
Balancing continuous innovation with stability and progress of ongoing projects, programs, and portfolios.	4
Resistance to change.	8
Acquisition and transfer of leadership behavioral capabilities that are difficult to operationalize and measure. For example, agility and critical thinking skills.	5
Digital disruption and preparedness for its impact to organizations including PMOs.	4
Declining relevance of PMOs in organizations.	2

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B6

Recommendations for Leveraging Future PMO Management Innovation Opportunities

Recommendation	Number of Responses
Demonstrate PMO value & credibility in order to gain executive level support for management innovations.	6
Demonstrate PMO value & credibility in order to gain wide organizational support for management innovations.	5
Foster a collaborative culture in order to ease transition to of automated collaboration tools.	7

Table B6 Continued

Recommendations for Leveraging Future PMO Management Innovation Opportunities

Recommendation	Number of Responses
Create training, coaching, and mentoring opportunities for newer and less mature project and program managers.	8
Create training, coaching, and mentoring opportunities for newer and less mature project and program managers.	8
Encourage flexible and creative problem solving and critical thinking behaviors.	9
Minimize focus of personnel development plans on formal knowledge and certification.	4
In addition to project management specific knowledge, encourage expansion of knowledge to business operations and strategy.	3
Proactively look for opportunities to use chaos and crisis as levers for advancing organization strategically.	2
Provide training for team on future trends, for example, cyber security.	5

APPENDIX B. ROUND 2 DATA ANALYSIS

Table B7

Recommendations for Mitigating Future PMO Management Innovation Challenges

Recommendation	Number of Responses
When implementing innovations, promote an approach that is not cookie cutter/one size fits all.	5
Clarify PMO job functions, roles, and desired behavioral traits.	5
Promote an awareness and education of digital disruption and revolution trends.	4
Solicit buy in from key and influential end users in the design and build of innovations.	3
Train and retrain talent to ensure team is multidisciplinary, & understands and can apply agile philosophies.	5
Reward and reinforce continuously innovative and collaborative behaviors (for example, sharing lessons learnt).	5
Identify and understand when business model or industry sector is institutionally constrained and cannot effectively foster a continuously innovative environment.	4

Table B7 Continued

Recommendations for Mitigating Future PMO Management Innovation Challenges

Recommendation	Number of Responses
Promote less siloed and cross functional teams/capabilities.	4
Mitigate resistance to change by training, demonstrating value early, communicating with all stakeholders during all phases of creating and implementing innovation, and leveraging successful & relevant industry references to gain buy in.	5
Promote a culture that encourages servant leader and situational leadership styles at all levels of the organization.	5
Leverage virtual training tools that focus on developing behavioral capabilities as well as developing capabilities with tools and methods.	4

APPENDIX C. ROUND 3 DATA ANALYSIS

Table C1

Examples of Management Innovation Types in PMOs

Management Innovation Type	Examples
Methodology	Agile, Waterfall, Rapid, Customized and hybrid agile.
Software tools	Microsoft Excel, Word, Power point, and Visio. JiRA, PPM, Team foundation server, and MS Project.
Structure	Scrum teams, Virtual teams, and Matrix teams.