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Rapidly Advancing Information Technology Project Management Office Maturity within a Fortune 1000 Company - A Study Designed to Accelerate Information Technology Project Management Office Maturity Through Action Research to Realize Increased Project Management Office Value in Reduced Time

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2020

Approval of the Dissertation Committee

This dissertation has been duly read, reviewed, and critiqued by the Committee listed below, which hereby approves the manuscript of Matthew Muga as fulfilling the scope and quality requirements for meriting the degree of Doctor of Philosophy in Information Systems & Technology.

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Abstract

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The importance of a Project Management Office (PMO) in the world of Information Technology should never be underestimated. The collection of highly trained, skilled Project Managers (PMs), into a single collective PMO can provide a key strategic advantage for a company. However, in order for an IT Project Management Office to obtain a level of execution and project delivery success that can yield superior results, certain "Maturity" levels or milestones must be reached. Popular research and studies on maturity often claim that these levels cannot be reached in a short amount of time, as people and processes need to develop, be adopted, and optimized. However, expecting large IT departments to endure long months of time as its internal PMO matures to greater levels is an unwelcome prospect for IT Leadership. Can new processes, techniques, or tools in the realm of Information Technology be introduced to an already established Academic and Industry framework at a company where massive

organizational transformation is occurring and which can demonstrate a rapid increase in maturity for key areas of an IT PMO?

This dissertation is an Action Research (AR) engagement with a legendary technology company which will be referred to throughout this work as "Company X". At the start of this project, the company found itself in a highly transformational time as a move from its former US headquarters in the Midwest to the West Coast was set to radically change the organization for years ahead. This transformation is not just because of the new strategy and overall vision of the company that the C-Suite Executives are championing, but is also the result of a fundamental shift in the collection of IT Professionals whose responsibility is to empower and enable the organization. During this move, over 70% of the IT workforce were laid off (most of whom had been with Company X for decades) requiring an almost complete re-staffing of US based IT personnel at the new HQ location. Added to this, was the formation of a brand new PMO team for the IT department. How could a new PMO within a recently created IT organization be able to quickly rise to the levels of effectiveness and efficiency needed in order to support a legendary Fortune 1000 technology company?

An AR approach was chosen to understand the PMO's challenges, and opportunities, as well as identify key areas in which experimentation could be conducted to drive maturity in rapid ways. Numerous surveys and guided interviews were completed with the IT department ranging from personnel such as PMs, Services and Application Managers, as well as IT Leadership members located in the United States. Data was captured and categorized, which served to aid in the formation of several proposed experiments within key areas to see if new approaches could rapidly advance maturity as gauged by the IT PMO Executive Leader. Upon selection of an experiment,

there was a focus on Opportunity Costs which is critically overlooked in the OPM3 literature. The project was also implemented during a critical period of the fiscal year: budget season.

During this time, new approaches, along with existing tools, were utilized to better understand how projects were being screened when working with Project Champions. The central focus on ensuring that these projects were ranked using their Strategic alignment to corporate goals alongside a clear understanding of Risk. When the budget reviews started with the C-Suite, the IT PMO Executive Leader had far more business intelligence, context, and understanding about these projects than ever before.

This AR approach was conducted over a short period of time to rapidly drive maturity, had a solid impact on project selection through stronger advocation by the IT PMO Executive Leader (through a better understanding of the Opportunity Costs present in Strategy and Risk domains), and has now caused a process shift for future PMO work in this area. This dissertation concludes with a call for additional future research on Opportunity Cost in order to better train Project Managers to deal with this critical dimension of Project Management.

Dedication

This work is dedicated to my Family. To my sons, Nathaniel and Matthew Wyatt, you both mean the world to me. You are my center and my source of energy in this life. You will never know how much I care for you both and how proud I am to be your Father. To my wife Kimberly, thank you for giving me the room to explore and study all these years through two undergraduate degrees and now four graduate degrees. I could not have done this without your support. I love you three very much.

To Mom & Charlie, Helen & Tony, Steve, Arlene, Uncle Joe, Terri, Isabel, Granny, David, Dennis, Teddy, Beau, my beloved sister Jennifer, and to my amazing older sister Liz who is looking down right now from a cloud high above smiling at her little brother. I love you and thank you all from the very bottom of my heart for believing in me.

And finally, to my Father. He has always been my biggest supporter, not just in my many academic pursuits over the years, but my life in general. This is for you Dad.

Acknowledgements

I'd like to thank and acknowledge my Dissertation Committee, my former Professors, mentors, key managers, friends, and coworkers who have been a constant source of support. I'd also like to thank and acknowledge all the authors I referenced in this dissertation. In particular, a special note of thanks to the Project Management Institute (PMI) for it's wonderful repository of articles and materials developed by so many experts in our field. It is through all of their tireless work that our profession continues to be one of the most exciting places to work and study.

Finally, I give sincere thanks to Greg, Rachel, and my entire IT PMO for their partnership on this endeavor as without them this project would have never succeeded. This dissertation and the many years of study leading up to this point was the very definition of a "team effort" involving so many wonderful people that I have been blessed to know in my life. All of you are my own personal *Project Team* and you are remarkable at what you do.

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Chapter 1 Introduction

1.1 Overview

The value of Project Management and the strength of internal Project Management Offices (PMOs) in highly technical organizations is arguably one of the most powerful competitive advantages that can be wielded by a company. It is generally accepted throughout the business world that organizations with the most well-performing teams and optimized processes stand to succeed in their industries more often than their competition. Arguably nowhere better is that seen every day then in the world of technology products and services. However, there is often much disagreement in both the Academic as well as Industry literature regarding how to craft a successful "recipe" that can create a highly productive, impactful, and value-added IT PMO team in as reduced a timeframe as possible. Issues in the research range from lack of Project Leadership, misguided attempts to understand Project Risks, inability to create a positive Project Spirit amongst members, and possibly an even greater issue, lack of understanding of the strategic elements surrounding the need for projects and portfolios in the business.

In today's age when we are seeing such divisiveness in the world, often overlooked is the need for understanding, cultivating, and developing Project Managers to drive ownership, accountability, and alignment in order to promote harmony within a PMO. There are often "social aspects" in the world of Technical Project Management that are often overlooked as practitioners in the field are too quick to look only at the tech and not the people. According to the 2008 work by Hodgson & Cicmil entitled *The Other Side of Projects: The Case for Critical Project Studies,* that team saw through their

research that "Project management research would engage with (and serve) not merely project managers but practitioners at all levels of the project hierarchy, often with the aim of initiative some transformation in how actors perceive themselves, their voice, their broad responsibility and their influence in shaping their own social place." (Hodgson & Cicmil, 2008). Similar in research performed by Cicmil & Hodgson in their 2006 work entitled *New Possibilities for Project Management Theory; A Critical Engagement*, they saw in their research that "Governed by the tradition of 'natural sciences' (e.g. systems theory), the project management body of knowledge emphasizes the role of project actors and managers as 'implementers' narrowing down their role to the issues of control (time and cost) and content (planned scope of work), marginalizing their wider potential role as competent social and political actors in complex project-labelled arrangements." (Cicmil & Hodgson, 2006). Ultimately all of these elements from the strategy, tools, and processes can be measured in some form or another in terms of their maturity levels which help provide insight to leadership teams as to the value of their PMO.

1.2 Statement of the Problem

The concept of Maturity when examining elements of a company is nothing new and there are perhaps dozens of different areas in a business that one can explore the topic in some form or another. However, when examining literature in the area of Project Management (especially Project Management as it applies within hi-tech organizations) one starts to see a shortage of useful, empirically based studies. According to the 2005 text *What Project Management Really is About: Alternative perspectives on the role and practice of Project Management,* the Researcher states "Much classic research on

project management has, however, focused on the planning and scheduling activities of project management. Traditional writings within the area even seem to treat project management as a discipline of planning or an application of systems analysis. Much of this work, however, falls short on empirical grounds." (Soderlund, 2005).

At the same time, many tools and solutions exist that would allow Management of an organization insight into Project Activities that could measure critical elements that would in turn allow them to more easily craft solutions to optimize and mature a PMO. Yet many organizations don't employ these tools for a wide range of reasons. One such cornerstone in the world of Project Management is EVM – Earned Value Management. According to research done by Fleming & Koppelman in their text *Earned Value Project Management – 4th Edition*, they state "As a general rule, whenever a project manager makes the decision to employ Earned Value Management (EVM) in the project management of a project, that choice ideally should be supported by management, the stakeholders at all levels. Stakeholders must want to know the full truth." (Fleming & Koppelman, 2012).

1.3 Purpose of the Study

Popular literature states that an IT PMO department has a higher likelihood of project delivery success, a higher social harmony of its project members, a better understanding of risk, and a better alignment to corporate strategy as it reaches more mature levels and those levels are in fact reached over accepted timelines as seen in various frameworks. These are reviewed in deeper detail in chapter two of this dissertation work. Although there is a measure of "common sense" in this particular view with technology companies in particular, they are often at odds with this approach

simply because of the speed of change seen in the industry. Tech companies are notoriously fast paced and its leaders seldom are seen as patient. The desire to drive faster, harder, and be willing to break things along the way insofar as the pace can be kept can be seen across IT Industry pioneers from Jobs, Zuckerberg, to Gates throughout the entire history of the Silicon Valley.

However, for Project Managers working in the technology sector moving at a breakneck pace like this can often pose numerous and substantial problems for their organizations. Leaders in these areas have to weigh moving at potentially dangerous speeds against a more commonly held understanding which is that for maturity to really happen in a PMO you need the one thing we are all in precious little supply: *Time*. However, can an Action Research project engagement at a technology company work to introduce a novel intervention to an IT department's PMO to accelerate maturity in a way that their Leadership team and Members could leverage in a rapid fashion? Can an example of a problem or shortcoming in a current PMO practice be isolated, experimented upon with a potential solution, and effectiveness ascertained from the PMO Leadership in a rapid manner to drive maturity? This is the purpose of the study.

1.4 Common Terminology

Throughout the course of the project and this written work, certain acronyms are used. Below is a listing of the most commonly used terms:

AR   Action Research

PMO(s)   Project Management Office or Project Management Offices

PMI   Project Management Institute

PMs   Project Managers

OPM3   Organizational Project Management Maturity Model

CMMI   Capability Maturity Model Integration

IT/IS   Information Technology or Information Systems

ITS   Information Technology Services

AFO   Project portfolio designation for Accounting, Finance, and Operations

ITLT   IT Leadership Team

SNOW   ServiceNow solution used extensively by the IT department at Company X

BCG   Boston Consulting Group

1.5 Description of Action Research Project Success

In order to deliver on a successful dissertation effort using an AR approach with Company X that will provide them a solution which could mature the PMO, this project will look to meet certain milestones and deliverables. These elements will be continually reviewed with the Executive sponsor of Company X as well as the Dissertation Committee members. Several drafts of materials will be provided at key milestones dates and all research materials will be reviewed in detail via workshop with Company X's PMO Team.

As with most Action Research (AR) projects, the research methodology will attempt to follow a number of its standard practices and foundational elements. More on the framework and practices of Action Research is included later in this dissertation, however from a high level this includes:

- A technology and solutions agnostic approach. In order to ensure that that widest range of options and alternatives are being considered, every effort will be given to approach problems with an open mind to all possible solutions. These solutions

will be reviewed with the IT PMO Executive sponsor of the project and a course of action agreed upon by both parties with updates provided at regular intervals with the Dissertation Committee.

- A purposeful effort designed to help. Regardless of the problem to be address in the IT PMO or the shape the experiment is to eventually take, the foundation of this Action Research engagement is to provide a mechanism that is designed to help drive maturity of the team. The level of which it impacts will be measured and documented throughout the study, however great care will be taken to be mindful and diligent in the approaches taken that this project and its tools, instruments, and deliverables is intended to be a positive and supportive experience.

- A novel approach to addressing a real-world problem in Company X's IT PMO. After review of the surveys and background research with the IT PMO Executive sponsor and a specific problem to be targeted for experimentation chosen, this AR project will focus on addressing a real-world problem of the PMO. This problem, the effect to the current PMO team, the financial and operational impacts of the issue, as well as the inputs from Executives as to the background factors that compound the problem, will all be taken into consideration when the experiment is designed.

- Production of material that can look to add to the Academic body of knowledge. Looking through the lens of at least one major academically accepted framework that serves as a foundation for maturity practices for organizations such as an IT

Project Management Office, this AR study will strive to produce materials that could add to that body of knowledge. This addition will look to either challenge an accepted practice in a framework, put forth a potential proposed modification to an existing element or structure seen within a framework, or seek to confirm that framework element's validity by verifying and testing it through a novel approach of study.

1.6 Company Background of the Research Target

Company X is currently embarking on what is considered by many in the IT Leadership team to be its most aggressive, transformative, and potentially lucrative period in its long history. Partially responsible for this drive forward is the closing of their Midwestern US facility which has served as the long-standing headquarters for the company. This has presented a tremendous challenge for the IT department which through the layoff that accompanied the move has seen a loss of over 70% of the IT staff. Many of these members had been with the company for decades and their tools and solutions were custom created and often only partially documented to a detail that new employees could easily ascertain their function. The IT department looked to staff key replacement positions in their Southern California office while simultaneously outsourcing support to an overseas center in Asia. The move to form a new IT staff in Southern California while simultaneously increasing the dependency on overseas technical support has never been attempted in any capacity at Company X.

As many of the custom IT solutions had been in production since the early 1990's, the company decided to replace these with modern commercial offerings whilst the original development personnel were still on staff to aid in the transition. This

technology migration included systems in the areas of customer relationship management, data warehousing, incentive compensation, global payroll, employee training, and more. This massive transformational change, driven in many respects by the substantial organizational change, caused the IT PMO to task most of its PMs towards these efforts and away from other projects being proposed by the business. These migration programs however were lengthy, complex, and often extremely expensive by previous Company X's IT budget standards. The tasking of the small group of PMs left almost no capacity for the team to tackle dozens of projects which had caused a tremendous backlog of critical projects. Project completion velocity and overall execution bandwidth was being impacted in large part by the lack of organizational maturity seen within Company X's IT PMO.

It is the purpose of this AR project to examine in detail the world of the IT PMO at Company X in order to find ways to rapidly advance maturity within the group and allow the team to become more effective and efficient. This adds tremendous value to the organization and the company. The term "maturity" in this scenario can be argued that it is the level of sophistication and effectiveness in areas key to the strategic planning, tools & technologies, processes, procedures, management, and execution cadence of efforts from the PMs in order to support the rapid transformational changes.

The challenge with the Company X's IT PMO to rapidly evolve is unique for three main reasons. These include:

- Age and success of the company – Established industry leader, billions in annual revenue, +10K employees, 38 offices worldwide across dozens of countries.

- Age and current maturity of the IT PMO – newly formed IT PMO organization with most members at the start of the project having been a part of the group for less than six months.

- From the viewpoint of IT Leadership, Company X's IT PMO does not have that long to move through a normal maturity process.

Lack of a mature IT Project Management Office at Company X, which is itself already a mature Fortune 1000 company, is at best a hinderance to company operations. At worst, it can be considered a critical threat to company health through the inefficiency seen by the IT department which impacts the greater workforce. The misalignment on tools, technologies, and processes in a group as critical to the IT department as the PMO is causing dozens of critical projects to go unlaunched. Many of these have a profound impact on revenue, operational efficiency, and supporting business growth. To expect the company to go through a more traditional maturity timeline as seen in many of the models used in the IT industry today could take months if not years which could severely damage corporate revenue streams. Added to that is the dynamic and now highly competitive business landscape and IT's inability to properly support projects could soon impact Company X's overall market position.

1.7 Scope of The Project

It will be important throughout the course of this Action Research project to ensure that the scope of the effort is not deviating from its original intent wherever possible. As Action Research projects are studies and experiments within real-world

conditions with actual onsite problems, it is arguably the most easily prone to experience "scope creep" as the project develops. As such, for the purposes of this AR project effort, what is in scope and what is not can best be described as the following:

- **In Scope.** A review of the existing issues as reported by IT Leadership, Project Managers, and IT Service Managers at Company X. A presentation of the key findings to the IT PMO Executive Leadership after which a single area of focus would be agreed upon. Experimentation on that particular area using a novel approach to attempt to address the issue or problem in a single experimentation cycle. If the cycle yields less than a satisfactory addressing of the problem for IT PMO Leadership, then a summary of findings and suggestions for future experimentation will be provided. Future courses of action and ideas for study will be suggested but not pursued during this dissertation effort. The choice of the experiment, and the execution of the project, is to be time boxed into a window to allow for successful completion of one full experimentation cycle and delivery of its results in the form of a dissertation body of work by the end of calendar year 2020.

- **Out of Scope.** Experimentation, detailed planning, or workshop discussions on future, envisioned problems or challenges as seen by IT Leadership, Project Managers, and IT Service Managers at Company X. Experiment design and execution cycles cannot proceed beyond the timeboxed window of calendar year 2020. Candidates of which to be included as potential finalists for selection need to be of a project size that is appropriate to time, budget, and resource constraints for execution. Executive sponsors within the IT department also cannot focus on

addressing issues of maturity impacting growth for any other part of Company X

beyond the IT Project Management Office.

1.8 Action Research Framework

According to Erik de Vries , a respected Researcher from the Universiteit van

Amsterdam, "Action Research is seen as one of the solutions to the lack of relevance in

the field of information systems because Action Research has as its primary goal to

combine successful intervention in a real-world setting with the development of

scientific knowledge." (Vries, 2008).

Action Research (AR) itself for the field of Information Systems can be argued as

being the most relevant for Businesses as well as expands the knowledge seen in

Academia. According to Baskerville's seminal 1999 work entitled *Investigating*

Information Systems with Action Research, he claims "Action Research has as its

primary goal to combine intervention in real-world settings with theory enhancement.

As such AR seems to be an ideal research method for the IS field especially in those

domains where the researcher can be actively involved and benefits for the organization

and research community can be expected; where obtained knowledge can be

immediately applied and the research process links theory and practice in a cyclical

process." (Baskerville, 1999).

This AR effort will focus on uncovering the current major challenges and

opportunities that the Company X's IT PMO department has by going through a range

of interviews, documentation deep dives, surveys, and more. Quantifiable and

actionable challenges/opportunities will be presented to the Research Committee

members first for review and feedback. Following that review, the findings will be

discussed with the IT PMO Executive Leader. These findings are meant to show the full qualitative and where possible/measurable, quantitative impacts of the main areas impacted due to the immaturity of elements within the PMO. The decision coming from the IT PMO Executive Leader would be a specific challenge that he would like to address via experimentation in order to try to accelerate maturity and optimize the PMO team.

Once a specific area of the PMO has been ascertained and focused on for experimentation to accelerate maturity and optimize, the second intent of the Action Research effort is to review it through the lens of a well-recognized model such as the OPM3 from the PMI to look at potential areas to build upon the body of knowledge. Each of the available popular models have specific criteria that are well-defined and tested. Models will be discussed later in this dissertation. Research conducted will contain detailed analysis of the pros and cons of using a model for showing potential paths of experimentation to drive maturity, the specific challenge itself, and formally propose a specific model to the Research Committee. From there, using a chosen framework or model, the project will be run through testing the effectiveness of the area in question in Company X's environment.

It is the position of this Researcher that there are areas within many of the popular models that are candidates for updating. This project will be used to highlight potential areas for improvement for at least one of the models, propose ways to advance them, implement means to address them through experimentation, and measure success. It's here that the novel addition to the IS&T field would be found by showing an addition to that model and its effectiveness at the legendary technology company that is Company X.

1.9 Project Assumptions & Summary

Action Research has proven to be a time-tested methodology for pursuing problems within large business entities (Vries, 2008). Company X's legacy and recent history of rapid IT transformation in the organizational structure demand an IT Project Management Office that is as efficient and effective as possible in order to properly support company efforts. Going into this project engagement, there were four specific assumptions made in regard to planning and executing a successful research engagement. These included:

- Access to IT Managers, IT Project Managers, and IT Executive Leadership members at Company X for interviews, surveys, and deep dives on issues and challenges seen within the IT PMO impacting their teams.

- All personnel would answer questions honestly and openly without fear of retribution from management personnel. Management personnel would ensure no actions would be taken against any employee and the Researcher would ensure that no identifying names or designations would be used for the general staff.

- Researcher would have full access and use of any IT documents, architecture diagrams, work materials, or applications that would help explore challenges and issues reported during the interviews and surveys to the fullest extent possible.

- After signing of Non-Disclosure Agreements with Company X, the Dissertation Committee members would have any needed access to also review documentation as presented by the Researcher in pursuit of completing the project.

Through the execution of this Action Research Project, Company X's IT PMO Executive Leader will have access to:

- A thorough review of current problems, challenges, and opportunities facing the IT PMO team as studied in a structured research manner.

- A set of potential experiments designed to aid in maturing the IT PMO in a rapid manner which will increase efficiency and effectiveness of the team.

- A selection of a single experiment which will be refined, optimized, and executed in close partnership with the Researcher as well as closely supervised by several Professors affiliated with Claremont Graduate University.

- A reporting of all findings, recommendations for future study and expansion, as well as a final review with the PMO team.

In addition to benefitting Company X, this work will be used to further promote the body of knowledge for IT/IS Project Management. It will do so by the submission of this dissertation for online publishing which will be made available in the future, provide material for potential academically focused journal articles, and conference events which serve educational purposes.

Chapter 2 Literature Review

2.1 Prior Research into Project Management

The literary and academic works regarding the subjects of both Project Management and Action Research in the Information Systems & Technology field is expansive in many respects, yet at the same time has tremendous opportunities for new research to expand the field. For the purpose of this dissertation, dozens of articles and texts on these areas were reviewed. The recommendations from those researchers were surprising. According to Blomquist, et. al. in their article *Project-as-Practice: In search of Project Management Research That Matters*, "Project Management is not only an immature field of research, but many of the normative and traditional contributions are also insubstantial when it comes to understanding what is really occurring in projects." (Blomquist et. al, 2010).

Much of the literature on the benefit of advances in research in Project Management in not only IS&T, but the wider Project Manager domain, often cited social and political benefits for the employees and the business organizations that they served. Those works often challenged and were critical of the traditional *Iron Triangle* of Project Management which governs the trade-offs seen between cost, scope, and time which impact in some fashion overall quality on a project. According to the highly regarded and well cited article *The Other Side of Projects: The Case for Critical Project Studies*, the authors state "Important aspect of critical approaches to project management is to rethink definitions of project success beyond time, cost and quality performance to encompass work-life balance, societal impacts, health and safety, and ethical concerns more widely." (Hodgson & Cicmil, 2008). Caccamese & Bragantini in

their 2012 paper entitled *Beyond the Iron Triangle: Year Zero*, go further that the triangle as we have known it for years is not enough and that rather "There is more than the 'iron triangle'; there is the 'soft pyramid', a metaphor for concurrent constraints related to the 'internal satisfaction' of the individuals working on the project." (Caccamese & Bragantini, 2012).

Further literature review regarding the realm of Project Management in Information Systems & Technology highlighted greatly, the need for real-world research in businesses today in the area of Project Leadership. First, for the area of Project Leadership, researchers such as Burke & Barron in their 2014 paper entitled *Project Management Leadership: Building Creative Teams* states that "Project Management and Project Leadership are two sides of the same coin. They are inter-linked and need to be if a project is to be delivered on time, to budget and of the desired quality." (Burke & Barron, 2014). However, it was seen in further literature review that other Researchers saw through their works that the failure of *Project Leadership* had an incredible linkage to the overall project failure and was often seen as the single top reason for such failure.

According to the 2013 article entitled *Leadership is Vital for Project Managers to Achieve Project Efficacy* by Ahmed, et. al. that research team saw that "Leadership is an effective tool to be used by the project manager which moderately influence project outcome, otherwise, lack of leadership skills are directly associated with project failure." (Ahmed et. al., 2013).

Another two key areas the literature focused on in the domain of Project Management, in particular within the Information Systems & Technology field, dealt with Project Strategy and Project Risk, specifically in the areas of uncertainty. In the area of Project Strategy key articles such as the 2004 work in R&D Management by

Aaron Shenhar entitled *Strategic Project Leadership: Toward a Strategic Approach to Project Leadership,* postulated that "While some projects do better than others, conceptually, there is a missing link – between the business strategy and the project plan. We call this link the project strategy, and it is the first item project leaders must deal with when starting a project undertaking." (Shenhar, 2004).

Articles in the realm of Project Risk and ways to deal with uncertainly often cited the lack of maturity most organizations have with dealing with Risk. According to the article by Edington, Lechler, and Gao in 2012 entitled *Challenging Classic Project Management: Turning Project Uncertainties into Business Opportunities* they found in their extensive research that often "The management of uncertainty during a project's implementation is not well understood. In general, uncertainties are treated similar to project risks by practitioners and by scholars as negative events threatening a project's implementation." (Edington, et. al., 2012).

It can be argued that across all these areas such as Project Leadership, Project Strategy, Project Risk, and Project Spirit a common theme started to materialize when looking at the literature and more importantly the target companies and organizations that the researchers were focused. In the literature, the subjects were ultimately seen as needing to mature along these areas most of all. However, what was not seen in most of the works reviewed for the purposes of this literature review were current and clear cut, real-world, tactical ways to drive maturity levels through novel intervention and introduction of new technologies, processes, tools, or procedures. This is the core of this dissertation project with Company X being not only a willing participant for the study, but an organization that is arguably in tremendous need to mature its IT PMO in order to enable the transformative efforts going on at the company today.

2.2 Popular Maturity Models in Project Management

There are several Project Management Maturity Models (PMMM) seen in both Academia and the Industry today. According to James Pennypacker's 2001 research work entitled *Project Management Maturity Benchmark*, "The purpose of a project management maturity model is to provide a model of progressive improvement in project management systems and processes that can be used to assess an organization's capabilities and to provide an improvement path." (Pennypacker, 2001). For the purposes of this project and the Research conducted, three specific Maturity models were considered when evaluating the proper lens to view the PMO team through and to gauge areas to mature. Each of these three will be reviewed in detail in this section.

However, what is arguably the goal of any maturity model for an IT organization? According to their article from the Project Management Institute in 2002, Pennypacker & Grant argued that "As project management becomes the dominant way that work is accomplished, organizations strive to become good at delivering projects successfully. The predictable consequence is widespread commitment to improvement initiatives that may include the establishment of an enterprise project management process, the development of a career path for project managers, the implementation of project management education and training programs, and investment in project management tools and information systems. But the modern enterprise cannot afford to improve recklessly or randomly. The modern enterprise must approach improvement purposefully." (Pennypacker & Grant, 2002).

From a structural standpoint, ultimately any maturity model seen today can be broken down into several key sections with specific areas to be targeted for improvement. This improvement is measured using many different methods and

ultimately for the PMO that is using the model, it proves a benefit from doing so insofar as it leads to a more efficient and effective organization. However, with so many tools available, so many methods seen in the industry, why do we continually see a shortfall in organizations reaching higher levels of maturity?

In their research, Pennypacker & Grant leveraged a survey of 126 company respondents across a variety of companies in the Professional Services, Finance, Information and Manufacturing sectors to review the situation in deeper detail with PM practitioners. Going into the review, their position was not lack of knowledge of these models and the processes needed by an organization. It was rather a lack of execution and follow through by the organizations. According to their paper, "the hypothesis is that the current level of project management maturity, industry-wide, is relatively immature. More specifically, we posit that most organizations have adopted project management processes but have yet to establish these processes as organizational standards." (Pennypacker & Grant, 2002).

Pennypacker & Grant leveraged the five levels of the PMI's Project Management Maturity Model which is explained in greater detail later in this section. In the survey of the 126 respondents, most of them reported that their organizations were operating at a Level 1 (13.7%) or a Level 2 (53.2%). There were 19.4% of the respondents reporting that they had reached Level 3 and only 7.3% reaching Level 4. Only 6.5% of the respondents reported that their organizations' teams have reached the top level of the model (Pennypacker & Grant, 2002).

As mentioned previously, there are numerous Project Management Maturity Models. As of time of publication for their 2002 article, Pennypacker & Grant reported that the Project Management Institute was tracking 27 well known models in use in the

industry at that time (Pennypacker & Grant, 2002). For the purposes of this dissertation effort, three models were reviewed for use with Company X's IT PMO. These were The Berkeley Project Management Model, the SEI CMMI, and the PMI's OPM3. Each model has several similarities, differences, strengths and weaknesses.

The Berkeley Project Management Process Maturity Model – Kwak and Ibbs

The Berkeley Project Management Process Maturity Model was first introduced by Drs. Young Hoon Kwak and C. William Ibbs to the Institute of Electrical and Electronics Engineers in 2000. The focus of the model was to provide project management professionals a way to measure maturity across industries. The model was based off several earlier models as well as was refined with industry inputs and feedback from several organizations.

According to their paper entitled *Assessing Project Management Maturity*, Ibbs & Kwak state that "The Purpose of the Berkeley Project Management Process Maturity Model and an associated Assessment Methodology is to help organizations and people accomplish higher and more sophisticated PM maturity by a systematic and incremental approach. It measures, locates, and compares an organizations' current PM maturity level. The primary advantage of using this model and methodology is that it is generalized across industries, whereas other maturity models have specific audiences like software development or new product development." (Ibbs & Kwak, 2000).

This model was arguably a novel approach to the issue often seen with making cross-industry comparisons. It was also a model that was seeking to address a real-world issue of adoption to any project management maturity set of practices by highlighting several shortfalls observed today. In their article, they state that

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"Management has had trouble convincing top managers that PM investment results in financial and organizational benefits. Corporate executives request and demand a better understanding of the relationship between PM sophistication and its influence on the company's PM performance. Therefore, project managers who are trying to implement PM practices and processes in their organizations have to show the benefits and payback from PM investment quantitatively." (Kwak and Ibbs, 2000).

The Capability Maturity Model Integration (CMMI)

CMMI is a process and organizational behavior maturity model that helps guide organizations to evolve through a series of critical levels. According to Sarah White at CIO.com, "The CMMI starts with an appraisal process that evaluates three specific areas: process and service development, service establishment and management, and product and service acquisition. It's designed to help improve performance by providing businesses with everything they need to consistently develop better products and services." (White, 2018).

CMMI was originally intended for use by the United States Department of Defense. The architects of the model introduced it to provide the government with a way to gauge the quality of the deliverables, the maturity, and the benefits of its software contractors. According to Sarah White at CIO.com, "The CMMI was developed to combine multiple business maturity models into one framework. It was born from the Software CMM model developed between 1987 and 1997. CMMI Version 1.1 was released in 2002, followed by Version 1.2 in 2006 and Version 1.3 in 2010; V1.3 is currently being replaced by V2.0, which will be released in phases starting March 2018." (White, 2008). As CMMI develops, key to that development is constant interaction and

feedback from practitioners. This in turn is arguably a benefit of Action Research as it provides a mechanism to provide current, relevant information on real-world usage of the model. There is also incredible opportunity to execute on substantial improvements at most organizations as evidenced in the literature found at the CMMI Institute's website at www.cmmiinstitute.com. There, one can see that the statistics on the lack of having the means for organizations to measure best practices and capabilities in order to find ways to advance is very concerning to practitioners of project management.

According to the CMMI Institute, each level has unique attributes and represents a logical progress of maturity at an organization which is typically experienced over time. When detailing maturity and the strength of the CMMI v2.0, it states that "Maturity levels represent a staged path for an organization's performance and process improvement efforts based on predefined sets of practice areas. Within each maturity level, the predefined set of processes also provide a path to performance improvement. Each maturity level builds on the previous maturity levels by adding new functionality or rigor." (CMMIInstitute.com, 2020). They define levels and unique attributes of those levels to be the following:

Maturity Level 0: Incomplete

While operating within this level, an organization is seen as somewhat chaotic. Work may or may not be addressed in any real, measurable way. At this level typically a company is brand new and in a startup type of mindset.

Maturity Level 1: Initial

While at this level, an organization is trying to put some structure around chaos. Often the individuals there are more focused on being reactive. In this environment you see a

firefighter type mindset focused on addressing immediate emergencies. Processes are not well documented and the general mindset of the organization is to stay operational instead of any kind of growing. Also, at this level organizations will "naturally progress to higher levels through trial and error, as they will help inform improvements." (White, 2008)

Maturity Level 2: Managed

At this level, an organization's processes start getting into a state where they can be documented, taught to others easily, and measured. Using the results from these measurements an organization can seek to optimize. According to the CMMI Institute, "projects at this level start showing attributes of being clearly planned, performed, measured, and controlled." (CMMIInstitute.com, 2020). Also, according to the CMMI Institute, it is critical that ownership and accountability for tasks and efforts are well known and transparent in the organization. Important to this level as well is that the processes that an organization adopts should still be able to be followed and executed upon even in the worst of times with results that come from careful, deliberate measurements.

Maturity Level 3: Defined

At this level, an organization has moved to a point where the processes and standards are well understood by its members. Its processes and practices are typically incorporated into structured training and there are documentation processes that are well planned and executed upon that are designed to incorporate changing conditions and modifications over time. Key to this level is objective evidence that the processes

now used routinely and dependably produce reliable and efficient results for the organization.

Maturity Level 4: Quantitatively Managed

At this level, organizations reach a stage where their metrics, business intelligence, and reporting solutions are well defined and tuned to track activity for most key process areas. According to White, "These processes have been repeatedly tested, refined and adapted in multiple conditions across the organization. All key stakeholders and process users are competent in the established process and comfortable deploying it in various environments. By now, your process should easily adapt to suit other projects in the organization and to stand as a template for future process development." (White, 2008).

Maturity Level 5: Optimizing

According to numerous studies, an organization reaching level 5 is a rare occurrence. However, at the same time, the CMMI Institute is quick to point out that this final level of maturity should not be the destination for an organization, but a place where organizations challenge themselves to continue refining on process performance. Key to this level of maturity is not only well documented processes, business intelligence showing states and health, or monitoring and improvement solutions that are universally seen, but also a cultural shift towards continued improvement. As cultural shifts are fundamentally adoption of desired behavior, this can often be the top-most level for any maturity model.

How are these levels measured within an organization? According to the CMMI Institute, key to a successful discovery of where an organization currently is located on

their maturity evolution is the use of well-designed process appraisals (CMMIInstitute.com, 2020). For CMMI v2.0 which was introduced to the industry in 2018, the model uses a guided process appraisal approach that is led by a certified CMMI Lead Appraiser. The Standard CMMI Appraisal Method for Process Improvement or "SCAMPI" includes three different class types: Class A, Class B and Class C.

The SCAMPI A Class surveys and appraisals are used at the very beginnings of an organization's journey into using the framework of CMMI v2.0. It is typically conducted after internal stakeholders have started to recognize that they want to make process improvements within teams and want to begin benchmarking in order to get an accurate analysis where they are in their maturity cycle so they can plan to evolve. Within SCAMPI A, this class offers appraisals and tools that can serve to benchmark elements such as capabilities, strengths, weaknesses, and expert analysis of processes within the organizational elements being reviewed. The lead appraiser or team of appraisers deep dive into key process areas and map out with stakeholders potential methods to track, monitor, and evaluate for optimization efforts they are undertaking to drive improvements (White, 2008).

The SCAMPI B Class appraisals are often executed immediately following SCAMPI A. In this category of the appraisals, it is a targeted gap analysis effort meant to evaluate how an organization is tracking against its goal to the intended or envisioned level of CMMI Maturity that they view as the goal. Although not as deeply detailed and broad as a SCAMPI A, it is viewed as critical in the CMMI process as it serves to provide a level of intelligence and insight on the strengths of current processes that are being used in order to reach an organization's objective. It also serves as a way that the

appraisers ,who have now become much more familiar with the organization and its processes, a way to offer an extended set of options for improvement in areas to monitor, track, and expand upon these processes (White, 2008).

The final SCAMPI class is C. These are smaller, faster in execution, and meant to be more agile in design than either of the two previous classes. It's intent is to allow appraisers with a tool to work with the organization to even further assess processes, execution, and results during the adoption of the framework. It is here in this class that reporting, dashboarding, and full adoption of tools used to provide status to the right individuals in the organization is seen as mature and in full, regular use. To draw upon a common analogy for the use of these tools in an organizations pursuit of maturing, utilizing the framework of CMMI, if SCAMPI class A is the shaft of the spear, SCAMPI class B is the blade, and Class C would be the tip. At this point, Class C efforts are designed to keep the tip as sharp as possible for an organization in order to ensure maturity levels are maintained and the processes of continuous improvements are ongoing.

Organizational Project Management Maturity Model (OPM3)

In the world of Information Technology, one of the most commonly found Maturity models seen in PMOs is the OPM3 from the Project Management Institute (PMI). Currently the PMI is leveraging the third edition which was released in 2013. When the first Organizational Project Management Maturity Model framework was adopted by the PMI as a standard in 2003, it was heralded by many practitioners to be the most comprehensive model used in organizations worldwide. (Project Management Institute, 2003).

According to Bruce Miller, a PMI member and published author, "The Organizational Project Management Maturity Model (OPM3) was published in 2003 by the Project Management Institute (PMI) to assist in the education of project management practitioners and laymen on the influential effects of applying project management principles at the organizational level. Consisting of three directories, the OPM3 model provides nearly six hundred best practices as related to the project management field, including portfolio management." (Miller, 2004).

However, when examining the OPM3 text from the Project Management Institute, the official text makes heavy mention of the concepts linked to strategic thinking and its importance for organizations to embrace when looking to mature. When describing the purpose of the OPM3, the text states "The increasing pace of change combined with the rising complexity of the economy and global competition requires executives to reexamine their strategy to fulfill stakeholder expectations and meet market needs. This refinement of strategy requires a new focus on product development, operational effectiveness improvements, and customer service enhancement." (Project Management Institute, 2003).

The latest version of the OPM works to establish for organizations a framework and foundation by focusing on three core areas. The first is a focus at the project level which PMO's transaction processes are most often seen. How projects are initiated, how they are executed and monitored, how they are optimized and closed. Documentation at this stage is key, and as a company matures in its PMO practices, a close focus on repeatable transaction often develops. The second area is a strong focus on Program Management within an organization. In this, projects are grouped by several factors including goals, alignment to corporate strategy, opportunities to leverage resources,

cost factors, and more. Here a company can often look at ensuring it is aligning its strategy to meet as many of the higher-level corporate initiatives through the grouping and execution of projects that fall into specific programs. The third level is Portfolio Management which deals with the collection of both individual projects and grouped projects that form Programs into cohesive groupings. A management by Portfolio will allow a PMO team and the organization's management team to look at the holistic picture of activity being executed on by their teams (PMI, 2013).

Key to the successful adoption of OPM3 however, is the ability for an organization to see how these three areas are interconnected. As such, OPM3 leverages hundreds of best practices from practitioners and members of the Project Management Institute. The latest version of OPM is itself a work that the Project Management Institute recognizes as a collaborative engagement from members worldwide (PMI, 2013). Through the framework and the different strategic elements, it contains Project, Program, and Portfolio Management while the "OPM3 illustrates how the application of the best practices helps to realize organizational improvements. Best practices are the methods currently recognized in a given industry to achieve a stated goal or objective." (PMI, 2013).

However, like the other models and frameworks discussed in this chapter, the decision to implement OPM3 practices and working to adhere and apply those within an organization is not a decision that is made lightly. Although it is arguably better to have some process and model for expanding on maturity for a PMO organization, to choose an ill-fitting one can often cause problems, especially for an emerging Project Management Office. History and fit-for purpose issues are discussed further in the next chapter. For organizations exploring OPM3 it is imperative for them to be very clear on

what they are looking to gain from the model (strengths) and more importantly, what the model will not provide (weaknesses). According to the Project Management Institute's official Organizational Project Management 3rd Edition text available at www.pmi.org, the OPM3 provides an organization with:

- "A strategy execution framework that utilizes portfolio, program, and project management as well as organizational-enabling practices to consistently and predictably deliver organizational strategy to produce better performance, better results, and a sustainable competitive advantage." (PMI, 2013).

- "Addresses integration of the following: Knowledge (of the portfolio, program, and project processes), Organizational strategy (mission, vision, objectives, and goals), People (having competent resources), and Processes (the application of the stages of process improvement)." (PMI, 2013).

However, how does an organization leverage OPM3 in a consistent and standardized manner ensuring that it follows best practices and to what should individuals who are responsible for its deployment be most focused on? In his 2006 PMI conference paper entitled *Grow Up Already! – An OPM3 Primer*, author and researcher Pete Matassa overviewed a number of critical items organizations who were looking to leverage OPM3 keep firmly in mind as they set out on their journey. Key to his research was a thorough review of the OPM Maturity Continuum.

According to Matassa the model is implemented during a series of interrelated process phases. The first is Knowledge. During this phase an organization would explore a deep understanding of the model, the specific objectives, goals, potential benefits, as

well as explore the specifics towards deploying the model into the target organization.

The second is the Assessment phase where an organization would look to set specific

comparisons with their current landscape with a more expansive use of OPM including

looking at resources available to execute the framework, the future envisioned state of

the organization and identifying the gap that exists to complete the maturity. The last

phase is the Improvement phase. Here the organization would explore what process

refinements and changes to enable maturity would be possible within the given

timeframe allowing for budget, conflicting priorities, organizational objectives, and

more (Matassa, 2006).

Similar to both the CMMI v2.0 and the Berkeley Project Management Process

Maturity Model reviewed in this chapter, implementation and continuous improvement

for the OPM3 framework is done through the completion of multiple steps making up

the overall cycle for advancing maturity. According to Matassa, there are five steps in

the PMI OPM3 cycle that have to be executed on in a sequential fashion. Also, the cycles

themselves - the planning and execution of the elements within - are meant to be a

continuous improvement opportunity for organizations which provides them with a

mechanism to always be driving to evolve and mature (Matassa, 2006). These steps

within the OPM3 cycle consists of the following steps:

Step 1: Preparing for the Assessment

In this step, an organization seeks to drive knowledge of the OPM3 itself. It typically

would involve the training of staff to understand the strategic relationships of Projects,

Programs, and Portfolios, the tools and process recommendations made, as well as the

core concepts of OPM3. If an organization does not have the internal knowledge of

OPM3, often seen is the use of a coach or outside consulting professional to help drive

the knowledge and educational efforts needed to provide the right foundation for the organization.

Step 2: Performing the Assessment

At this step the organization's team responsible for conducting the assessment has received the requisite level of background training and education on the concepts and foundations of OPM3. They then launch into the performing of the Assessment which is completed through a series of two specific assessment types that are meant to provide a thorough reporting. The first is the high-level view and the second is a compressive view.

According to Matassa, a high-level view "employs a questionnaire methodology to determine what best practices are currently implemented by the organization being evaluated in the domains of project, program, and portfolio, and what stages exists in those best practices." (Matassa, 2006). To help facilitate this view and complete the assessment in a thorough manner, practitioners can leverage tools offered by the Project Management Institute. One tool that can aid is the use of questionnaires and surveys that can report on the maturity seen within the target organization as well as allow the individuals responsible for the rollout of OPM3 a mechanism to better understand potential opportunities for improvements.

The second part of performing the assessment is the comprehensive view. It leverages data and information gathered from the first phase and using tools and analysis techniques offered through OPM3 best practices, it allows the team the ability to analyze their organization in ways they often could not have otherwise. This assessment leverages the planning directory within the OPM3 and works to properly

categorize and assess key capabilities. It also serves to determine the stage that the capabilities are at by exploring and assigning attributes. After successfully executing these assessments in Step 2, an organization is able to properly identify the capabilities and general maturity stage each are at against the scale, as well as capabilities that are missing, and assigns level of importance and priorities of each capability.

Step 3: Planning for Improvement

The next step of the OPM3 cycle is to formulate the specific action plan to execute upon given the data and information gathered from Step 2. However, as indicated in some of the key learnings from Matassa's article, the challenge often seen with this phase is that at the beginning of the journey for organizations, the list of findings and possible recommendations for actions could be lengthy; perhaps overwhelming. Over time the list will reduce as more and more cycles are executed with resulting modifications made to processes to drive maturity, however it is imperative for the plan for improvement be laid out and executed against key criteria. Some of this might be resource and budget availability, scheduling and competing goals considered, as well as the envisioned level of improvement garnered from executing a plan designed to address specific areas of opportunities. Matassa notes in his article that "In most cases, a given organization cannot address all of the issues noted in the comprehensive assessment because of resource constraints, the fact that many capabilities build on the existence of prior capabilities so they can't be addressed simultaneously, or both." (Matassa, 2006).

In order to ensure the highest likelihood of success, there are several things that an organization can do to provide advantages to their efforts. According to Matassa's

article, improvement efforts at an organization looking to pursue OPM3 should factor in the following:

- Any improvement that is being actively pursued should be seen by the organization as having a high likelihood or probability of successful completion. If it does not, the organization implementing the plan has several risks that will impede its ability to successfully execute. The OPM3 cycle should first concentrate on smaller goals that are quickly and easily address allowing the team to continuously see progress as they move farther and farther along their development journey.

- First and foremost a plan should be focused on achieving those goals that best align to the overall organizational strategy. If a plan is to address elements of improvement that are not easily tied to specific strategic imperatives or organizational strategy then the team is pursuing an effort not fully aligned with the intent of OPM3. Any plans need to ensure that this pursuit of goals that align with the strategy is transparent to organizational leadership.

- Once an OPM3 cycle is completed, the gains can often be seen quickly, especially if the team is able to utilize a comprehensive proof-of-concept of the deliverable expected to materialize at the final end state of that cycle.

- Initial Budget and methods to ensure Cost control is an area that has to be focused on and signed off by the organization before plan execution. Especially in organizations that might be under intense financial pressures, budget availability might not be available should overruns occur while executing the plan.

As the Project Management Institute also details in the OPM3, a substantial benefit from its use by organization is that these elements can be tailored by the practitioners to best fit the culture, the operating constraints, and any unique elements seen within an organization. This will often increase the attractiveness of the model to organizations looking to implement as other models in this space are far more rigid in their practices. The OPM3 is also grounded in a realistic perspective that organizations are far more likely to leverage the model as a method of continuous improvement if they see results that are positive and driving to meet their strategic objectives. As such the model leverages a wealth of options for practitioners that they can have easy access to in order to build and tailor their plans to execute.

Step 4: Implementing the Improvement

Step 4 moves the team into the actual execution of the plan to improve the target element. At this time an organization's team is fully bought in, briefed on goals and objectives, has resourcing aligned to execute, and a clear set of tactics chosen in order to help them realize the goal. Once completed the improvement will show a clear benefit to the organizational strategy.

The tactics in this step are often leveraged directly from the Project Management Institute's PMBOK Guide in order to ensure a high degree of accuracy and success. The OPM3 does recommend for organizations to find those projects with short timeframes, high likelihood of success, and immediacy of realized benefit by the organization in order to provide for an atmosphere that can build a mindset of continuous improvement. Leadership support within the organization is deemed critical as ensuring that the right level of commitment is maintained, especially in an organization where

massive transformation changes might be happening which could impact resources or budget, will help provide greater odds of success.

Step 5: Repeating the Process

The final step of the OPM3 cycle focuses on adopting processes and organizational alignment for repeating the cycle again once a targeted goal is reached and formally closed. After that point, an organization can choose to then move back to Step 2 and undergo the assessment process again to see if there have been any improvements to their maturity. The organization can also seek to instead move back to Step 3, and working with the team, determine what new goal to target. This goal will look at the capabilities and processes that were earlier identified and seek to define a plan to execute a remediation and maturity effort that best aligned to the current organizational strategic imperatives.

According to Matassa, the selecting of which step an organization pursues next is typically directly impacted by the overall time invested by the team in the pursuit of the previous effort (Matassa, 2006). If the previous effort was completed over a very lengthy amount of time (e.g. several months), and/or has a substantial transformational impact to the sponsoring organization, then it is recommended for the team to move back to Step 2 and undergo the full assessment in order to ensure that the opportunities to seek out for improvement are similar to the previously identified opportunities. If the effort to optimize and improve was executed instead over a short timeframe, then the recommendation would be for an organization to seek out the next best candidate for improvement as discovered during the previous assessment cycle and proceed to Step 3 to plan the next improvement.

2.3 Failure Analysis of IT Projects

One of the most concerning elements of Project Management in Information Systems and Technology has been the high rate of failures of projects. Failure to complete the full project for launch, failure to achieve major goals and objectives, or even failure to properly commence, are examples of failures of the field. From an analysis standpoint however, the information is troubling and often confusing about why root causes are as problematic as they are and more importantly, what do practitioners and IT Leaders do to rectify the situation? With so many more tools, technologies, education, and training in the areas of IT Project Management, why does it seem like we are barely moving the needle for improving the field in any considerable way?

A well-respected research group that has been instrumental in trying to understand why projects fail and the various reasons behind those failures is The Standish Group. According to their website at www.standishgroup.com, when it formed in 1985 The Standish Group set out with a unique vision of understanding and growing the field by intensive, patented techniques that were grounded in case-based reasoning. They partner with organizations worldwide pulling from a massive set of studies and research to profile projects to provide them with the most current insight on how they can best set themselves up for success (StandishGroup.com, 2020). However, the Standish Group did not become wildly popular with Information Technology professionals or Academics until 1994 when it published what has become one of the cornerstones of studies into IT project successes and failures: The CHAOS Report.

According to The Standish Group at www.standishgroup.com, CHAOS stands for "Comprehensive Human Appraisal for Originating Software" which explores several

elements looking into the world of software project planning, development, execution, and delivery. The report breaks down dozens of different areas and factors in a variety of different variables. However, according to Industry Consultant and Researcher Henny Portman at www.hennyportman.wordpress.com, the CHAOS report is "All about the human factor. If you are looking for areas of improvement of your organizational project management skills, this guide gives a great overview where you could get the highest benefits from your investments. It gives excellent insights in root causes for project failure or success." (Hennyportman.com, 2020).

The CHAOS report receives regular incremental updates every few years, but its most recent major changes arguably occurred in 2014 and 2015. In that study, the Research Team indicated that to understand how a project can best succeed it is imperative to understand why failures occur. The Standish Group undertook this study, through multiple phases, the first of which was to survey top IT Executives and Management personal about what factors were the most influential and best, thus indicating whether a project was deemed successful by stakeholders. According to the survey results, there were three main areas that were identified that best indicated if success was likely. These included: dedicated and sustained user involvement (15.9%), clear support from top Executive leaders for the project (13.9%), and a well-articulated set of requirements (13%) that are transparent and communicated well (StandishGroup, 2014). These three were by far the most influential in indicating whether a project was likely to succeed.

The CHAOS report's findings on Failure Statistics were arguably concerning for anyone in the profession. The study worked with companies of all sizes and classified

them by revenue volume. The resulting segmentation in the CHAOS report broke the companies down as follows:

- **Large Companies.** These were organizations studied that had a minimum reported annual revenue of $500 Million USD.

- **Medium Companies.** These were organizations sized in a range of $200M to $500M USD for their annual revenue.

- **Small Companies.** Organizations with a reported annual revenue stream of $100M to $200M.

When analyzing the data, The Standish Group saw "The figures for failure were equally disheartening in companies of all sizes. Only 9% of projects in large companies were successful. At 16.2% and 28% respectively, medium and small companies were somewhat more successful. A whopping 61.5% of all large company projects were challenged (Resolution Type 2) compared to 46.7% for medium companies and 50.4% for small companies." (StandishGroup.com, 2020).

The report then examined rates of cancellation due to major impairments with project obstacles the group was unable to overcome. The CHAOS report showed that for small companies 21.6% of projects were cancelled and for large companies it was 29.5%. It was the medium sized companies that showed a staggering 37.1% of cancellations to their projects. The report also noted that with cancellations, restarts on the project were often attributed as a major factor and according to the research; 94% of all projects will experience some kind of restart during its lifecycle (StandishGroup.com, 2020). Equally important to the success factors as seen in the earlier exhibit, it is as important to understand the top reasons why a project might be challenged which might then open the door for critical failures that will cause cancellations. Of the factors that were seen as

primary drivers for projects to be challenged, three specific ones rose to the top: 1) Lack of User Input (12.8%), 2) Incomplete Requirements & Specifications (12.3%), and 3) Changing Requirements & Specifications (11.8%) (StandishGroup.com, 2020).

In addition, projects that were cancelled would show impairment factors. These factors were symptoms that when present indicated a high likelihood that project failure was soon to follow. Their report showed multiple such factors, however the top three were: 1) Incomplete Requirements (13.1%), 2) Lack of User Involvement (12.4%), and 3) Lack of Resources (10.6%), as reported by the team (StandishGroup.com, 2020).

2.4 The Evolving Field of Project Management

In his 2013 research paper for the Global PMI Conference, Latin American researcher Américo Pinto provided numerous examples of the role seen in PMOs today throughout multiple industries, common challenges, opportunities, and even missteps that PMO leaders can make when evolving their teams. This included a detailed review of the number of companies in Latin America that struggle to ensure that the right blend of talent, team opportunities, value to the organization, strategic alignment, and commitment to continuous delivery, are at the forefront of PMO thinking. This research lead to the formation of a popular tool today used by PMO leads worldwide named *The PMO Mix Manager* (Pinto, 2013).

When looking at other examples in the literature such as works from noted researchers like Dai & Wells [2004] and Aubry & Hobbs [2008], the research performed by Pinto and team did not actually describe issues inherent to Latin America. Although these issues were in fact global in nature, and there were a multitude of examples seen in those earlier works, one thing remained unclear: *from an evolutionary perspective,*

how do PMO Leaders best set themselves up for success to rapidly drive maturity for their teams?

Pinto's research indicated that one of the biggest opportunities for driving maturity and ensuring that the organization's Leadership team was being transparent with the PMO was communicating its perceived value and setting expectations on expected benefits from their services (Pinto, 2013). In this approach, Pinto's research indicated that the ability to be transparent with the PMO in the expected benefits set a baseline or starting point with the PMO. From this point, an organization could grow, expand, and mature in a manner best aligned to expectations to organizational Leadership. Pinto's team surveyed a number of clients in Latin America and found that the potential benefits that they saw from a full functional PMO were numerous and highly impactful (Pinto, 2013).

Pinto's work is a classic example of the necessary and critical relationship in the evolving PMO landscape whereby a PMO Leader must strive to align the formation and maturing of skillsets to meet the needs of the Management team. To attempt to build a PMO and evolve its processes, resources, and services, without a tight alignment would be to risk a possible expansion in ways that hold little to no value to the organization. Ultimately, this highlights a shortfall in misunderstanding of the PMO Leader with the Strategy of the organization in which their PMO team is working to serve.

The relationship seen between putting high value on a PMO's alignment to Strategy by both a PMO Leader and Executive teams surveyed mirrors what researchers Bull, Shaw, and Baca found in their 2012 publication *Delivering Strategy: Organizational Project Management and the Strategic PMO.* In this paper, the authors researched the different types of PMOs that are typically seen in an organization and

proposed that one particular model known as the "Strategic PMO" was found to have a wealth of benefits (Bull, et. al, 2012). However, before a PMO model can best be leveraged by the company, which in itself is an evolutionary part of the process, it has to understand Strategy. According to the paper, "Much as it creates a plan for movement and adjustment in a championship chess match, strategy sets the direction for the future of an organization; it is a living plan of action for achieving the vision and mission of the organization. Stated differently, the goal of an organization's strategy is the translation of its vision and mission into those actions that will deliver maximum value to its stakeholders, thus ensuring continued growth in business results, and a sustainable competitive advantage in its chosen markets." (Bull, et. al, 2012)

2.5 Action Research Foundations & Early Focus

The individual who is most recognized with the formation and advancement of Action Research is the famed Kurt Lewin (1890-1947) who had escaped Berlin in 1933 to come to the US. Although Lewin was a scientific pragmatist, originally coming from a social psychology background, in the late 1930's he and his research teams conducted a number of experiments in different real-world settings in order to prove out their ideas. Their focus was to explore practical applications and solutions to real world problems being studied in iterative cycles which led to the eventual formation of Action Research as we see it today (Adelman, 1993).

According to the article by Clem Adelman entitled *Kurt Lewin and The Origins of Action Research*, the field "gives credence to the development of powers of reflective thought, discussion, decision and action by ordinary people." (Adelman, 1993). Lewin felt that the best place to look at problems facing people in real world situations and

working to find better solutions that could be experimented upon and implemented in an iterative way was not in a classroom or lab situation, it was in a real-world setting. Years later, especially in first world level economies where technology is such a driving force, the field of Action Research, and the value it brings cannot be understated.

Kurt Lewin worked to show the field how, thorough guided rounds of discussion and brainstorming sessions with groups on possible ways to advance on problems that they were facing, offered a practical approach to rectify their issues. According to Adelman, at the core of the term Action Research is itself a particular focus on Action as "Action research must include the active participation by those who have to carry out the work in the exploration of problems that they identify and anticipate." (Adelman, 1993). Following introductions of potential ways to fix or alleviate problems seen in a real-world environment, key individuals or groups would work with the Researcher(s) to look at results and make refinements as needed. Action Research is often an iterative approach and is often very closely linked to modern day focus on continuous improvement. The key here is continued focus on partnership and constant communication to address real-world problems in a practical manner. Also, according to Adelman, Lewin would stress during his projects that "The group would decide on when a particular plan or strategy had been exhausted and fulfilled, come to nothing, and would bring to these discussions newly perceived problems." (Adelman, 1993).

During his years of initial formation of Action Research (AR), Lewin and his team worked to categorize their approaches into four distinct types. These types have evolved over the years since their original creation, but the four included:

- A Diagnostic AR approach that worked with participants to produce an agreed upon plan to initiate action for positive change. According to Adelman, the "The

change agents would intervene in an already existing situation (for example, a race riot or anti-Semitic vandalism), diagnose the problem, and recommend remedial measures. Unless the proposed cures were feasible, effective, and acceptable to the people involved, however, this design of action was often wasted." (Adelman, 1993).

- A deeply participatory approach where the individuals or groups that were being impacted by the problem that they were trying to fix had an obligation to be true partners in whatever fix the group agreed upon. Group sizes could vary, however it was expected upon all parties that they were invested in the success of the project endeavor in order to drive for change. Also, according to Adelman's article, "This type of action research - an example would be a community of self-survey - seemed to be most effective for a limited range of problems. If was useful in disclosing particular and local facts (not general principles) which could provide examples for other communities." (Adelman, 1993).

- The third type that Lewin and his team developed was seen as deeply empirical. In this approach the Researchers would be focused extremely narrowly on a particular small team and then get very deep into their problems and issues. Although this would prove useful for that particular group, this approach is often limited to how broad its findings and useful applications can be applied more widely. Going to deeply into a unique set of problems and issues for a small group might yield an experiment with a solution that is to be tailored for that group alone.

- The fourth type, according to Adelman was Experimental Action Research, was seen as the most difficult to successfully execute. However, it was at the same time seen as the one that had the most likely potential to apply to the greatest number of groups. This was because this AR approach called for multiple controlled studies to be executed in as many identical environments and situations as possible. Its approach was sound in that the more identical experiments and tests on potential remediations being architected across as many groups as possible would yield more data and help prove out theories, but from a logistical prospective extremely difficult to execute in the real-world (Adelman, 1993).

2.6 Opportunity Costs & The Iron Triangle

Opportunity Costs can arguably be one of the most complex yet often misunderstood areas for a PMO. For an IT PMO Executive Leader, attempting to integrate Opportunity Cost thinking can be a difficult proposition including not realizing the various places it may apply in the organizational environment. In order for an IT PMO Executive Leader to start aligning and incorporating Opportunity Cost thinking into their practices, it is imperative for them to first work to understand the concept and define the term *value* when referring to the projects themselves. A very useful definition could be "Value delivered is a function of the scope of the business opportunity and of our capability to identify, decide and deliver to the opportunity." (Baratta, 2007). However, when looking at the inter-relationship between perceived Opportunity Costs, the literature highlights more and more the strong alignment with the traditional Iron Triangle of Project Management – Cost, Scope, and Time.

For practitioners following the standards of OPM3 and PMBOK from the Project Management Institute, the problems compound as it is completely missed in the literature. According to the PMI research paper put forth by Angelo Baratta, President of Performance Innovation when looking at *The Guide to the Project Management Body of Knowledge* from the Project Management Institute, "Project managers often talk of a triple constraint - project, scope, time and cost – in managing competing project requirements. The current model focuses on a single project and is primarily based on a cost view. It doesn't help us to measure long-term, ongoing business value delivered through projects. And it completely ignores opportunity costs." (Baratta, 2007).

The traditional Iron Triangle of project management is something that many academic scholars and industry experts often disagree. Originally created by Dr. Martin Barnes, the Iron Triangle is a foundational element of modern Project Management practices worldwide looking at quality, cost and time (Vahidi & Greenwood, 2009). According to the research article entitled *Triangles, Tradeoffs and Success: A Critical Examination of Some Traditional Project Management Paradigms*, authors Vahidi and Greenwood state "the relation between these issues are frequently addresses in PM literature; however, the relation between the three and its complications is not clearly established." (Vahidi and Greenwood, 2009). Thus, it can be interpreted that the authors' viewpoint is that a classic element of project management today does not provide a clear linkage with understood relations between the three areas of quality, scope, and time. The article further states that "the lack of common consent on the concepts and elements involved in each issue and on the other, their discussion in different contexts, cause difficulties of their rational integration." (Vahidi and Greenwood, 2009).

Along the lines of Vahidi and Greenwood's earlier work, according to their 2012 PMI paper entitled *Beyond the Iron Triangle: Year Zero*, researchers Caccamese and Bragantini argued for a more holistic view of the operating environment for projects including a shift in thinking of the Iron Triangle. They claimed that "The project manager is challenged by constraints other than the "measurable" scope, cost, time, and quality. Individuals need motivation, but the available motivational space is not infinite. The ground rules for behavior and communication should be established, but the performing organization could influence and limit the choices." (Caccamese & Bragantini, 2012).

2.7 Summary

When examining the literature, a Researcher can see decades of progress in the field of Project Management. From well-established models and frameworks such as the OPM3, the CMMI, and the Berkeley Project Management Process Maturity Model, it is evident that the work of those who have come before have shaped the field today. However, when looking closely at the CHAOS report from The Standish Group, it is confusing why for a field that has had so many practitioners worldwide, with so many different models from which to choose, and so many different industries where it has a strong presence, the success rate on technology projects does not appear to be improving. Is it because the models and frameworks are as of yet, incomplete? Are organizations like the Project Management Institute missing major elements of the practice today that need greater reflection in the Literature? These questions will be examined in the following sections.

Chapter 3 Research Methodology

3.1 Overview

The target of this study was a Fortune 1000 level company with operations worldwide. As such, it was imperative to find ways to research further into PMO challenges and opportunities in a manner that minimized disruption to the business while at the same time worked to optimize and improve the operations in a rapid manner. After formal agreement with Company X's CIO and IT PMO Executive Leader, efforts were organized to first assess, then execute upon, collection methods, tools, and processes that were in place today in order to best fit research methods into the environment while simultaneously ensuring that the research data being reviewed was sourced in a manner to help ensure completeness and accuracy. When initiating the research phase with Company X to look at ways to help drive maturity of the PMO, there were several overarching research principles that were kept in mind during this time period, these included:

- The framework and methodologies used during the research project had to align to current industry and/or academic best practices.

- Process documentation and materials coming from the discussions had to be reviewed with the IT PMO Executive Leader in order to increase his own knowledge of activities and provide additional business intelligence.

- The research had to identify a problem that could be experimented on rapidly and demonstrate a positive step forward in promoting rapid maturity for the IT PMO.

- The tools used during the research that required employee participation had to be straightforward and easy to use.

- The solution(s) must strive to leverage existing tools or applications that existed within the current applications portfolio of Company X.

- The research had to help train and elevate the current Project Management Office members of the IT and be useful enough that it could be used for future training and development of new additions to the team in the years ahead.

- Data and findings would need to be regularly reviewed with the IT PMO Executive Leader in order to receive comments and feedback during critical points.

- Ethical considerations and care for employees was paramount and care for the staff had to be demonstrated during the entirety of the research effort.

3.2 Action Research Study Design

When evaluating which research method to employ for this project alongside the stated desires of the IT PMO Executive Leader as to perceived value of the project, it was evident that the most useful method to approach experimentation could best be found in an Action Research approach. This conclusion was reached after reviewing five key areas as discussed with the Dissertation Committee and the IT PMO Executive Leader:

1. **Executing at a rapid pace.** As the project focus was on experimenting for successful ways to unlock new solutions that could produce evidence of

accelerated maturity as deemed evident by the IT PMO Executive Leader, it was imperative that a pace of execution be set that produced rapid, observable results.

2. **Qualitative in nature.** The PMO team for Company X was a newer team and in many ways there was little data from past projects. Items such as velocity studies during projects was not available, there was no standardization across tools that those in the past who led projects, and past budget information beyond the fiscal year was unavailable. There was little historical data to make any kind of meaningful analysis. As quantitative methods typically will employ such data for models, a qualitative approach was seen to be better suited for this effort. Surveys, interviews, and professional insights from Executives were the expected collection mechanisms. After the review of this data, the ability for whatever experimentation that was to be constructed to help drive maturity was going to be ultimately decided by the IT PMO Executive Leader as to its impact.

3. **Address a real-world problem.** In order to obtain permission from Company X to perform research, it was agreed upon by both the CIO and the IT PMO Executive Leader that the focus of the project needed to be on a problem facing the team today. It was not to be a study or research endeavor that was broad in focus, it must be demonstrated that the intent was localized just to Company X's issues and that expectations where that there would be observable results.

4. **Uses existing applications if needed.** Company X's IT Leadership team was open to new approaches and solutions, but very much opposed to the

introduction of any new technology. The department had an applications

portfolio that they were trying to reduce and because those tools were aged and

not well fitted to meet the needs of the company at its current moment in history,

the CIO and IT PMO Executive Leader wanted all focus to be on experimenting

with existing applications if a new one was needed. Even the introduction of

freeware software was something that the team would not support.

5. **Ability to be easily consumed by the PMO.** The end experiment and process

   modifications or improvement efforts conducted needed to have outputs easily

   consumed for the PMO team and in particular, the IT PMO Executive Leader. If a

   new process, procedure, or any kind of enhancement was overly cumbersome, the

   team would be less likely to adopt.

3.3 Mapping PMO Processes & Selection of Maturity Framework

To begin understanding the various areas of responsibility, background processes

responsible for day-to-day PMO operations, as well as highlighting areas to possibly

target for experimentation and remediation, the first several weeks of the project would

involve reviewing and adding to any process documentation. These mappings would

serve to explore how a Project Manager is expected to process their daily tasks as well as

start graphically representing the information for IT PMO Executive Leadership to

review in deeper detail.

Process mapping, however, would prove useful only if the team came to a

uniform agreement that the data contained within was accurate. PMO members worked

together to discuss in detail the processes used and report back to the larger team what

they found. The PMO would then be able to review further and present the data in such a way to provide the group with a view of activities across the different areas of project management. At the onset of the process mapping, it was critical for the effort to maintain three core fundamentals in focus during the exercises:

1. **The mapping be as detailed as possible.** The team had a prime opportunity to get into the deeper details of the processes of the PMO; many of which had formed organically without much oversight or structure since the group had been formed. This exercise would serve to give the group an accurate and realistic picture into activity so that pain points and areas for opportunity could arise for consideration for remediation.

2. **The mappings be agreed upon by the group.** The mappings in their final form had to be agreed upon by the PMO and the IT Leadership team. Without a consensus that the processes being mapped were indeed correct from a tactical standpoint (PMO) and aligned to meet the overarching strategy by the larger IT department (ITLT), the mappings would serve little value to the group. Only with mappings that were universally agreed upon and transparent could experiments to drive change be planned and implemented to elevate maturity.

3. **The processes and the mappings be made flexible to support growth.** The process discussions needed to yield final products that were agile and flexible to support growth. This served not only in the best interest of the project from an AR perspective, but at the same time best supported the operations of the PMO as it continues to transform and grow.

3.4 Leveraging the PMBOK for Project Success

In order to have an effective and orderly project, it was important to set specific standards and processes for the execution of the project itself through inception to closing. As such throughout the phases of the project from a pure Project Management perspective, the effort will adhere to a generally accepted Software Development Life Cycle (SDLC) model for development following phases aligned to Planning, Analysis, Development, Implementation, and Maintenance. *Process Groups* as defined by the PMBOK were explored and leveraged if applicable throughout each of the phases of the project. These groups as defined by the Project Management Institute (PMI) are Initiation, Planning, Execution Monitoring & Controlling, and Closing (PMI, 2004). These Process Groups can repeat themselves to some extent on a project as the endeavor progresses and there is certainly overlap.

Taking those Process Groups and extending them into the project in a Phased approach, several specific deliverables are expected to be found as the project moves from start to finish. These include:

1. **Initiation.** This phase approves the project itself, gathers Stakeholder commitment, it sets the general boundaries and expectations of the project and allows more detailed work to kick off.

2. **Planning.** Prepare surveys and interviews for the IT Managers, IT PMO Members, and IT Leadership members. It is from their feedback on how current IT PMO processes can be improved, are seen as immature or deficient, or areas of optimization, will identified. It is from this list, that the top candidates will be ascertained, qualified and quantified, and brought forward to review with the IT

PMO Executive Leader to select a single candidate to construct an improvement

measure to see if rapid change can be observed.

3. **Execution.** This phase will design and implement the solution, which represents

   the core "artifact" of the dissertation and a novel approach to demonstrate

   maturity. This artifact could be a new tool, a new process, or new technique.

4. **Monitoring & Controlling.** Key to this phase will be the ability to show and

   measure progress. It will be necessary to show the impact of the experiment itself

   and how it changed, or what changed, and then to be able to show a clear elevation

   of the maturity, or not, of the area chosen and why.

5. **Closing.** Final documentation will include the presentation of the finished

   dissertation work to meet portfolio requirements as well as the final review with

   the IT PMO Executive Leader regarding the results seen from the project effort.

   This meeting will be in the form of an interview or testimonial given for use in the

   dissertation.

The Responsibility Assignment Matrix (RACI) to be used clearly defines the

individuals attached to a project effort and looks to provide a clear assignment for them

in one of four prescribed categories. According to author and industry researcher Bob

Kantor of CIO Magazine, a "RACI matrix is the simplest, most effective means for

defining and documenting project roles and responsibilities. Knowing exactly who is

responsible, who is accountable, who needs to be consulted, and who must be kept

informed at every step will significantly improve your chances of project success."
(Kantor, 2018). A RACI in many IT departments are broken down with the following
duties and attributes given to Stakeholders on projects:

- **Responsible (R)**. Individuals assigned to the project who do most tasks. They are
  often subject matter experts that are ultimately responsible for getting any task or
  objective completed and reporting back to the PM their progress.

- **Accountable (A).** This is the individual on a project who is the ultimate owner of
  a task or work deliverable. This is the individual who essentially "signs off" that the
  work met expectations, quality standards, etc.

- **Consulted (C).** People or stakeholders who need to give their own input and
  feedback before the work can be addressed by the subject matter experts and
  approved for completion by those who are Accountable. These people are often
  advisories to the larger project team.

- **Informed (I).** These are stakeholders that need to be in the communications loop
  and kept informed of progress. Although they do not work on the project like those
  subject matter experts, they do have a need to be involved in the effort as the
  project impacts themselves or their teams.

When looking at the individuals who will need to be a part of the dissertation
effort and focusing specifically on the first key phases of the project, the individuals
and/or roles are deemed critical to its success are seen in Appendix A.

3.5 Tools & Instruments

This research project effort will require several tools and technologies in order to effectively uncover a key maturity area of the IT PMO and where an experiment can be constructed and introduced. The introduction of a novel, new solution designed specifically to meet the needs of the issue facing Company X's IT PMO, can only come about after the full assessment. To achieve this, the project calls for the following set of tools to qualify and quantify elements of the investigation needed for the research:

- **SurveyMonkey** (www.surveymonkey.com). An easy-to-use online survey tool that will be used with the IT Service or Application Managers as well as IT PMO members. These individuals are used to either executing projects from the PMO side or using the PMO's services for their project areas in each of their technology domains. Survey results will be anonymous, and names will not be seen by anyone other than the Researcher.

- **Smartsheets** (www.smartsheet.com). An easy-to-use, powerful online Project Management tool. This tool will be a repository of any GANTT charts used to plan and track activities across the different phases.

- **MS Office 365**. In addition to utilizing the standard office products such as Word, PowerPoint, and Excel, the Office 365 offering comes with cloud storage. This is the repository where all materials used for and produced by this dissertation will be stored.

- **ServiceNow.** ServiceNow (SNOW) is the emerging cornerstone tool of the IT department at Company X. It is used for the central repository of all Project

information for the IT department and it is key to driving PM, Leadership, and other IT Managers' knowledge of activities in the Project space.

- **WebEx.** The central online conference utility used by Company X is WebEx. Any time a need for conference calls with members, either Dissertation Committee calls and/or calls with Company X individuals who are working on the project, this application will be leveraged.

- **Happy Scribe (www.happyscribe.com).** This is an online transcript tool that is able to take MP4 files and help transcribe them to text. In the rarer cases that transcription might be necessary such as in the case of getting lengthy meeting recordings transcribed to text for use in this manuscript this will be the tool leveraged.

- **Semi-Structured Interviews.** The onsite interviews for this project will be focused on the IT Executive Leadership members of Company X. These individuals are the top department leads of which all IT Managers and the IT PMO rolls up to in a reporting structure for the organization. These individuals consist of the CIO, Sr. Director of Applications, Sr. Director of Architecture, Sr. Director of Infrastructure & Services, and the Sr. Director of IT PMO, Operations & Strategy.

All Sr. Directors report directly into the CIO. The CIO reports into the Chief Finance Officer (CFO). Interviews with these individuals will be conducted onsite at the company's new headquarters. During the course of the Planning Phase there may be

the need to have additional interviews from the IT department from the Subject Matter Expert (SMEs) level in order to solicit feedback from them that is unique to their position in the department such as individuals who hold strategic roles that are specialized. An example might be two IT Engineers in the department who have been with Company X for more than 30 years. They possess cultural and process knowledge that the Leadership team members do not have, and their tenure given the new organizational environment, is rare. All interview candidates who are not a part of the Leadership team will be reviewed beforehand with the Dissertation Chair.

3.6 Research Methodology Assumptions & Limitations

When starting the project, there were several key assumptions, as well as practical limitations, that this researcher considered in order to have a productive engagement. These included:

Assumptions

PMO Members must have some level of familiarity with the processes and techniques used for the experiment when exploring areas of maturity. The PMO team members would be easily accessible for this project insofar as the work involved did not overly hinder or limit their ability to execute on their normal IT projects. The IT PMO Executive Leadership or the PMO would not see any kind of organizational change during the course of the project otherwise limiting access to resources and materials. The Researcher also would be given full access, authorization, and ability to use for dissertation, publication, or educationally focused purposes such as teaching, conferences, or talks any materials core to PMO processes.

Limitations

Due to the nature of the Action Research project designed for Company X's IT PMO environment, the lack of deep IT PMO historical data available for the Researcher (it simply did not exist), and the dependency on surveys and interviews, the data collected from the study and later interpreted, limited advanced statistical analysis. Data was ordinal in nature, and in most cases, included testimonials and professional insights formed from opinions from Project Champions, Project Managers, and the IT PMO Executive Leader.

3.7 Ethical Considerations of the Study

For this Action Research engagement to be successful, it was imperative that the individuals involved were treated with the upmost care and professionalism. To do otherwise would not only be an ethical violation, but would hinder the participation and openness with those involved. Level of involvement, transparency, communications, and trust all had to be key. To obtain this, the project was executed along the following lines:

- IRB approval from Claremont Graduate University. The study's intent, the tools and techniques used, and the involvement of participants were reviewed in detail and approved by the IRB at Claremont Graduate University.

- All survey data and feedback would be reported anonymously in any review of materials or publications. As data collected via electronic surveys were to be detailed and seek opinions and comments from IT Project Managers and IT Service

Managers, every effort was be taken in order to hide identification of the participants from the results.

- The interviews with the ITLT Executive members would utilize titles of the positions only. No names or identifications to individual identity would be used for the purposes of dissertation submission or any publications.

3.8 Summary

Ultimately this study is about people, their processes, and finding new creative ways to optimize and mature their PMO. The research methods used in this effort were tailored to ultimately serve Company X in a straightforward and transparent approach. It sought to understand the challenges of the IT PMO team within the confines of the current organizational structure which is itself a highly stressful and dynamic environment that is undergoing massive transformational change. These changes are challenging the group to mature as rapidly as possible in order to provide additional value to other departments that have, in many cases, been in existence for several decades. The IT department itself was vastly a majority of individuals new to the company and the IT PMO team was the newest team at the start of the study to have formed. From surveys, interviews, process evaluation, assessment of experiment options, and leveraging of the OPM3 to utilize as the lens for the study, much was found at Company X. It was a long road for the team with some interesting findings which are reviewed in the next chapter.

Chapter 4 Experimentation, Findings & Analysis

Section 4.1 Overview

The primary goal of this research effort was to look at ways to advance PMO maturity in a rapid fashion. To obtain that goal, an Action Research approach was used and the current IT PMO environment was viewed through the lens of the OPM3. The target area for experimentation was deemed as the most critical from the perspective of the IT PMO Executive Leader after discussion of several options that were formulated from the Executive Interviews, Process Mapping Review, and Electronic Surveys. This chapter serves to provide the qualitative findings as discovered by leveraging the research methodology reviewed in the previous chapter. The primary gauge as to the experiment's impact and the level of success to drive maturity was the perception and professional opinion of the IT PMO Executive Leader whose comments and critiques are presented at the end of this chapter in a testimony gathered through a 1:1 interview.

Sections of this chapter discussing findings, results, and analysis were organized from a perspective of a logical, sequential timeline of major milestones executed on the project including:

1. Results from global Electronic Surveys with the IT Service Managers and the IT Project Managers.

2. Results from onsite IT Executive Interviews performed at Company X's corporate headquarters location.

3. Mapping of PMO Processes and selection of maturity framework for use alongside experimentation.

4. Experiment options driving maturity in the PMO as derived from data collected as well as the identification of a potential novel addition to the OPM3 literature.

5. Opportunity Cost based experimentation on the Accounting, Finance, and Operations (AFO) portfolio of projects for 2021 Budget Proposals.

6. Results from the first PMO specific survey, structure of the PMO Workshop to review data and path forward for the team, and results from the second PMO specific survey.

7. Testimonial summary from the IT PMO Executive Leader on major takeaways for the project, his assessment of impact, and ideas for expansion in the years ahead.

4.2 Electronic Surveys – IT Service Managers & IT Project Managers

The first instrument used for this study was an electronic survey that was constructed and delivered via the website the website Surveymonkey.com. A user license was leveraged for this site for the purposes of this study and all reports, dashboards, and outputs downloaded and utilized for this dissertation. In advance to this survey being released, an email was sent out in a 1:1 fashion from the Researcher utilizing the participant script that best fit the classification of the member of the department based on their job function. Those scripts can be found in Appendix B.

The survey was designed and used for gathering responses from IT Managers who were team leads of critical services such as Networking, Business Applications Development, Customer Support, and Desktop Repair. The survey was also used with the Project Managers of the Project Management Office. These Project Managers were assigned to specific areas of the business ranging from Finance & Accounting, Sales & Marketing, Infrastructure, Security, and Engineering. The number of surveys sent out was 23 with a return of 21 (91%). The responses reported from the team were expansive and covered a wide range of topics. The full survey used during this exercise can be found in Appendix C.

In Figure 1, the results for the first two questions are presented. Both questions dealt with establishing IT Team assignment and the frequency of use of IT PMO Services by those who were surveyed. For Q1, the survey indicates that the two top classes of respondents are from either the PMO or the Applications team. For Q2, the majority of individuals (66%) showed that they worked with the PMO very often.

Q1 Which ITS Team Are You a Member?		
ANSWER CHOICES	RESPONSES	
PMO	28.57%	6
Applications	33.33%	7
Infrastructure	14.29%	3
Services & Support	4.76%	1
Other	19.05%	4
TOTAL		21

Q2 How often do you work with the ITS Project Management Office (PMO)?		
ANSWER CHOICES	RESPONSES	
Very Often	66.67%	14
Occasionally	9.52%	2
Seldom	4.76%	1
Never	0.00%	0
I am a member of the PMO	19.05%	4
TOTAL		21
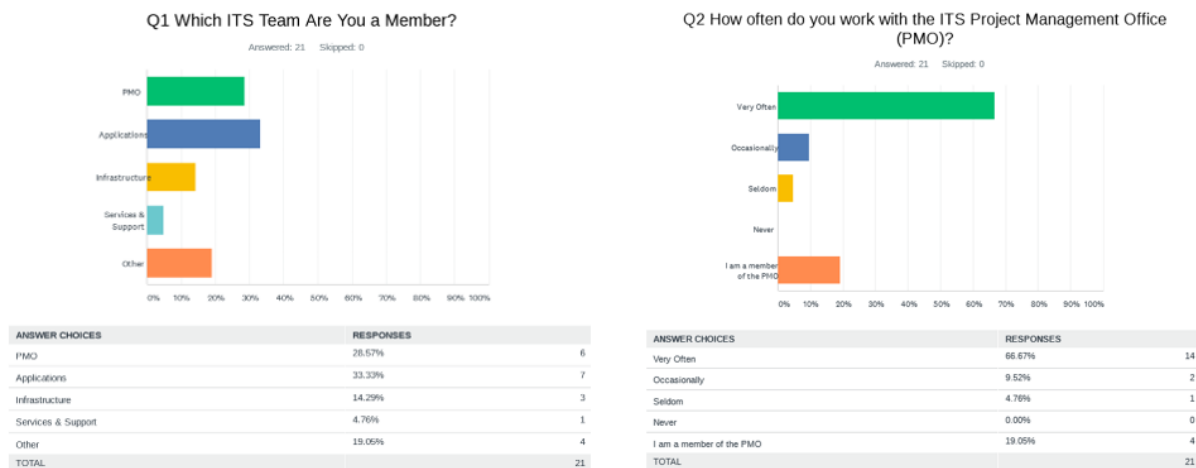
Figure 1. Survey one responses for questions 1 & 2.

Figure 2 displays the details for Q3 and Q4 which dealt with gauging the level of complexity as well as the involvement of the individuals on what were known as "Pillar Projects". These projects were deemed by the company's leadership to be the most focused on meeting the strategic needs of the corporation. These projects were the highest priority projects with the most funding, resources, and C-Suite oversight. For Q3, 33% of those surveyed reported that their projects were Very Complex as well as 42% of them rated them Somewhat Complex. For Q4, the survey showed a fairly wide distribution of responses as to whether or not those surveyed were engaged on Pillar Projects. 28% of those responded reported Very Engaged and 19% reported Engaged.

Q3 How complex are the projects that you work on?		
Answered: 21 Skipped: 0		
ANSWER CHOICES	RESPONSES	
Very Complex	33.33%	7
Somewhat complex	42.86%	9
Not very complex	9.52%	2
Not complex at all	9.52%	2
Not applicable	4.76%	1
TOTAL		21

Q4 How engaged are you in Strategic Projects (aka Pillar Projects)?		
Answered: 21 Skipped: 0		
ANSWER CHOICES	RESPONSES	
Very Engaged	28.57%	6
Engaged	19.05%	4
Somewhat Engaged	28.57%	6
Not Engaged	19.05%	4
Not Applicable	4.76%	1
TOTAL		21

Figure 2. Survey one responses for questions 3 & 4.

Q5 and Q6, as seen in Figure 3, addressed the usefulness of Communications coming from the IT PMO as it pertained to the project activities occurring within the portfolio as well as the length of time the responder had been working at Company X. For those surveyed, 47% reported that the level of communications was Extremely Useful while 38% reported Somewhat Useful. No participant surveyed reported that the Communications were Not at All Useful. As for length of service at Company X, Q6

showed that 23% of the participants had been there from 6-12 months and 29% had

been there 12-18 months.
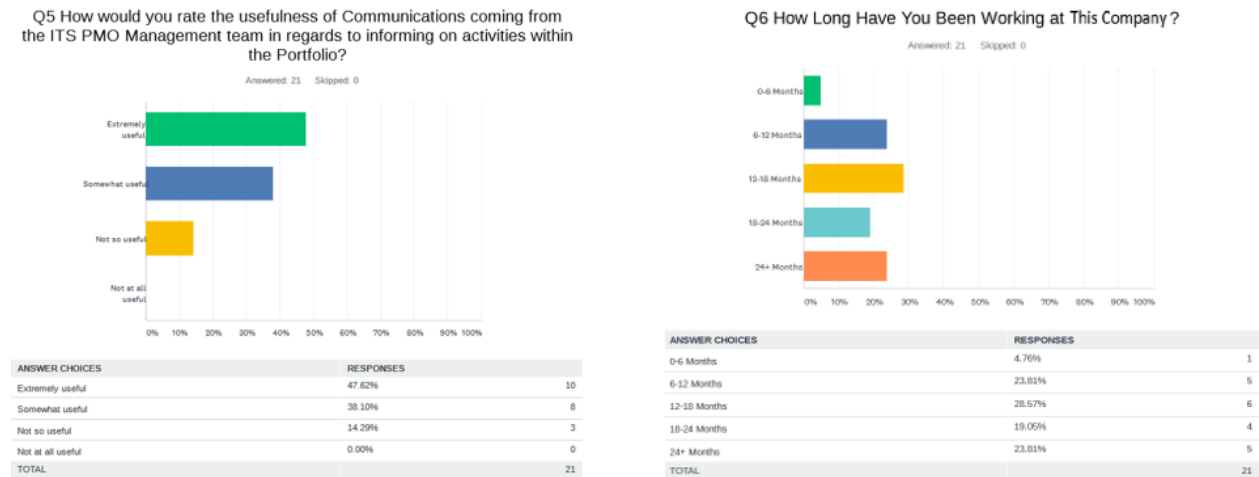
Figure 3. Survey one responses for questions 5 & 6.

Q7 and Q8 were used to assess the level of involvement with the budget process, as well as, gauge the value that there were seeing in the new Demand Management process. This new process helps IT to assess a project's next steps from after Project Champion sponsorship and budget approval as well as helps define the priority of the effort within the IT Portfolio. Figure 4 shows that for Q7, the information showed that the involvement of the IT Managers and IT PMO members was overwhelmingly low. Almost 50% of those responded reported that they had only A Little involvement (19%) or None at All (29%). Less than 10% of those surveyed reported that they felt they were involved A Great Deal. This area in particular alongside the feedback from the IT Executive Leadership team discussed in the next section immediately highlighted a prime area to focus experimentation for maturity. For Q8 focusing on Demand Management value, the feedback from the participants was either Extremely Valuable (19%) or Very Valuable (38%).

Q7 How involved are you in the planning and tracking of project budgets'

Answered: 21   Skipped: 0
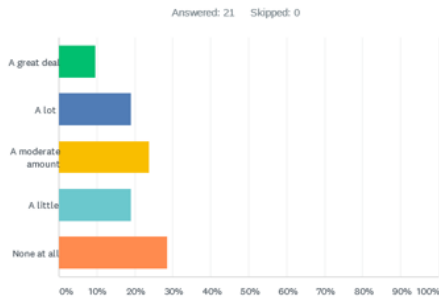
ANSWER CHOICES	RESPONSES
A great deal	9.52%
A lot	19.05%
A moderate amount	23.81%
A little	19.05%
None at all	28.57%
TOTAL	

Q8 How would you rate the value of the Demand Management process as it relates to getting your project ideas reviewed and approved for assignment to the PMO?

Answered: 21   Skipped: 0
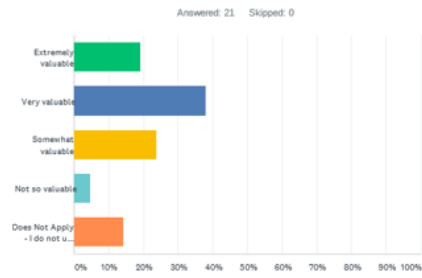
ANSWER CHOICES	RESPONSES	
Extremely valuable	19.05%	4
Very valuable	38.10%	8
Somewhat valuable	23.81%	5
Not so valuable	4.76%	1
Does Not Apply - I do not use Demand Management	14.29%	3
TOTAL		21

Figure 4. Survey one responses for questions 7 & 8.

Q9 and Q10 worked to probe the survey responders for feedback on industry certification and level of professionalism observed for those Project Managers of the PMO. Figure 5 shows that for Q9, the 70% felt that industry certifications such as PMP and Scrum Master were either Extremely Valuable (23%) or Very Valuable (47%). For Q10, 84% of those that responded scored the PMO members to be either Extremely Professional (42%) or Very Professional (52%).

Q9 Rate the overall value you place on Project Managers obtaining industry certifications such as PMP, Scrum Master, and Lean Six Sigma Blackbelt to more effectively work on your projects

Answered: 21   Skipped: 0
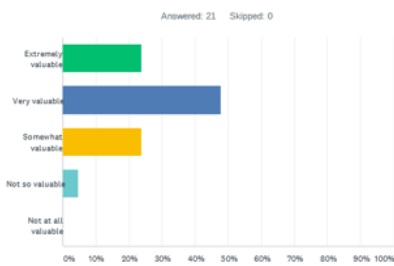
ANSWER CHOICES	RESPONSES	
Extremely valuable	23.81%	5
Very valuable	47.62%	10
Somewhat valuable	23.81%	5
Not so valuable	4.76%	1
Not at all valuable	0.00%	0
TOTAL		21

Q10 Please rate the level of Professionalism of the Project Managers with whom you work the most

Answered: 21   Skipped: 0
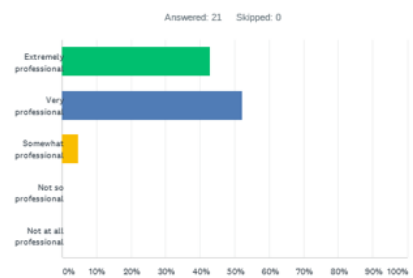
ANSWER CHOICES	RESPONSES	
Extremely professional	42.86%	9
Very professional	52.38%	11
Somewhat professional	4.76%	1
Not so professional	0.00%	0
Not at all professional	0.00%	0
TOTAL		21

Figure 5. Survey one responses for questions 9 & 10.

65

Figure 6 shows the results for Q11 and Q12 which worked to probe the participants on feedback specific to project delivery and scope creep. Q11 produced results that, after referencing the CHAOS report from The Standish Group as reviewed in Chapter 2, seemed to fair slightly better than expected industry norms. No participants surveyed reported that their projects Always came in on time but 60% reported Usually. For Q12 discussing Scope Creep, 70% of those that responded reported that their project either Always had Scope Creep (30%) or Usually had it present (40%).

Q11 How often do your projects get delivered on time?
Answered: 20 Skipped: 1

ANSWER CHOICES	RESPONSES	
Always	0.00%	0
Usually	60.00%	12
Sometimes	30.00%	6
Rarely	5.00%	1
Never	5.00%	1
TOTAL		20

Q12 How often do you see "scope creep" on your projects?
Answered: 20 Skipped: 1

ANSWER CHOICES	RESPONSES	
Always	30.00%	6
Usually	40.00%	8
Sometimes	20.00%	4
Rarely	10.00%	2
Never	0.00%	0
TOTAL		20
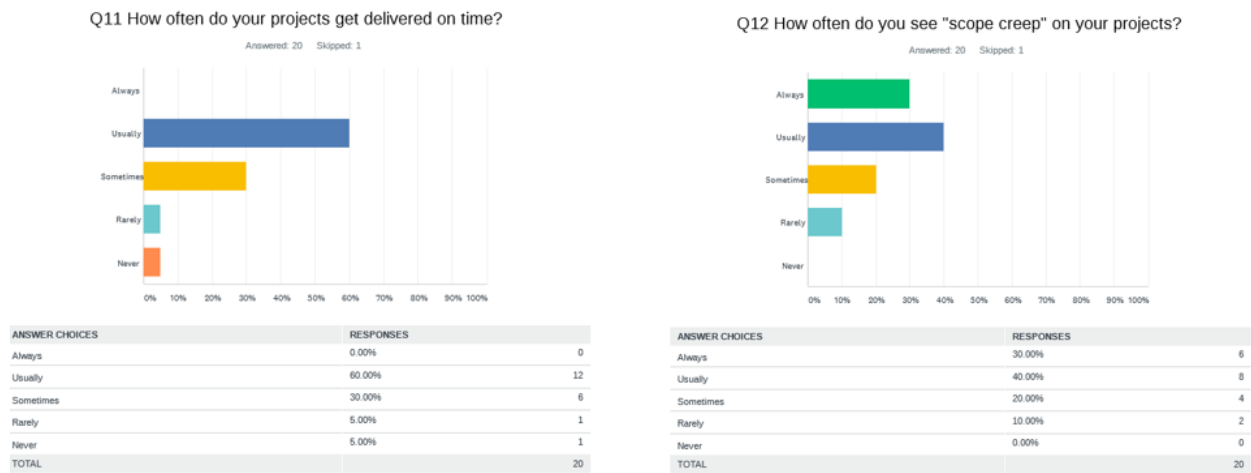
Figure 6. Survey one responses for questions 11 & 12.

Q13 and Q14 dealt with the effectiveness of Project Managers to accurately project budgets at the onset of a project as well as assessing the level of engagements they have with the Project Champions. Figure 7 shows that for Q13, no participant scored the PMO as being Extremely Effective. The majority (60%) scored the group as Somewhat Effective while 15% scored them fairly low on the scale as Not So Effective. For Q14, Project Managers were seen by the vast majority (80%) as having tight alignment with their Project Champions.

Q13 How would you rate the PMO's effectiveness at projecting accurate budget needs at the onset of a project?

Answered: 20   Skipped: 1
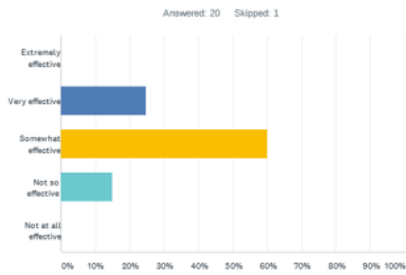
ANSWER CHOICES	RESPONSES	
Extremely effective	0.00%	0
Very effective	25.00%	5
Somewhat effective	60.00%	12
Not so effective	15.00%	3
Not at all effective	0.00%	0
TOTAL		20

Q14 In your estimation, how engaged are Project Managers with Project Champion(s)?

Answered: 20   Skipped: 1
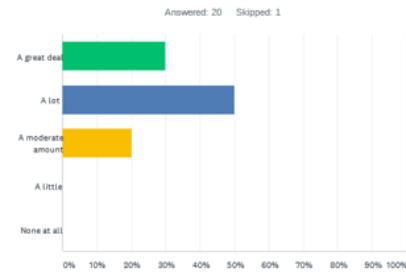
ANSWER CHOICES	RESPONSES	
A great deal	30.00%	6
A lot	50.00%	10
A moderate amount	20.00%	4
A little	0.00%	0
None at all	0.00%	0
TOTAL		20

Figure 7. Survey one responses for questions 13 & 14.

Q15 and Q16 dealt with the effectiveness of planning a project by the Project Managers of the PMO as well as the effectives of execution once the project is underway. Figure 8 illustrates that, for Q15, the responses were seen as 70% believing the team was either Extremely Effective (5%) or Very Effective (65%). 5% rated the PMO as Not at All Effective. For Q16, 72% of those that participated in the survey rated the team at either Extremely Effective or Very Effective.

Q15 How would you rate the effectiveness of the PMO as it pertains to the planning of a project?

Answered: 20   Skipped: 1
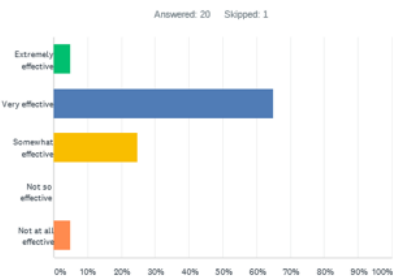
ANSWER CHOICES	RESPONSES	
Extremely effective	5.00%	1
Very effective	65.00%	13
Somewhat effective	25.00%	5
Not so effective	0.00%	0
Not at all effective	5.00%	1
TOTAL		20

Q16 How would you rate the PMO's effectiveness when it comes to the tactical execution of projects once the project is underway?

Answered: 21   Skipped: 0
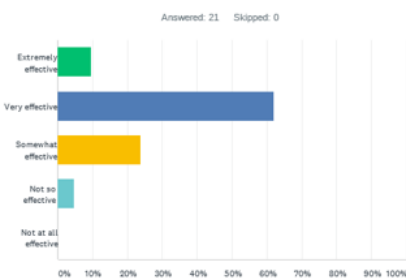
ANSWER CHOICES	RESPONSES	
Extremely effective	9.52%	2
Very effective	61.90%	13
Somewhat effective	23.81%	5
Not so effective	4.76%	1
Not at all effective	0.00%	0
TOTAL		21

Figure 8. Survey one responses for questions 15 & 16.

Figure 9 displays Q17 and Q18, which dealt with the effectiveness of the PMO when it came to closing activities on a project as well as the value of the services provided by Project Coordinators. For Q17, only 35% of those surveyed felt the PMO team was effective when it came to closing activities. For Q18, for those that worked with the Project Coordinators 60% of them felt that their services were Extremely Valuable or Very Valuable.

Q17 How would you rate the PMO's effectiveness as it pertains to the closing activities on a project?

Answered: 20   Skipped: 1

ANSWER CHOICES	RESPONSES	
Extremely effective	10.00%	2
Very effective	25.00%	5
Somewhat effective	45.00%	9
Not so effective	20.00%	4
Not at all effective	0.00%	0
TOTAL		20

Q18 How would you rate the value of the services provided by Project Coordinators on project efforts?

Answered: 20   Skipped: 1

ANSWER CHOICES	RESPONSES	
Extremely valuable	25.00%	5
Very valuable	35.00%	7
Somewhat valuable	10.00%	2
Not valuable	0.00%	0
I do not work with Project Coordinators	30.00%	6
TOTAL		20

Figure 9. Survey one responses for questions 17 & 18.

4.3 IT Executive Interviews

The second instrument used for data collection, and probing areas that could present possible experimentation efforts, was specific to the members of the IT Leadership Team (ITLT). For these individuals, a semi-structured interview technique was used in a direct, 1:1 in-person interview. These interviews were conducted over the course of two weeks with each member of the ITLT representing the different departments of the IT organization. These included leads in the areas of Infrastructure, Applications, Architecture, PMO, Finance & Accounting, and the CIO. Interview lengths ranged from 60 to 90 minutes depending on the responses and level of engagement

received from the follow-up probing questions meant to illicit further comments from the subject along the topic being discussed. Notes were taken directly by the Interviewer and a follow-up email to the subject was provided after the interview concluded thanking them for their participation.

To begin the interview, the members of the ITLT were all asked a set of basic foundational questions in order to allow them to settle in to the interview process. The questions were presented at the time of the interview in an oral fashion with no advanced information shared on the questions ahead of time, nor were the questions presented in front of the individuals via electronic display during the interview. The exact interview script used can be seen in Appendix D. The questions, and related responses, included:

- **What is your title and role in IT?**

  For this question, the average response from the six leadership members was the level of Senior Director, IT; a recognized Executive level title at Company X. The CIO was the only exception as he was a Vice President, IT.

- **How long have you been at the Company?**

  For this question, the average response was approximately one year. The range of answers fell between six months to three years with the most tenured individual being the CIO. All six of the individuals had many years of Executive roles before joining Company X.

- **How frequently do you use the services of the IT Project Management Office (PMO)?**

For this question, the average response was "very frequent". The PMO team, although a fairly new entity to the IT department, was being used extensively as a shared services team across every major arm of the department. All six related comments during the interview that they were accustomed to partnering closely with an IT PMO at their prior companies.

The next set of questions were designed to engage the subjects along the lines of services and offerings of the PMO. It served to explore their relationships with the team, as well as, when they started to engage with the PMO and what their level of engagement and expectations were:

- **Can you describe the type of projects your team works on?**

For this question, the responses varied by Executive leader but appeared to align to the area of focus for their particular group in IT. For instance, the Finance & Accounting lead would report his projects were focused on areas such as ERP or Financial Management software. The Infrastructure lead reported that his projects dealt with areas such as datacenter expansions, office openings, network and server maintenance. The Architecture lead worked broadly across all areas while the Applications lead had a portfolio of over 73 different apps the team supported with the Customer Relationship Management solution being the largest. The PMO Lead's responsibility was to ensure the projects for each of the departments that were to be staffed were matched with the right Project Manager at the right time. The CIO reported his projects encompassed the entire portfolio of IT project but that he himself was often called upon for sensitive matters such as Mergers & Acquisitions.

- **What is your dependency on the IT PMO today? How about in the future?**

Answers to this question from the IT Leadership members started off similarly but started to vary considerably as they addressed the second part of the question which was to describe the future. To start, each member stated that they and their teams were very dependent on the PMO in order to properly plan, execute, and track project activities. This dependency had grown over the last six months as more Project Managers joined the team and more structure had been put into place through advances in process such as the new Demand Management solution that the team had built in their ServiceNow (SNOW) platform. SNOW had become the focal point of tracked activity in the department for items such as user service requests, change management, and project management.

It was in the second part of the question that the Executive Leaders started to become much more animated and energetic in their responses with numerous variations. Some of the key responses included:

Applications Lead: The Executive wanted PMs to be far more invested in understanding projects from the initial onset of the request by the business and before the actual promotion or elevation of the idea to a full project by the IT department. He believed that in the current model the Project Managers were not involved until too late in the process and that valuable time was missed in understanding context of the project. This context would help ensure that scoping was completed accurately, and as such, the project criteria, success criteria, and a fuller realistic timeline could be achieved at the onset of any engagement.

Architecture Lead: When talking about the future dependency of the PMO, the Architecture Lead's comments were focused on the need to have the Project Managers adopt more of a template and structured format approach in their work with the department. He gauged the future dependency between his group and the PMO as growing significantly over the next year, and as such, wanted to stress the importance of a formalized approach. He felt that by having this in place for the full cycle between project ideation, selection, planning, and execution, and in closing stated that the accuracy and the overall throughput cadence for the work volume would peak.

- **Can you describe how you first engage with the PMO when a project need arises?**

    Members of the IT Leadership team reported that they first engage with the PMO through one of two routes. The first is an informal route where the Executive member is made aware of a project need by either an internal member of their staff or by a Manager-level or Executive-level member of another department that is being supported by the IT team. Once the IT Executive is made aware that the possibility of a project, and depending on the working relationship and length of time working together on projects with the PM, they would typically reach out to the Project Manager who is overseeing activities in that domain and provide them advance notice of a new project. The second, more formal, way an Executive member of the IT Leadership team would first engage with the PMO is through the Demand Management process that the IT department is now leveraging in order to resource projects that have budgets attached to them from other departments in the company.

In this meeting the Executive team member might be seeing the project request for the first time and getting a chance to discuss it with not only the PMO, but stakeholders from the other teams in the IT department. A common comment made by the Executive team members during the answering of this question is that they felt the PMO team had made significant strides in advancing the Demand Management tools used by the department. However, the Executive members were quick to note that there was significant progress still needing to be made when it came to ensure that all the relevant facts, and context on projects being requested, were present before a larger team review. Most of them felt that without this context their ability to resource and plan appropriately would be compromised.

- **Can you describe your level of involvement when projects are launched?**

Each of the Executive members of the IT Leadership team reported that at Project launch they are heavily involved. This is often due to their desire to make sure that the project and its members started with as much clarity-of-purpose as possible and that members of the team had what they needed to be successful. The Architecture Lead reported that he would be involved for only the first few weeks to ensure that the plan of what was being built, how, and the business processes involved, were documented so that the development teams would be able to execute. Past that initial phase, the Lead reported he would rotate away from one project and that he and his team would focus on emerging projects, but would return near the final closing activities to review how the project was concluding.

- **What are your expectations for Project Managers assigned by the PMO to your projects?**

     This question brought more feedback and comments from the IT Leadership team than any of the others in this set. Although there were a number of common expectations shared, there were also significant variations depending on the Executive Lead and the department they were heading. Four of the common expectations from Project Managers included:

1. Need to be consistently driving communications both for written status and project plan updates as well as meetings with Core Team Members and Extended Team Stakeholders.

2. Need to be responsible for the budget on the project including approving all invoices and being able to forecast ahead of time if there were problems on the horizon that would necessitate any kind of budget modification.

3. Need to be a positive and supportive Leader for the Project Team. The role of "Leader" in particular was highlighted in some way or another by the Executive team and specifically they seem to focus on the benefits of Leadership by the PMs to the organization. This included things like the ability to have a level of "Command and Control" as well as ensuring a sense of "Connected Ownership" with the rest of the team members on the team so that there was a sense of shared responsibility and accountability.

4. All of them understood that the Project Managers on the PMO were experienced. They commented that the seniority of the PMs was evident and that they were of a higher caliber than other IT PMs that they have worked with at previous companies.

Where the answers start to vary during this line of questioning, was when examining increased expectations for the role that, in the opinion of the responding IT Executive, would bring about even greater maturity of the organization and value of the PMO to the department. These areas included:

1. Expect Project Managers to be more engaged with the business at the onset of a project request, not just at an approval of a project. In this regard, both the heads of Architecture and Applications felt that it was imperative for the PMs to get far more involved at the very beginning of the journey for a project well before the budget is approved. In was in this regard, that proper scoping could be conducted.

2. The Executive head of the PMO expressed a desire to see the PMs utilize a standard set of "play books" for which, he would provide to the team to standardize on process and tools. At the time of the interview, the PMs were using a combination of different tools that varied by which team they were support. The PM for the Engineering focused project might use JIRA for project tracking and leverage SCRUM, the PM for Infrastructure, however, might use MS Project and leverage a Waterfall approach. These different approaches would often prove difficult to reconcile at a Portfolio level, and as such, the Executive lead of the PMO was expecting his PMs to constantly synchronize for proper alignment.

3. The CIO expected professionalism above all else. For him, the Project Managers in his department were the "Tip of the Spear" and were acting in his place at meetings. He expected PMs to be more highly trained, more polished, and more personable than any other members of his staff.

4. For the head of Infrastructure, his priority for a Project Manager was that the individual needed to be the strongest facilitator on the team. He felt that the rest of the team takes their cues from them, and if the PM were strong, then the whole team would be as well. If the PM also performed consistently, and was held accountable, that would then have a ripple effect on the entire body of Stakeholders which would in turn help ensure a more successful project.

- **What tools and solutions do you depend on from the PMO today?**

    For this question, the answers from the Executive Leads were classified into four main categories. These included:

1. **Project Plans.** The Project Managers were the ultimate owners and distributor of the project plans used for each project engagement by the IT team. The plans were to be assessed and kept current and relevant with changes, risks, and milestones to be accurately tracked to completion. The PMs were also to ensure that the entire project core team (the stakeholders that were the most involved in a project from a day-to-day operations perspective) were in alignment with project plans.

2. **ServiceNow.** The Project Managers were expected to use the ServiceNow (SNOW) solution which was fast becoming the cornerstone tool of the IT

department. They were encouraged to ensure that they input all relevant project data including things such as key milestone dates, budget information, health status of the project, weekly status updates, links to SharePoint or MS Teams sites used for the project and more.

3. **JIRA.** For those Project Managers who were focused on Applications Development and Finance & Accounting efforts, expectations were that the Project Managers be very proficient in the JIRA tool. Made from a company called Atlassian, JIRA was used specifically for application development and used to track activities for the project team.

4. **FinancialForce.** The department had recently released a new Professional Services Automation tool for multiple departments at Company X. This tool would allow for accurate time tracking of resources that had been assigned by a Project Manager. Using this tool, the PM and the Leadership team could look at Resource Utilization in a far more accurate method to asses resource spending and how much that translates into in terms of funding, and where strategically they should be adding or reducing staff to meet the IT project needs.

4.4 Process Mapping & Use of the OPM3 Maturity Model

As agreed upon with the IT PMO Executive Leader at the onset of the project, it was critical that this study worked to explore, analyze, and refine deliverables that could enhance or develop documentation and artifacts for the PMO including mappings and diagramming that displayed core processes. Merging research efforts into this area,

alongside a parallel activity occurring during the same period as this study, the PMO team worked collaboratively through a series of workshop meetings to perform process mapping exercises. It was here that the team was able to examine how work was actually conducted in the PMO, and where, subsequently, this study identified additional elements to explore for possible maturity opportunities. These mappings were analyzed in detail by the Researcher for areas that could be transformed into experiments.

To accomplish this mapping, the team decomposed areas of concern and areas of focus by following Project Management Institute fundamentals as the central guide. Since the PMO consisted of members that were majority certified by the PMI as a Project Management Professional (PMP), adhering to the spirit of the PMBOK and looking to incorporate elements from was a straightforward practice. The level of expertise already gathered in the PMO space from the PMI made the decision to view the maturity of the organization through a broad lens of OPM3 a straightforward choice.

The mappings that the team created through this effort are presented below in an effort to provide a graphical representation of the Overall PM Process Workflow (Figure 10), the Deployment Process Workflow (Figure 11), and the Operational Support Transition Process Workflow (Figure 12). Each of these workflows were sourced from Company X's IT PMO documentation repository and used within the proceeding section to highlight and explain key areas of process.

Overall PM Process Workflow

*All deliverables are indicated by ⬭

Initiation

- Project assigned to PM via Demand Management
- Create Project Teams Site; include URL in SNOW
- Identify and document Roles and Responsibilities
- Prepare Project Kick Off Deck
- Does the project involve new platform, integration with external or internal apps? — No → Reengage/Engage Enterprise Architecture Team → Conduct Project Kick Off Meeting

Planning

- Plan schedule with project Team
- Does the project have reporting needs/data? — Yes → Engage Transcend Team — No
- Work with business stakeholders and Finance ops team to finalize project budget
- Review project schedule/budget/ team with IT and biz stakeholders
- Finalize overall project plan and document Plan of Record (POR)

Execution

- Track project plan, maintain POR, changes to plan etc.
- Create a project communication site
- Upload Kick Off Deck, Investment deck as attachments in SNOW PM
- Update weekly project status for IT and Business
- Is the new application subject to SOX/GDPR/ CCPA/ EWC compliance? — Yes → Work with Internal Audit or GDPR/ CCPA/EWC teams to understand requirements — No → End

Deployment

- Plan for application deployment team
- Release project
- Deployment Process Flow
- Support IT app team and business through Hypercare period

Closeout

- Transition to operational support
- Conduct Lessons Learned
- Hold a project closeout meeting
- Archive Project Artifacts – Teams Site, SP site, etc.
- Document Knowledge Articles in SNOW
- Ops Support Process
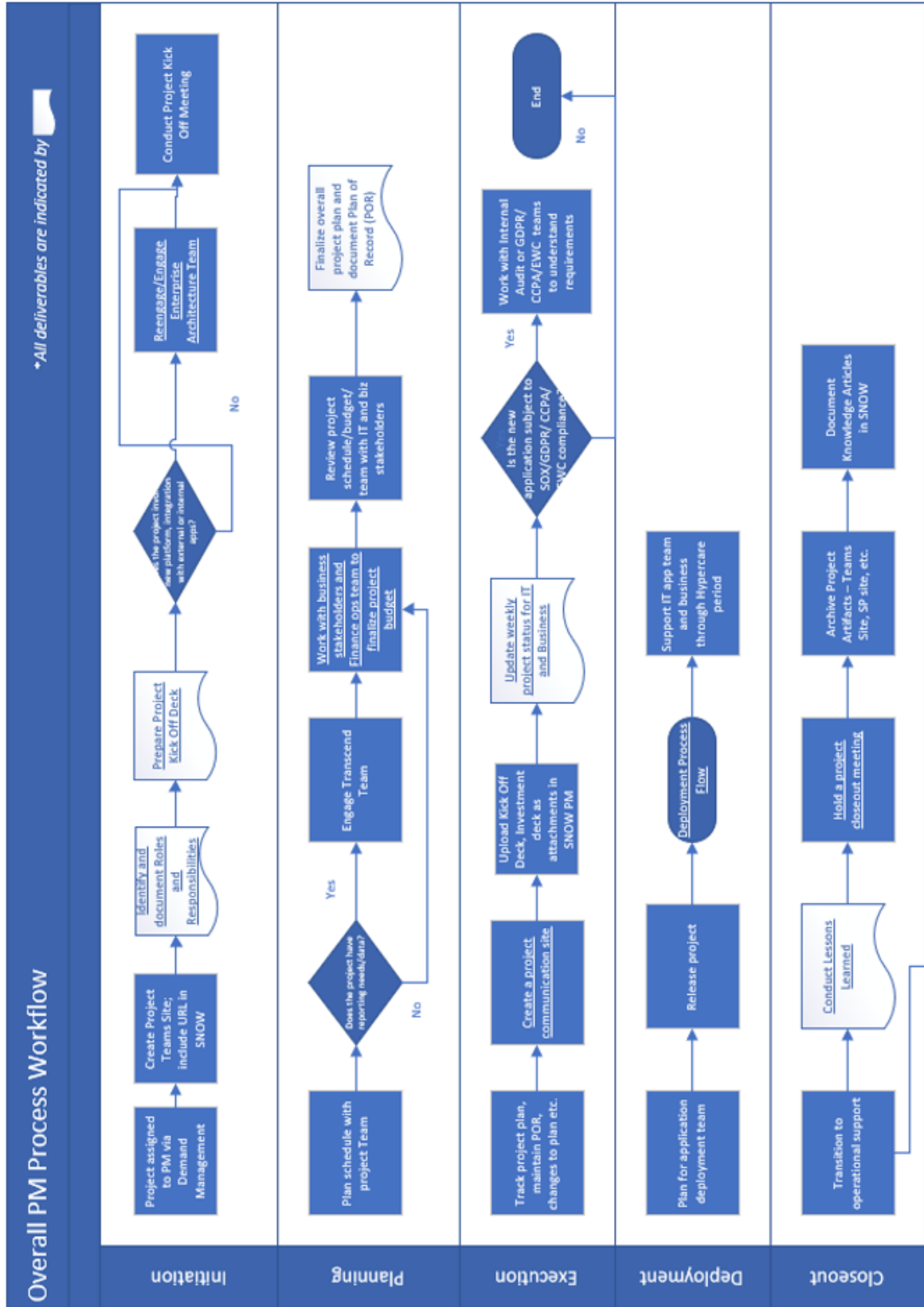- Initiate 90 days prior to support transition

Figure 10. Overall PM Process Workflow.

Initiation: As seen in Figure 10, the starting activity in this workstream is where the project has passed through the upstream Demand Management process and has been formally assigned to the Project Manager. This is typically a PM's first formal interaction with the project, although in several cases, a PM is made aware of the project ahead of time by a Service Manager who would submit the Demand in SNOW for consideration. Project content resources such as SharePoint are established, a project team assembled, the Communications and meeting plans are presented and approved by the Project Champions, budgets discussions start with Finance Analysts, and a formal kickoff of the project begins.

Planning: In this phase, the scheduled is planned in consultation with the extended project team. The involvement of the internal Business Intelligence team is also present whose review includes data needs either produced as an output of the project or for ingestion by the new tool or technology being introduced. Budget finalization occurs here in conjunction with the Finance and Project Champion representatives. Also, key to this area, is the finalization of the Project Plan itself and the formal Plan of Record within SNOW.

Execution: Project meetings now commence alongside teams from Development, Integrations, and the Business team members. If needed, a formal Communications site is created within MS Teams or SharePoint that is used to channel very large, corporate level communications on project status, which is typically used for major projects. Project Managers provide updates on the weekly status of their projects in SNOW for review by the IT Leadership team and the IT Managers. Members of the Internal Audit

team are brought in to assess the project and its deliverables, and to provide any oversight to ensure that the project meets any compliance or regulatory needs.

Deployment: This phase will overlap towards the final period of the Execution phase where the Project Team focuses on what is needed to prepare for deployment. Internal stakeholders are brought together to conduct a comprehensive examination of the project, the deployment specifics, and identify countries or groups that will be impacted by the release of the new tool. A specialized cross-functional group called the Hypercare team is brought together to plan out the support needs for the new tool's user community during the launch window. As the technical deployment of modern IT solutions can in itself be a very complex undertaking, the team has decided to create a separate flow which is displayed in Figure 11. In that flow, the team outlined three areas of focus, by Role, highlighting specifically, the expectations for the PM, the Application Owner, and the Deployment Lead.

1. **Project Manager**: Responsible for all Communications and working to ensure that all team leads understand their role including verification to IT Leadership members who have technical oversight responsibility that the plan is approved.

2. **Deployment Lead**: This role is the Engineer or Developer most involved with the project. Their responsibility is to work with the IT Project Manager to build out the plan for deployment and is typically the most senior technical resource who has primary tactical responsibility for deployment.

Application Owner: This role is responsible for ensuring that the resources required from the IT tech team are available, and support is provided throughout the deployment window. They are also responsible for ensuring that the project plan for deployment is being followed and for escalating any deviations to schedule or plan if the needs arise. The Deployment Lead typically works directly for this individual.
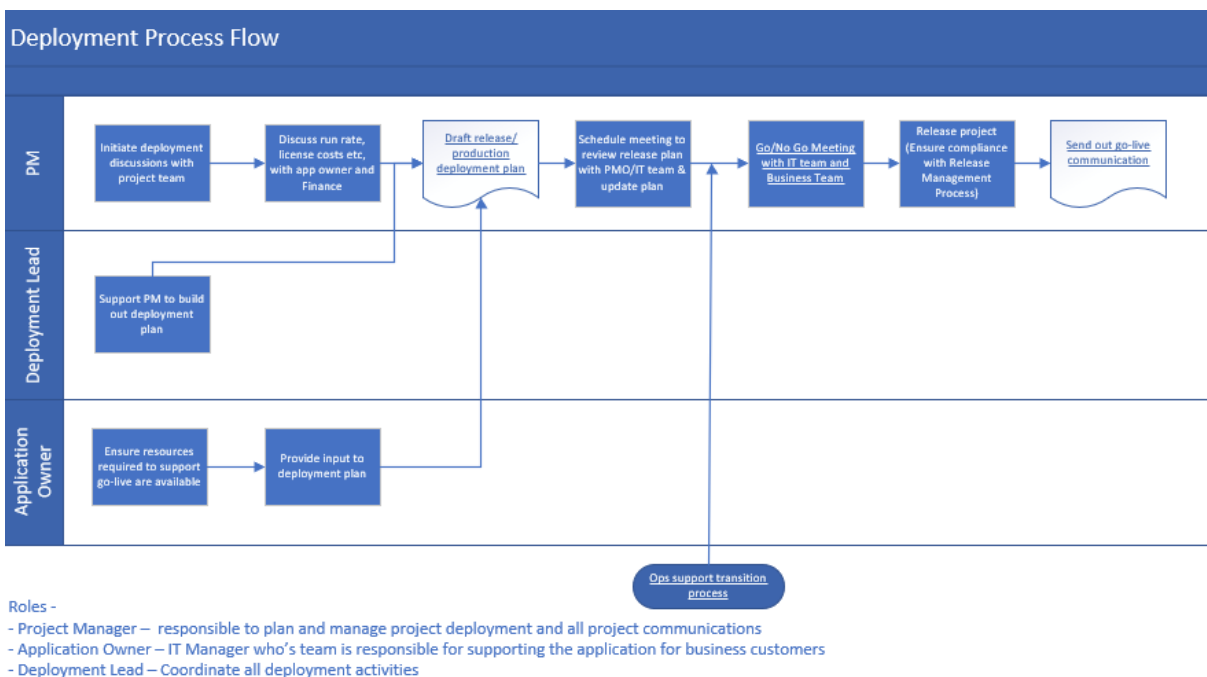
Figure 11. Deployment Process Flow.

Closeout (Monitoring, Controlling): At this phase the Hypercare team will transition off to a long-term operational support group. The project team will conduct a lessons learned workshop also known as a Post-Mortem. The Project Manager will execute a formal closeout meeting with the PMO members, and the IT Leadership team, to review these experiences on the project so that the team can continue to develop and mature. Final steps of closeout are to ensure that all Business Intelligence solutions such

as Dashboards and Reports are working to the satisfaction of the stakeholders who requested the project, and then final articles and reference materials are made available in SNOW.

Similar to the Workflow that was created and mapped for the Deployment Process, the Operational Support Transition Process was mapped using the key roles on the project from the IT department. Two roles that are key for this workflow include the Project Manager and Application Owner, but new to this flow are the Technical Lead and Enterprise Architect roles. Although both of the individuals serving in the last two roles would have been seen earlier in the project at various times, they are highlighted in the transition process flow for Operations due to their of their unique abilities. This flow is seen in Figure 12.:

1. **Technical Lead**: The technical lead is likely to be based offshore. With the decision by Company X to outsource critical IT support functions to Asia, using an external vendor, the Technical Lead is typically seen as a vendor consulting professional. This individual's job is to work with the team to understand the new solution, develop a full support plan for sign off, and then work to recruit and train other support resources in order to provide ongoing support for the user community.

2. **Enterprise Architect**: The Enterprise Architect role's is an advisory role. They oversee the training of the Technical Lead to ensure that the end support plan has all elements of the technical plan documented and is sufficiently detailed that the additional IT personnel are effective in their support.

Operational Support Transition Process Flow

PM
- Engage Application Owner
- Engage Technical Lead
- Engage Enterprise Architect
- Oversee transition to support process
- Begin app/infra retirement process and transition to app owner
- Review support process business leads and stakeholders and finalize
- Store all documents related to support in Managed Services SP Site

Application Owner
- Finalize monitoring process for the new application
- Work with HCL to determine support resources
- Ensure Helpdesk is aware of new application and SNOW setup is complete
- Ensure Critical Incident Management runbook is updated
- Gate: Are all ancillary support teams aware? — No / Yes
- Review support process with IT leads and team

Technical Lead
- Draft application support process
- Document Runbook
- Review Runbook with HCL
- Finalize support runbook
- Gate: Has runbook been reviewed, approved and finalized? — No / Yes

Enterprise Architect
- Provide input to support process/ train technical lead

Roles -
- Project Manager – initiates, facilitates support transition process
- Application Owner – IT Manager who's team is responsible for supporting the application for business customers
- Technical Lead – IT team member who has the most technical knowledge and experience with the tool and who is responsible for all technical issues/ aspects of the application
- Enterprise Architect – Member of the Enterprise Architecture team who was involved in the project from the start and has the experience with the application during implementation

Figure 12. Operational Support Transition Process Flow.

Further analysis of workflows indicated a view of the project domain that only formally began on assignment of the project after the Demand Management cycle. Until that time, a Project Manager was not heavily involved in the process, if at all. Ultimately, the PMO would become involved too late in the process, and this would in turn lead to a number of downstream issues. After analyzing all the findings from the interviews, surveys, process mappings, and then discussing that with the IT PMO Executive Leader potential options, a prime area of experimentation materialized. This would be the focus of the next part of this study to examine the drive to maturity, in a rapid fashion, and help elevate the PMO through Action Research. This area of focus was on *Project Selection.*

4.5 Targeting Opportunity Cost for OPM3 Literature Expansion

As the findings and analysis had helped highlight an area of experimentation, it also highlighted an area of possible expansion to the OPM3 literature and would shape the remainder of this study which focused on Opportunity Cost. This novel addition to the body of work within the academic community, as well as the work onsite with Company X to provide a possible advancement, are key tenants of Action Research. The findings and analysis identified issues, and with the current Project Selection and the focus on elevating Opportunity Cost thinking at Company X, intersected along the following lines:

- The IT PMO was becoming involved too late in the process to evaluate new project requests. Project Champions would often come to IT with a budget already approved through other channels and hence, work was assigned often under stress and pressure with little regard to competing factors.

- The IT PMO did not have a method to work out details with Project Champions early enough in the process to obtain the level of context and clarification on project requests that would allow them to formulate a clear path for selection and prioritization.

- No options existed to truly understand the tradeoffs between one project or another when dealing with inbound project requests and assigning Project Managers. In this environment, the IT PMO was often unsure if the projects being worked on were those of the highest value. Having a method to begin to understand the Opportunity Costs when selecting one project over another, early in the process, would provide the group with a better focus to deploy resources against projects that were seen as the most beneficial to Company X.

- The OPM3 literature does not include "Opportunity Cost". Though it frequently refers to decision making, and the cost of decisions, the lack of a close examination within OPM3 regarding opportunity cost thinking during Project Selection, is an area for addition to the body of knowledge.

4.6 Experimentation on Project Selection using Opportunity Cost Modeling

After thorough review of the findings and presenting the options for using Opportunity Cost as a major factor in project selection to the IT PMO Executive Leader and the Dissertation Committee, the following tools and solutions were inserted into the PMO processes. The processes to be examined dealt with Project Selection, but more importantly, they were projects being selected for budget allocation as the team was

undergoing planning for the 2021 budget season. This experimentation aligned to address the following four specific questions:

1. **Does the tool leverage an existing platform or application?** Per the earlier agreement with the IT PMO Executive Lead, the solution needed to leverage current, already purchased solutions rather than invest in new technology or applications.

2. **Is the project data sourced directly from the Project Champions who are the most knowledgeable about the project?** The most knowledgeable individuals about the projects being proposed for the 2021 budget proposals were the Project Champions, so any deep context and descriptions were likely to be the most beneficial coming from those individuals.

3. **Can the new solution be designed to use opportunity costs to provide additional business intelligence to the IT PMO Executive Leader in a rapid manner?** The solution needed to be easily consumable in a manner that the IT PMO Executive Leader could gain value in a rapid fashion because of the velocity of the activities going on in the environment. A solution that required extensive review, deep dives, and confusing UI or reporting, was not likely to provide an optimal user experience.

4. **Can the solution be expanded upon for future use across all areas of the IT PMO portfolio?** The solution needed to be one that could be, if desired, expanded upon.

Tool Selection

The IT PMO department had invested heavily in 2020 for the use of SNOW. From the tracking and status updating of projects, to program and portfolio dashboards, alerting and notifications, Demand Management, and much more. This was the ideal location for a centralized application for any kind of experimentation, however the tool was still very much in its infancy at Company X. Administrators stated that they were using less than 25% of the available functionality and had barely scratched the surface of the more advanced features. Upon further analysis, one of the advanced features was a tool called the Demand Dashboard.

The Demand Dashboard, as seen in the developed tool, is a four-quadrant matrix dashboard similar to a Growth Share Matrix which is a tool taught in Strategy programs worldwide. Originally created by Bruce Henderson, the founder of Boston Consulting Group (BCG), the Growth Share Matrix or BCG Matrix was first introduced in 1968 and is used in countless companies (BCG.com, 2020). As seen in SNOW, the solution allowed a Developer to setup, on a grid, the graphical representation of scored values that are derived from a data capture solution known as the Demand Survey. This solution was not in production at Company X and was not configured beyond some preliminary test configuration after first being deployed as a part of a larger module earlier in the year. However, it served as an ideal candidate to explore with the IT PMO Executive Leader; a tool that could help begin to highlight the potential Opportunity Costs on projects. Specifically, the grid can take inputs from a survey to score projects along the X axis and Y axis thus allowing a Developer to set the values in a way that are displayed onto the coordinate grid.

Though the SNOW tool had promise, one large limitation for the purpose of this research project was discovered: access to a ServiceNow Developer/Programmer. Unfortunately, an expert SNOW Developer was not available, even though the tool would serve as a reference point, and example, for possible future long-term use.

Surveying the Project Champions

A prototype of the BCG matrix was created using MS Excel and the next step was to look at gathering data for project candidates that were being promoted in the 2021 budget review cycle. The structure of the data schema was modelled from the SNOW survey with the idea that it would serve as a long-term tool. Meetings with Project Champions were conducted, and a semi-structured interview was conducted. The full survey can be found in Appendix E. Two groups, of eight questions each, were used that focused on Strategy or Risk. Each question was scored as "0" (Not Applicable) to "5" (Highest). An average of the scores, by group, was calculated which providing two values per question group, per project. The instrument used during the survey for data collection is seen in Figure 13.

2021 ITS Project Candidates	IPP Host Replacement	Contracts Management Solution - Procurement	Travel & Collaboration Tool	Retire Cellular Lookup Tool	Retirement of TD Store	Optimizations - Procurement	Relaunch of CPQ	s - Full Global Cash Automatio	ons - Dashboard and Workflo	TOMG - SFDC to ERP
Please Rank on a Scale from 0 – 5 (Range: Does Not Apply –> High)										
What level of impact does this project have on a strategic corporate initiative?	4	4	2	3	3	3	1	3	4	5
What is the level of importance to the success of that strategic corporate initiative?	4	4	2	3	3	3	1	4	5	5
What level of impact will this project have in on the core job requirements for the targeted users?	3	5	4	3	4	4	3	4	5	5
What level of increase in job satisfaction is expected from the user community?	5	5	4	3	4	4	2	5	4	5
What level does this project expect this increase business process consistency and business process optimization?	5	5	3	5	4	4	2	5	5	5
What level of increase is expected in consistency, accuracy and performing to the speed of the business?	5	5	3	5	4	4	3	5	5	5
To what level does this project impact (1) managing and closing Sales, (2) provide professional services, (3) support enabling our Customers, (4) assist in processing and collecting revenue from Customers?	5	0	0	0	0	0	5	3	5	5
Teradata's prime strategic objective of "Cloud First"?	3	0	0	0	0	0	4	0	0	5
given concerns about resource availability or competing projects expected to be in-flight?	3	2	2	1	1	1	4	4	5	5
How dependent is this project and its deliverables on other projects being completed before launch?	2	0	0	5	5	0	5	0	0	0
To what level does this project address a compliance & regulatory requirement?	2	0	0	0	0	0	0	0	0	0
How likely would a government-imposed penalty if we don't execute the project?	2	0	0	0	0	0	0	0	0	0
To what level does this project require additional infrastructure, application expansion, or business expansion?	5	0	0	0	0	0	0	0	0	0
To what degree does this project require additional IT support not currently provided?	5	2	2	1	1	3	0	0	2	4
To what level does project help remediate or reduce an enterprise risk?	3	5	1	1	1	1	4	0	0	0
To what level does this project help remediate or reduce an information security risk?	1	4	1	1	1	1	0	0	0	0

Figure 13. Survey responses for Project Champions interviewed for 2021 AFO project candidates.

In the 2021 project budget planning season, several meetings occurred in parallel to the efforts of this research project. One of the meetings were with the Executive Leaders of the Accounting, Finance, and Operations departments in order to ensure that projects being promoted were carefully considered, along with the right level of

supporting context for future rounds of budget talks with the C-Suite members. During these discussions, several projects were removed from further consideration. In Appendix F, the original projects, and the scored projects using the survey results from interviews with the Project Champions, are displayed. The table seen in Appendix G lists the final selection of projects that formally moved over to the IT PMO Executive Leader for further review with the C-Suite. All of these tables, all scoring, as well as the debriefing session on the context given about the projects, were discussed with the Project Champions, and were provided to the IT PMO Executive Leader before talks began with the C-Suite for 2021 Project Candidate considerations.

Providing Business Intelligence to the IT PMO Executive Leader

In order to convey the data gathered, and provide information on how the project was scored, a new BCG style matrix was constructed. This tool leveraged the average group value scored from the two question groups and mapped to coordinates on the individual axis mapped for either Strategy (X) and Risk (Y). In addition, the tool also leveraged budgetary information in order to provide an easy reference to dollars being requested. The circle indicator used for the projects mapped within the matrix's quadrants was sized directly by the projected budget needed. This particular dataset was provided by Project Champions via a parallel data gathering effort being executed for all departments with all PMs.

The location of the project in each of the quadrants allowed the IT PMO Executive Leader to assess how projects were grouped alongside similar projects, as well as their relative size to each other and requested budget need. The effort to map this type of data within a BCG matrix was unique for project candidates that were being

requested for budget consideration. In the upper left quadrant are the projects identified as having met the conditions for Strategy and Risk that were the most valuable to Company X. The matrix provided to the IT PMO Executive Leader is seen in Figure 14.
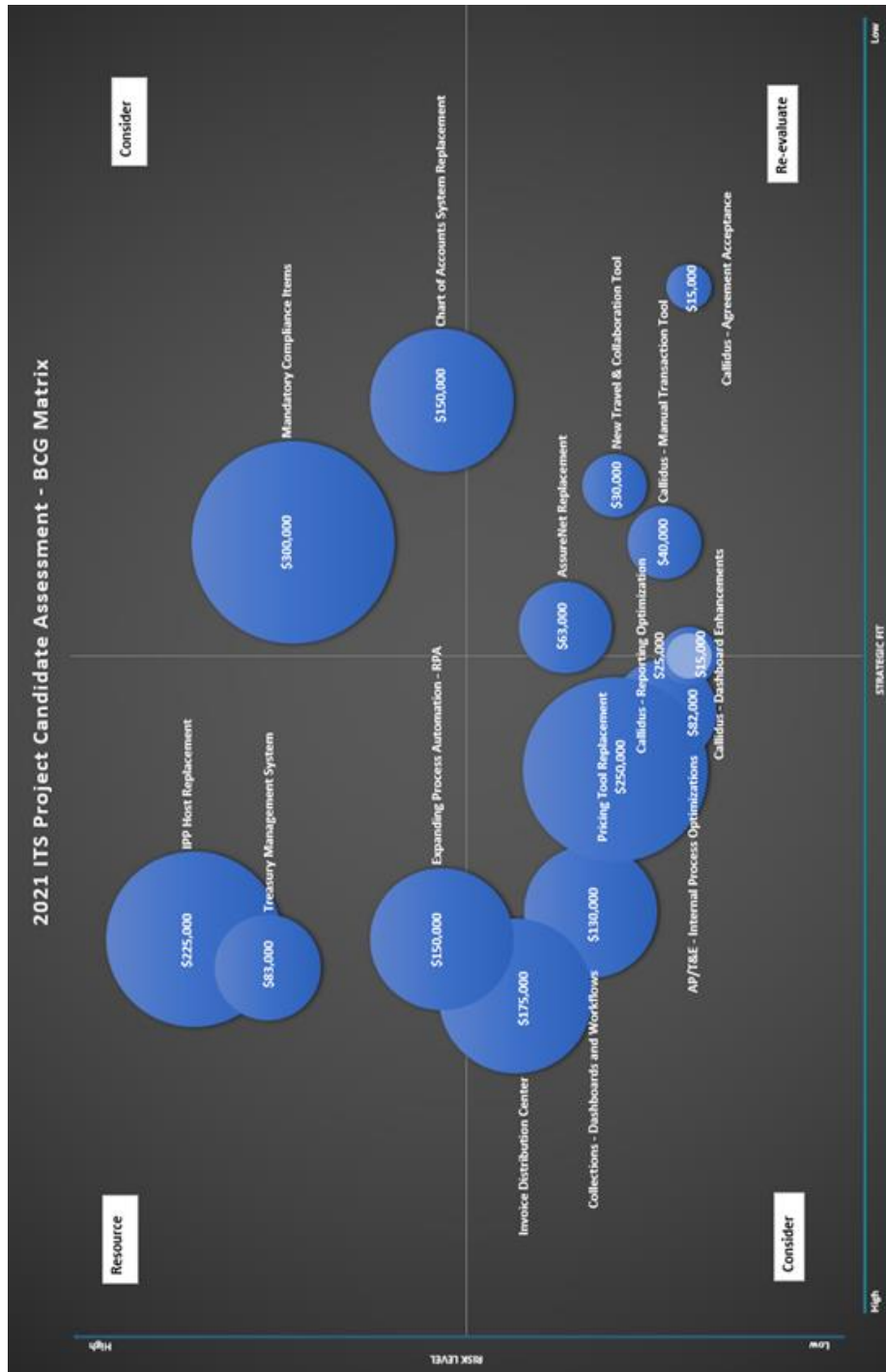

Figure 14. BCG Matrix solution provided to the IT PMO Executive Leader

The projects grouped in the upper right of the matrix, although High in terms of mitigating or addressing known Risks for the company, were not thought of as Strategic projects. This were important projects that addressed larger problems, however, they did not serve to advance the company through meeting strategic objectives. The lower left quadrant displays projects that were scored as those that were seen as High in their ability to help meet known Strategic objectives, however from a Risk mitigation or avoidance perspective, they did not to make the company safer or address glaring risk issues. Finally, the lower right quadrant displays projects that were grouped as being Low for both Strategic Fit and their ability to Lower Risk at Company X. These could be considered as "Nice to Have" projects.

4.7 PMO Final Surveys & Opportunity Cost Workshop

The final round of surveys targeted only the members of the IT PMO general staff. These Project Managers and Project Coordinators were not made aware of the final implementation of the new solutions until the workshop. The first survey was built to assess familiarity with key elements of Opportunity Cost, OPM3, and the current budgeting process. The survey can used can be found in Appendix H. The following are the results and analysis of the responses from the PMO members.

PMO Survey One

Q1 and Q2 focused on levels of understanding for the concept of Opportunity Costs and the OPM3 framework. Figure 15 shows that for Q1, the majority of the team (56%) felt they were Somewhat Familiar with the concept and use of Opportunity Costs. For Q2

inquiring about the level of familiarity with OPM3, the same was seen with the majority
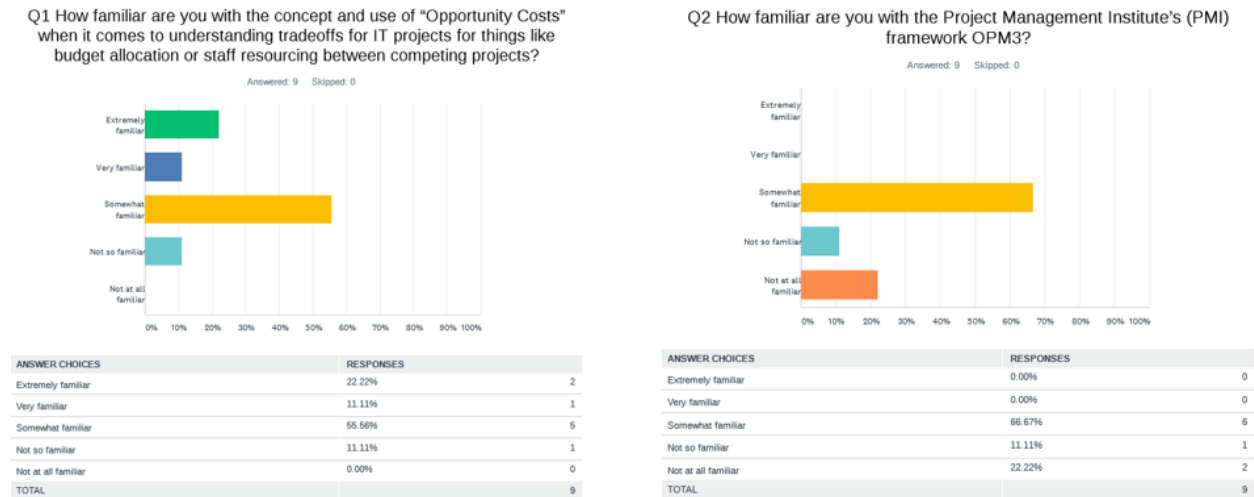
(67%) rating that they were Somewhat Familiar.

Q1 How familiar are you with the concept and use of "Opportunity Costs" when it comes to understanding tradeoffs for IT projects for things like budget allocation or staff resourcing between competing projects?

Answered: 9   Skipped: 0

ANSWER CHOICES	RESPONSES	
Extremely familiar	22.22%	2
Very familiar	11.11%	1
Somewhat familiar	55.56%	5
Not so familiar	11.11%	1
Not at all familiar	0.00%	0
TOTAL		9

Q2 How familiar are you with the Project Management Institute's (PMI) framework OPM3?

Answered: 9   Skipped: 0

ANSWER CHOICES	RESPONSES	
Extremely familiar	0.00%	0
Very familiar	0.00%	0
Somewhat familiar	66.67%	6
Not so familiar	11.11%	1
Not at all familiar	22.22%	2
TOTAL		9

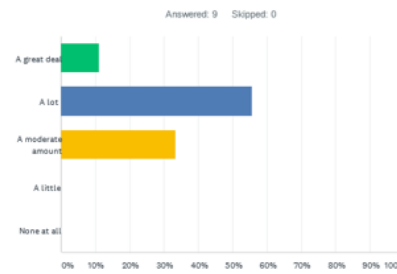*Figure 15.* PMO Survey one responses for questions 1 & 2.

Q3 and Q4 dealt with assessing a PMO member's past experience with

Opportunity Cost at other companies they might have worked at as well as what they

believed the impact of applying more elements of Opportunity Cost could impact the

PMO at Company X. The PMO was made up of a collection of very senior industry

professionals who had worked across a wide cross section of companies and industries

before joining Company X. Figure 16 shows that for Q3, the majority of responses

showed that in past organizations those groups either used Opportunity Cost either A

Moderate Amount (44%) or A Little (33%). For Q4, the majority of PMO members felt

that element of Opportunity Costs could positively impact their jobs either A Great Deal

(11%), A Lot (56%) or A Moderate Amount (33%).

Answered: 9 Skipped: 0
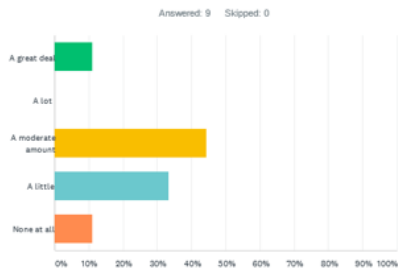
ANSWER CHOICES	RESPONSES	
A great deal	11.11%	1
A lot	0.00%	0
A moderate amount	44.44%	4
A little	33.33%	3
None at all	11.11%	1
TOTAL		9

Q4 To what level do you think understanding and finding ways to employ elements of Opportunity Costs could positively impact your job here in the PMO?

Answered: 9 Skipped: 0

ANSWER CHOICES	RESPONSES	
A great deal	11.11%	1
A lot	55.56%	5
A moderate amount	33.33%	3
A little	0.00%	0
None at all	0.00%	0
TOTAL		9

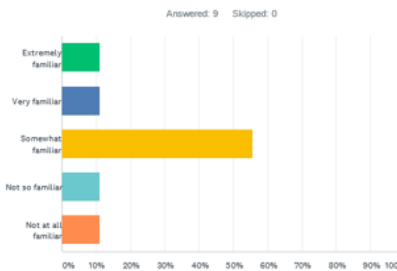*Figure 16.* PMO survey one responses for questions 3 & 4.

Figure 17 shows Q5 and Q6 which dealt with observations made by the PMO members of current use of Opportunity Cost thinking as well as their familiarity with the process of Executive Budget Reviews. For Q5, the vast majority of the PMO members felt that Opportunity Cost thinking and approaches were observed either A Moderate Amount (44%) or A Little (44%). For Q6, the group was asked about their level of familiarity regarding the Executive Budget Review process. The majority felt Somewhat Familiar (56%), Not So Familiar (11%) or Not at All Familiar (11%).

Q5 To what level do you currently observe decision making at the PMO which is grounded in Opportunity Cost thinking and approaches?

Answered: 9 Skipped: 0
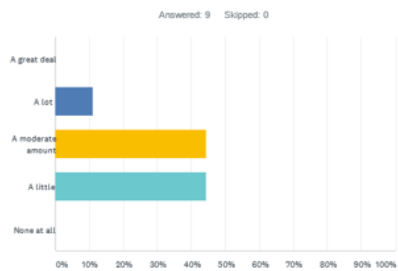
ANSWER CHOICES	RESPONSES	
A great deal	0.00%	0
A lot	11.11%	1
A moderate amount	44.44%	4
A little	44.44%	4
None at all	0.00%	0
TOTAL		9

Q6 How familiar are you with the process of Executive Budget Reviews by PMO Leadership and its impact on project selection for the department?

Answered: 9 Skipped: 0

ANSWER CHOICES	RESPONSES	
Extremely familiar	11.11%	1
Very familiar	11.11%	1
Somewhat familiar	55.56%	5
Not so familiar	11.11%	1
Not at all familiar	11.11%	1
TOTAL		9

Figure 17. PMO Survey two responses for questions 5 & 6.

Q7 invited the participants to provide uncensored, candidate responses. The question posed to them for Q7 was *Do you think there are additional areas within the IT PMO where the concept of Opportunity Cost could aid in the efficiency and effectiveness of the group? Please comment below*.

Response 1: I believe providing this training to our partner business units will help us identify and prioritize investment asks in the future.

Response 2: yes... in resource allocations, where we can best utilize valuable resources based on their skill sets, availability & commitments to projects that we deem to have the highest potential for success and greatest return.

Response 3: Presumably the existence of Business Cases with consistent metrics for cost and ROI would be a solid basis for comparison, opportunity cost analysis, and resulting prioritization.

Response 4: I think Opportunity Cost becomes more important with the renewed effort of Customer Focus (CX) from our last All Company Meeting. The ability to meet customer requests or make certain functionality easier to adopt ARR driven products comes with a certain expectation of speed to deliver and flexibility. In companies transitioning between waterfall and agile, I've seen teams struggle with trying to do everything instead of making informed decisions on priority based on opportunity costs and strategy. Overall corporate strategy is also extremely important in trying to avoid a 'do everything' model instead of removing projects or workload to meet the new demand. I hope we balance these requests and aligns it what benefits the company the most using OC as a decision-making tool.

Response 5: In order to take OC into account PMs need to be aware of costs associated with not doing other projects and other OC across the matrixed organization related to your project.

Opportunity Cost Workshop & the Second PMO Survey

Two weeks after the execution of the first survey for the PMO, the group assembled for a workshop where the focus was on the project and the value of Opportunity Cost thinking. As the COVID Pandemic was requiring the team to work remotely, the session was held via WebEx with all members of the PMO as well as the IT PMO Executive Lead. This was the opportunity to speak with the team about the approach on the portfolio, the interviews conducted to map out a BCG Matrix and the focus on both the Risk and Strategy areas, as well as the subject of Opportunity Cost in deeper detail. After the workshop, the team participated in a short, wrap up survey. The survey used can be found in Appendix I in which 100% of the group responded. The findings and analysis from their responses are seen below.

PMO Survey Two

Figure 18 shows the results of Q1 and Q2. Q1 dealt with reassessing the level of familiarity with the subject of Opportunity Cost. Similar to the first PMO survey executed a few weeks prior with the results seen in Figure 1, this survey showed some maturity and elevation of understanding in this domain with the members of the PMO. Whereas in the results in Figure 1 it was seen that only 11% rated their familiarity with Opportunity Cost as Very Familiar, in this second PMO survey it was seen to have jumped to 67% of the group. Also, in the first survey 11% of the group ranked their

familiarity as Not So Familiar. In the second survey, no PMO member selected that choice. Analysis indicates that the earlier workshop with a detailed review of the methods used for driving Opportunity Cost thinking within the project selection process for the Accounting, Finance, and Operations (AFO) portfolio helped raise understanding significantly in this area for the PMO.

For Q2 of this survey, the question probed the PMO member understanding their opinion of the approach used in leveraging Opportunity Cost thinking during the annual budget planning season for the AFO portfolio. The intent of the question was to gauge the PMO member's thoughts on the likelihood that this kind of approach would aid the team in maturing future PMO processes. As seen in Exhibit 4, 11% of the members ranked the approach as helping A Great Deal, 57% of the members ranked the approach as helping A Lot, and 33% of the members ranked it as helping A Moderate Amount.
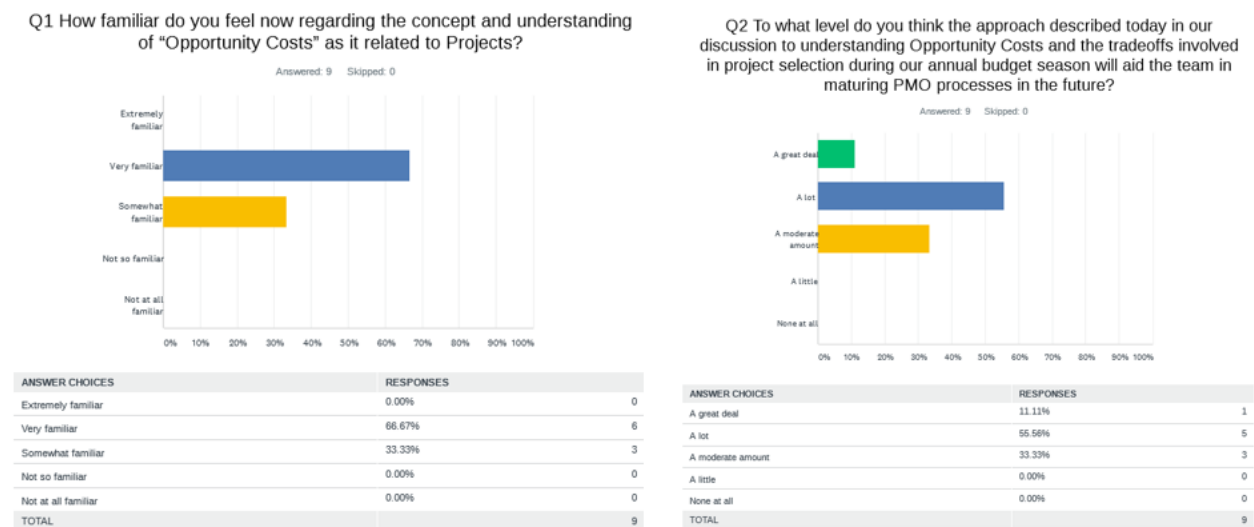

Figure 18. PMO Survey two responses for questions 1 & 2.

Figure 18 shows the results from Q3 and Q4 of the survey which focused on advancing and maturing of the group as well as other areas that this kind of Opportunity Cost thinking might be put forward to study and experiment with other areas for the

PMO. For Q3, the deeper intent of the question was to gauge the PMO member's thoughts on the likelihood that this kind of approach would be useful in future endeavors for the team. In the responses gathered from the PMO members who attended the workshop, 11% of those surveyed reported that they felt the approach would help A Great Deal, 57% reported that the approach would help A Lot, and 33% of them reported that the approach would help A Moderate Amount.

In Q4, the recommended areas to study and experiment from the PMO members were varied. The first response recommended a focus on the Go-To-Market (GTM) team which were IT projects that were focused on the Sales department. The second response felt that the focus should be on where the majority of budget spend was to be seen in the portfolios and therefore had the biggest fiscal impact. The third response felt a deeper dive in maximizing returns was a good avenue and felt that hosting a monthly meeting session to review topics that showed the PMO was maturing along the lines of the PMI.
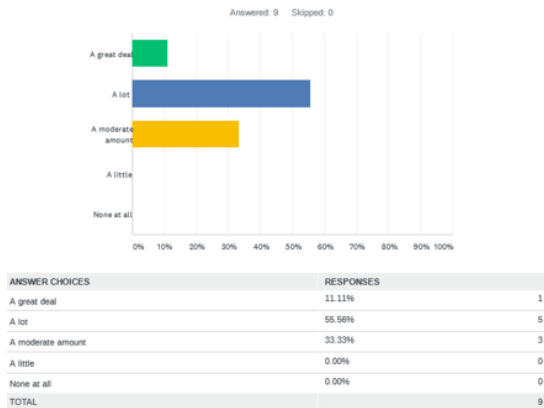
The final question in survey two offered the PMO members a particular area to offer comments and thoughts as well as thanked them again for their participation in the study. Q5 read as "*Thank you again for your comments and participation in this study. Please feel free to share any closing thoughts on the process, the experimentation, ideas for improvement, etc., in the below text box:*". Responses were **Response 1:** Thank you Matt for raising the bar. This type of strategic thinking is exactly what the corporation needs. Let's spread the word and soon! :)

Response 2: Let's carry it forward, operationally. Would be glad to participate.

Response 3: Great job Matt!

Q3 To what level do you think further future utilization of "Opportunity Cost Focused Thinking" in PMO tools and solutions will aid the team in advancing and maturing as a group?

Answered: 9   Skipped: 0

ANSWER CHOICES	RESPONSES	
A great deal	11.11%	1
A lot	55.56%	5
A moderate amount	33.33%	3
A little	0.00%	0
None at all	0.00%	0
TOTAL		9

Q4 If you were to recommend future areas to study and experiment regarding Opportunity Costs for the PMO in order to find ways to advance our team's maturity in a rapid fashion, what might be some additional ideas?

Response 1: I would definitely like to experiment using the GTM Demands and ideally even have the result displayed in SNOW if possible.

Response 2: If you mean other portfolios outside of F&A, and yet inside of ITS, I would suggest the portfolios with the biggest spend and therefore potential for impact. The numbers can guide us

Response 3: Maximizing returns

Response 4: Not related to OC but overall Teams maturity. It would be cool to host monthly PMI type brown bag lunch sessions where we'd review topics that we as a mature PMO should be covering as part of PMI.

Figure 19. PMO Survey two responses for questions 3 & 4.

4.8 IT PMO Executive Leader Testimony

Key to this Action Research project was a full testimony including detailed feedback and lessons learned from the IT PMO Executive Leader. This individual had been with the project since the very start, had been the single most involved partner at Company X and was also involved in the decision and analysis of all major components since project initiation. Due to the ongoing Pandemic, testimony was provided via WebEx during a video conference session. The format was similar to the earlier IT Executive interviews and was executed in a semi-structured manner. There was a total of eight prepared questions, however most had prompted additional lines of thought and comments on various aspects of the project as the interview was executed as expected in a semi-structured manner. The interview questions can be found in

Appendix J. The meeting was recorded into an MP4 file and then a transcript created by the website Happyscribe.com.

The following testimony is based on an output of that transcript and for NDA purposes, wherever the subject used the actual name of the company, a substitution of the alias Company X was used. Although the transcript service was highly effective, where the software was unable to capture the exact wording used due to audio quality, previous notes and materials were referenced by the research and corrections made. The final transcript as seen below was also sent to the IT PMO Executive Leader for review before final submission into this dissertation manuscript. Testimony is as follows:

[Researcher – Opening Statement]:

Welcome to our meeting! I'd like to first thank you for your participation as the head of the IT PMO during this project. Your partnership and support during this project have helped evolved the solution tremendously through constant feedback, professional insights, and access granted to the IT team. The purpose of this meeting is to do a wholistic review of the project, to understand your opinions and perspectives as to the experiment, and to discuss what elements of the project worked well and what could be optimized on future possible research efforts by others in the days ahead.

[IT PMO Executive Leader]:

I am happy to be here.

[Researcher]:

To start, I have a few opening questions just to dial us in and get the conversation going. This helps also provide some general background for purposes of establishing a little history. The first question is How Long Have You Now Worked at Company X?

[IT PMO Executive Leader]:

It's been…. Wow three years now. Yes, three years. Time flies.

[Researcher]:

Time does fly by quick! And how long would you say you have been in the Project Management field itself from a career length perspective?

[IT PMO Executive Leader]:

Hmm…that's hard to say; let me think. I would say at least 16 years in a dedicated Project Management capacity.

[Researcher]:

Awesome. Thank you for that. OK, let me jump now into some of the more targeted questions. For this first question, can you describe how the focus on Opportunity Cost during the budget review season has impacted the PMO? Ultimately in your professional opinion, has the added focus and the experiment as designed help to raise maturity, hinder efforts or was there any impact seen?

[IT PMO Executive Leader]:

So I think there's a couple of ways to answer this. Traditionally most organizations we look at new requests, new investments separate from operational spend. Right? So that's fine. When you're looking at the actual investment for something new it really is both. Oftentimes what you do is you're missing what's the impact that has on the actual run rate of the organization. So, when you look at Opportunity Cost, you say, OK, well, now I have a picture of saying that in addition to what is the new asks. Well, how does that impact on what I've already got on my plate? And that truly is the real cost of a program. In addition to what else am I not going to be able to do. So in other words, it's easy for someone to look at a project and go, well, look, the other way is a three year payoff that's within our window of pay off return. So we should go do it. Well, the answer is only "maybe" because maybe the next one's opportunity cost, maybe the next one has a payoff in two years. So which one really should you do? It's not as easy as to say, well, it stands on the merit of a new investment. There might be other factors. You have to look at it in terms of how it does affect the rest of the organization. That's why I think understanding our opportunity cost is key.

[Researcher]:

That's great, that's great and I do completely agree with you, if we look at it now from a forward facing kind of PMO picture, how do you see the team possibly applying that kind of thinking more when it comes to specifically the project selection process?

[IT PMO Executive Leader]:

So I view it as only part of it would be Project Selection. I think the other big one is on Resourcing. So what we'll be doing is using the opportunity cost to say having full

understanding of what the Opportunity Costs are, marry that to the actual investment costs, we will then resource what are the best projects that we should be doing. What are the ones that either optimize or minimize, depending on how you look at it, the opportunity cost for particular projects that we select.

You would think the scenario would be something like this if we look at two projects that almost on their own are equally valuable to the company, and then you could say, well, how do you come up with value and just build some metrics around? Let's say they're equally valuable. The one we're going to resource is the one where we're saying, has the least impact or the best opportunity cost associated with the rest of the organization's projects. That's the one we should pick. So, we're giving up the littlest amount to get the most. And that should be part of our normal cycle now as we look at projects that we have, we always have more than we can do. It's a matter of which one should we resource, the ones that we should resource are the ones that have equal value but the best opportunity cost.

[Researcher]:

Great. Thank you for all that. For these next questions, can you describe how you used the additional intelligence offered from the guided interviews and surveys completed with the Project Champions for projects in the Accounting, Finance, and Operations (APO) portfolio? Can you describe how that particular additional intelligence might have helped you out in the sense of, you know, did it clarify anything for you? Did that intelligence offer you any additional insights that you think were more valuable to you?

If you were to rate the value of that additional intelligence offered from a scale of one to five with five being the highest, what would it be?

[IT PMO Executive Leader]:

So yeah, I think there's two areas that come to mind and let's kind of put them into two different buckets. Bucket number one I think what the additional steps used on the project provided us with a heighted alignment with the business partners; no question about it. If you look at where the Finance and Accounting alignment for IT to the business the extra steps you conducted most certainly helped with that. No question the communication you provided back to the business and the data you had helped ensure alignment very quickly was much better than what we saw in the other areas. The other bucket is timing and I don't know how to turn timing into metrics. So instead of saying something is "really important" you are able now to see how everyone's important projects are versus everyone else's important project. And the verbs of the word "really" is important. When people say "really, really" well it must be more important than someone just saying "really". But that's not always true. Take a step back and take a look at some of your deliverables you created because we can all see which projects are actually valuable. That was based off of metrics and so it's clarity given if you want to call it that. So one case alignment, second case, certainly clarity. The piece that's still outstanding for future research efforts, I think still would something like what does that mean for decision making? I don't know, we'll see. In this review, how impactful the impact on decision making might be, because the other two though, I think we're really more important than that one to some extent.

[Researcher]:

Thank you very much I appreciate your comments. Can you go a little bit more into some of the ways that you think that this either benefits you or you're hoping that it will benefit to you in the days ahead?

[IT PMO Executive Leader]:

Yeah, so that's actually a good way to ask the question. There are probably two angles to it. So right now, not knowing what's to come right, what it does allow you to do is really understand what is that full scope and impact of a particular project which on paper looks really good, like we should do it. But having that other level of understanding in terms of, well, what am I not going to be able to do now? Because I've said yes to this project, which on paper is fantastic for the company. So having not looked at opportunity cost a lot in the past, that's an additional element of to some extent, comfort the other expense, say, are we making the right decisions because we have that other let's call it metric on opportunity cost. So I would say that certainly is the case from the accounting and finance side. If we can really take a look at and say, look, what is this going to mean for us when we say yes or no to some of these?

Now, what I would say in the future, I'll predict the future will be we'll have a much better understanding of what these are going to be as we go and develop these projects and what's the impacted areas. We're going to be a lot more proactive. And I was looking at saying, look, we know what the opportunity cost is, so we're going to hit it up right up front instead of being almost by definition reactive. We're going to be proactive because we've looked at it right from the beginning. So, we're going to say, look, we're going to

have to make some protections in these two areas because we know we're going to have an impact. There's an opportunity cost that we have in this particular space. We're not going to be able to do that thing. So now we have to figure out what's the gap that we have to cross. How are we going to bridge that gap?

Because we know we're going to we're going to create it with this pilot project. It's my anticipation and we will have a better overall success rate on these projects. And we'll be able to provide the business with more of that proactive kind of protection mechanism or at least awareness that says get ready for this because we know it's coming, the artistic sense, whatever degree it actually comes to fruition. But even one degree is going to be every degree that we can save and understand that that's that it is going to be a degree of benefit for the business.

[Researcher]:

Thank you very much for being as detailed as you're being. Now, if we were to go back in time and go back a year ago when the committee first signed off on this idea and approved the engagement of an action research project with the company to today when we were wrapping things up and what do you think we could have improved upon?

[IT PMO Executive Leader]:

I think realization and probably more of an expectation, so they back up. My guess is when you do these things, most people haven't experienced something like this before, like action research and going back to what I said earlier, you know, one of the things we should learn is we should probably do some of these not even necessary associate, of

course, with, you know, from a degree perspective. But we need to do these kinds of exercises to get people thinking differently.

But I think this knowledge of how the process works, in other words, you know, we started off with an idea and we took the idea several times by saying, hey, you know what, it maybe this leads to this and this now is a better thing to focus on. So I think understanding at the beginning that there's a normal progression towards getting the actual focus area aligned is something you just have to know to expect. That you're going to go through an idea and then a smaller idea and then a more targeted idea and then a focused amount of effort.

I just kind of kept on going down into what have we actually what's the biggest value we can achieve? I think understanding about the beginning would have been good. I think maybe the only other thing would be maybe along the lines of doing more of a formal, like quarterly sync up and engaging some other folks. And we did that a little bit, but I think we could have probably done a little better at saying, hey, let's make sure on a quarterly basis we've got this, you know, we're going to cover these three or four things so people can kind of follow along the math, though. I think it's I think it's good.

[Researcher]:
Do you feel that a business partnership involving the project champions when it comes to maturing processes within the PMO is something that you think might have helped us if we did that at the very beginning of the project? Or do you think that that meant that maybe or maybe not would have been a good thing for us when we look at this project?

[IT PMO Executive Leader]:

For this particular project what I would say is because we had a defined task that we were doing, research that we were doing and frankly speaking, one of the biggest values coming out of it would benefit on the business side. But I don't think we needed them to be involved from the start to make the process more successful because, again, it might just be because of this particular the guidepost that we set up for this.

I think adding the business earlier probably would have slowed the process down and I'm not sure we would have had a lot more value that we would have generated at the end. Appropriate to focus on the PMO team and just because of the nature of the research project itself and the focus there of being the PMO, and we all know the business and we're fairly adapt to understanding the business around us because what we do I think it worked.

[Researcher]:

This last question here, I believe you've probably already answered this quite a bit earlier, but is there's anything else on opportunity cost thinking that you think could be leveraged by the PMO team in the years ahead?

[IT PMO Executive Leader]:

We mentioned some before about what the value is kind of going forward, how we're going to incorporate it. And I think to me, you know, having gone through this, looking at opportunity cost, it's got to be somehow put into the cycle of saying what is the true cost and value of a particular project going forward. In other words, you can't not think

about the opportunity cost any longer, whereas in the past, I would argue and I've done it myself, where you say on the merits of a new project, should we do it or not.

That's only some of the story. The other part of the story is what are you impacting by doing this. And maybe something is more valuable. But I think the other second thing that's interesting is, does it almost necessitate something else that we need to do in a similar format, looking at the actual costs of a project. In other words, going through this exercise, one of the things is you realize is that you can spend more time, more focused effort on certain areas like opportunity costs.

And one would almost argue, well, if that's the case there, it's probably exactly going to be the same case for hard costs. And spending more time looking at our why and spending more time looking at what are components like, what is the actual return and when is that return and, you know, the spend versus the cost reductions, the efficiency gains, how do you put that into a metric? The run rate changes. How do you look at?

I think it almost necessitates a look at the other direction going well, opportunity cost then the other side of this is the actual hard cost. I think we need to look at it because I don't think we do a great job at saying, here's this project and it's going to cost us a million and a half dollars and it's a half a million dollars in licensing and it's a million dollars in labor to implement it and to run it for three years. And we don't do a good enough job of saying, well, now let's really dig into that and figure out what's that total value of the company over the course of that three years, because it's not just those two pieces. I think we've opened up a Pandora's box but I view that as a very good thing.

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Chapter 5 Conclusion

5.1 Summary & Generalizability of Findings

The purpose of this Action Research project was to examine methods that could rapidly and positively impact maturity within an IT Project Management Office. The first chapter served to educate the reader in the foundational elements that all played a part in the execution of this study. It provided context and history on the target of the study which was a massive global technology corporation referred to by the alias Company X. The story of Company X and the new fledgling IT Project Management Office that was caught in a storm of transformational change was somewhat unique and provided an environment for the Researcher to provide value to the group while looking at ways to expand the academic body of knowledge. Chapter one also provided a very brief overview of Action Research which was explained in further detail in the review of the literature as seen in chapter two. It also served to provide information on the scope of the project, assumptions, and defined project success.

Chapter two provided a review of the literature within the field of project management. Here, prior research was reviewed along with three, currently used, maturity models. It also provided information on the structures, main deliverables, and general usage of these models. This chapter touched upon the concepts of project failure and analysis which is tremendously important in project management today including providing statistics, facts, and figures derived from an industry leader in understanding and evaluating projects. The literature review then provided additional details into the origins of Action Research as well as touched upon the Iron Triangle which is seen as

one of the foundations of project management today. The chapter concluded with a review of opportunity costs which would be key for the study of Company X.

The purpose of chapter three was to review the research methodology. The chapter explored the specifics of how research, experimentation, data gathering, use of applications, and project management practices, and possible measures of success were to be employed during the course of this study. This chapter also reviewed some of the assumptions held about the research methodology, known or anticipated limitations of the study, as well as touched upon the ethical considerations that were kept in mind by the Researcher throughout the course of the study.

Chapter four provided additional detail regarding the experiment that was executed at Company X. It reviewed the steps involved in the gathering of data, the analysis of the information, and the review of possible areas of experimentation that could bring about maturity in a needed area for the PMO. It then discussed the applications and tools created for use by the IT PMO Executive Leader and the maturity "lens" that the PMO was using, which in this case, was the OPM3 from the Project Management Institute. The chapter reviewed the potential to expand the body of knowledge via a novel addition of the OPM3 by a targeted focus on the area of opportunity cost. The chapter concluded with sections discussing the training and surveying of the IT PMO members on the area of opportunity cost as well as the testimony to the success of this study as observed by the IT PMO Executive Leader.

This Action Research effort was ultimately about people, their processes, group history, challenges, and the experimentation of a novel way to drive maturity in an area that was important to the team. This group needed help and this project sought to provide it using sound, scientific techniques. The data and lessons learned from

studying the PMO and the impact of the experimentation conducted would also provide material so that the body of knowledge in this field could be expanded. Although the project dealt only with one PMO at a company that was is in the technology sector, it has the ability to be leveraged by other types of PMOs. As such, the ability to generalize this study across different industry and academic fields has a high level of potential as the need to understand opportunity costs while working in the Project Management domain is universal.

5.2 Opportunities for Future Study & Application to PM Practices

The project management field has a desperate need for improved performance as seen in literature reviewed previously in this dissertation. As IS / IT departments are becoming increasingly important to corporations the world over, corporate leaders will continue to be looking to those departments for critical tools and solutions. The professionals leading the charge to drive changes will be the Project Managers of the world. The domain of a Project Manager is multifaceted and is as much an art form as a science. Many tools, techniques, and solutions are leveraged by today's Project Managers in order to help them be as efficient and effective as possible. It is important however to recognize that these solutions need to be continually updated to prove useful and research efforts such as this are intended to provide an example.

As such, Researchers could explore further the concept of opportunity cost especially if they align to one specific line of thinking: *working on the right projects at the right time is a solid foundation to help increase the value of a PMO.* This means that PMOs working on projects where the opportunity costs have been fully evaluated and understood stand the best chance in increasing their team's value to a company.

Using this model of project selection, they are less likely to be working on projects that are of far less value than others. As an expansion and reflection of best practices, this in itself would be a quantum leap forward for project managers everywhere by ensuring their time and the time of their project teams are working on the most valuable of efforts for their organizations.

5.3 Reflections & Conclusion

I have worked in the IT Project Management domain for many years. I have been fortunate to lead projects on six continents across countless countries and there is one facet of this field that I have always cared the most for and that is *helping people succeed*. Working on this research endeavor has truly been a humbling and enriching experience because it taught me new ways to do exactly that. By being able to examine a level of detail to understand things to a greater extent, to be able to approach solutions in new ways that are grounded in scientific principles, and to be able to apply experiments and solutions designed to help, is something I'm eager to do more of in the future.

This Action Research effort just scratches the surface however of a much larger problem that is facing PMO teams everywhere. If Project Managers acknowledge that there are better ways of evaluating and selecting projects to be worked on by the team, and that perhaps leveraging opportunity cost thinking into their models of project selection is beneficial, it provides them an additional solution that could be impactful. This study demonstrates that there are many beneficial ways AR can work to improve IT project management and expand the body of knowledge.

Appendix A: RACI

Description	**Phase: Initiation.** In this phase we have moved past Dissertation proposal acceptance and have now begun interfacing with the target company (Company X). Key to this stage is discussion, surveying and documenting of the main problems or hinderances being seen resulting from the practices of Project Management for Company X's IT PMO.
Created On:	July 2019 Revision: **July 2020**
Created by:	**Matthew Muga, Researcher**

R = Responsible, A = Accountable, C = Consulted, I = Informed

	Dissertation Chair	IT Leadership Team Members	IT Managers	IT PMO Members	Dissertation Committee Team	Sample Test Team Member(s)	Researcher
Construct a survey focused on assessing current PMO maturity	A				C	I	R
Test and validate survey using test team member(s) and refine as needed	I					A	R
Validate test survey's findings using an accepted analysis tool/method	A						R
Execute Survey with IT Mgmt & PMO Team Members; Assess Results	I	I	R	R	I	I	R
Review results and build findings report for review / sign off by Dissertation Chair	A				C		R
Construct an Interview for use with the IT Leadership Team Members	A				C		R
Test Interview with sample team member(s)	I					A	R
Execute Interview with IT Leadership Team and Assess Results	C	A			C		R
Review interview results and build findings report for review/ sign off by Dissertation Chair	A						R
From surveys and interviews, develop a list of the top candidate areas showing lack of maturity within the PMO	I				I		R / A
Quantify and Qualify those top candidate areas	I				I		R / A
Review the candidates list with the Steering Committee	A				A		R
Review the candidates list with the IT Leadership Team for Discussion and Sign off on single candidate to pursue for experimentation	C	A			C		R
Finish documenting and additional specifics on the candidate and close Initiation Phase	I				I		R / A

Appendix B: Scripts for Recruiting

Scripts for Recruiting – Materials Delivered to IT Managers, PMO Members, and IT Leadership

Overview

I will be approaching the following classes of members of the IT department and looking to enlist their participation in the project. These include:

IT Managers – Front line team managers who oversee the subject matter experts of the department. Each manager has a team of anywhere from 6-20 individuals and can include IT areas such as Networking, Salesforce.com development, Desktop Repair, Business Applications support, and more. These individuals will participate in the beginning of the project by Electronic Survey.

IT Project Managers – These are the individual Project Managers currently working for the IT Project Management Office (PMO). Each Project Manager covers a specific area of the department ranging from Finance & Accounting Systems, Infrastructure, HR & Legal Systems, Cybersecurity, and more. These individuals will participate in the beginning of the project by Electronic Survey.

IT Leadership Members – These are the individual department leads that oversee the different arms of the IT department. These are Executive level members and cover areas such as IT Strategy, IT Applications Development, Infrastructure, Architecture,

and the Chief Information Officer (CIO). These individuals will participate in the beginning of the project by Semi-Structured in-person interviews.

Recruiting Script (Draft):

[Opening Statement for Everyone] Hello! I am approaching you today to ask for your participation in a new Action Research project endeavor for our department that is focused on the IT Project Management Office (PMO). As you know, we have several very large, transformational projects that our department is gearing up to do in 2020 and by ensuring we have our IT PMO working as effectively and efficiently as possible serves everyone's betterment at our company. I am interested in finding ways to achieve optimal results in as rapid and straightforward ways as possible and would like your opinions and thoughts on how we can achieve this. Your participation in this endeavor is entirely voluntary.

[Next Paragraph if IT Manger or IT PMO Member] You will receive from me an electronic survey. This survey will not contain your individual information such as your name rather your area of focus in our department. This survey will be used to probe your current usage of the PMO as either a consumer of PMO services or as a provider of those services. From there it will ask you questions that deal with areas of usage, areas that might be going well, and areas that we need to develop. At the end of the survey you will be given an opportunity to include any additional comments or thoughts you feel might be useful for our study.

[Next Paragraph if IT Leadership Member] You will receive from me an Outlook meeting request scheduled for 60 mins. The meeting will not be recorded and will be a 1:1 discussion using a set of semi-structured questions meant to probe deeper into issues related to the PMO. We will first establish your usage of the PMO, your involvement in previous projects, expectations of the Project Managers as we move forward, and your thoughts on where the team is doing well and where might be areas to improve in the days ahead. Your involvement in this interview is voluntary and only your title will be captured for the written materials moving forward.

[Closing Paragraph for all Members] Please let me know if you would be willing to participate in this study and if you have any questions for me at his time. Thank you!

Appendix C: Electronic Survey for IT Managers & IT PMO Members

The following was delivered via the online survey tool Surveymonkey.com to members of the IT department who were IT Managers involved with Services or Applications as well as members of the PMO.

Opening:
Hello! Thank you for agreeing to participate in this survey. Your survey responses will help our PMO team immensely in exploring areas where we can advance and grow. As you know, our ability to effectively plan and execute projects is going to be even more important in the years ahead as our company continues to expand. Your responses are anonymous and we greatly appreciate your feedback.

1. Which ITS Team Are You a Member?
   ☐ PMO
   ☐ Applications
   ☐ Infrastructure
   ☐ Services & Support
   ☐ Other

2. How often do you work with the ITS Project Management Office (PMO)?
   ☐ Very Often
   ☐ Occasionally
   ☐ Seldom
   ☐ Never
   ☐ I am a member of the PMO

3. How complex are the projects that you work on?
   ☐ Very Complex
   ☐ Somewhat complex
   ☐ Not very complex
   ☐ Not complex at all
   ☐ Not applicable

4. How engaged are you in Strategic Projects (aka Pillar Projects)?
   ☐ Very Engaged
   ☐ Engaged
   ☐ Somewhat Engaged
   ☐ Not Engaged
   ☐ Not Applicable

5. How would you rate the usefulness of Communications coming from the ITS PMO Management team in regards to informing on activities within the Portfolio?
   ☐ Extremely useful

☐ Somewhat useful
☐ Not so useful
☐ Not at all useful

6. How Long Have You Been Working at Company X ITS?
☐ 0-6 Months
☐ 6-12 Months
☐ 12-18 Months
☐ 18-24 Months
☐ 24+ Months

7. How involved are you in the planning and tracking of project budgets?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

8. How would you rate the value of the Demand Management process as it relates to getting your project ideas reviewed and approved for assignment to the PMO?
☐ Extremely valuable
☐ Very valuable
☐ Somewhat valuable
☐ Not so valuable
☐ Does Not Apply - I do not use Demand Management

9. Rate the overall value you place on Project Managers obtaining industry certifications such as PMP , Scrum Master, and Lean Six Sigma Blackbelt to more effectively work on your projects.
☐ Extremely valuable
☐ Very valuable
☐ Somewhat valuable
☐ Not so valuable
☐ Not at all valuable

10. Please rate the level of Professionalism of the Project Managers with whom you work the most.
☐ Extremely professional
☐ Very professional
☐ Somewhat professional
☐ Not so professional
☐ Not at all professional

11. How often do your projects get delivered on time?
☐ Always
☐ Usually
☐ Sometimes

☐ Rarely
☐ Never

12. How often do you see "scope creep" on your projects?
☐ Always
☐ Usually
☐ Sometimes
☐ Rarely
☐ Never

13. How would you rate the PMO's effectiveness at projecting accurate budget needs at the onset of a project?
☐ Extremely effective
☐ Very effective
☐ Somewhat effective
☐ Not so effective
☐ Not at all effective

14. In your estimation, how engaged are Project Managers with Project Champion(s)?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

15. How would you rate the effectiveness of the PMO as it pertains to the planning of a project?
☐ Extremely effective
☐ Very effective
☐ Somewhat effective
☐ Not so effective
☐ Not at all effective

16. How would you rate the PMO's effectiveness when it comes to the tactical execution of projects once the project is underway?
☐ Extremely effective
☐ Very effective
☐ Somewhat effective
☐ Not so effective
☐ Not at all effective

17. How would you rate the PMO's effectiveness as it pertains to the closing activities on a project?
☐ Extremely effective
☐ Very effective
☐ Somewhat effective
☐ Not so effective

☐ Not at all effective

18. How would you rate the value of the services provided by Project Coordinators on project efforts?
☐ Extremely valuable
☐ Very valuable
☐ Somewhat valuable
☐ Not valuable
☐ I do not work with Project Coordinators

19. In a few sentences or less, if you had to describe an area where the PMO is doing well, what would it be and why?

20. In a few sentences or less, if you had to describe an area that you feel the PMO is in need of rapidly maturing in order to better support your project needs, what would it be and why?

Appendix D: IT Leadership Guided Interview Questions

Opening Statement: Welcome to our meeting. As we discussed previously, the purpose of this in-person interview is to review with you as a member of our IT Leadership Team areas of IT Project Management at our company. Your attendance here is voluntary and your individual name will not be used in my written reports and/or findings, but your title will be referenced along with the other Leadership team members when key themes/areas of Project Management that can be improved upon are proposed. Our interview is scheduled for up to 60 mins and I will be taking notes during our discussion. To start, I'd like to open with (3) questions on background before moving to the main body of questions to discuss Project Management issues

1. What is your title and role in IT?

2. How long have you been at Company X?

3. How frequently do you use the services of the IT Project Management Office (PMO)?

Main Questions:

1. Can you describe the type of projects your team works on? (Possible probing follow-up questions on size, cost, number of users impacted, strategic vs. tactical projects)

2. What is your dependency on the IT PMO today? How about in the future? (Possible probing follow-up questions on which PMs they engage in the past, what PMs they might need for 2020 projects,

3. Can you describe how you first engage with the PMO when a project need arises? (Possible probing follow-up questions on scheduling, project candidate validation, methodology used to formal request resources from the PMO, expectation at the onsite of an engagement)

4. Can you describe your level of involvement when projects are launched? (Possible probing follow-up questions on phases of the SDLC and their involvement throughout, their role in budget creation and funding, their formal commitments form the PMO)

5. What are your expectations for Project Managers assigned by the PMO to your projects? (Possible probing follow-up questions on professionalism, reporting, budgets, communication methodology)

6. What tools and solutions do you depend on from the PMO today? (Possible probing follow-up questions on fit-to-function, usability, UX, improvement possibilities)

Appendix E: Original Interview Questions for AFO Project Champions

Question Set 1: Strategic Alignment (0-5 Scale with 5 being the highest)

1a. What level of impact does this project have on a strategic corporate initiative? (Score)

1b. What is the level of importance to the success of that strategic corporate initiative? (Score)

2a. What level of impact will this project have in on the core job requirements for the targeted users? (Score)

2b. What level of increase in job satisfaction is expected from the user community? (Score)

3a. What level does this project expect this increase business process consistency and business process optimization? (Score)

3b. What level of increase is expected in consistency, accuracy and performing to the speed of the business? (Score)

4a. To what level does this project impact (1) managing and closing Sales, (2) provide professional services, (3) support enabling our Customers, (4) assist in processing and collecting revenue from Customers? (Score)

4b. To what level does this project impact the Company's prime strategic objective of "Cloud First"? (Score)

Question Set 2: Risk (0-5 Scale with 5 being the highest)

5a. How susceptible is this project to time delays given concerns about resource availability or competing projects expected to be in-flight? (Score)

5b. How dependent is this project and its deliverables on other projects being completed before launch? (Score)

6a. To what level does this project address a compliance & regulatory requirement? (Score)

6b. How likely would a government-imposed penalty if we don't execute the project? (Score)

7a. To what level does this project require additional infrastructure, application expansion, or business expansion? (Score)

7b. To what degree Does this project require additional IT support not currently provided? (Score)

8a. To what level does project help remediate or reduce an enterprise risk? (Score)

8b. To what level does this project help remediate or reduce an information security risk? (Score)

Appendix F: Original Scored AFO Project List with Cost Projections

Project Name	Overall Strategic Score	Overall Risk Score	2021 Estimated Project Cost
IPP Host Replacement	4.25	2.875	225000
New Contracts Management Solution - Procurement	3.5	1.625	150000
New Travel & Collaboration Tool	2.25	0.75	30000
Retire Cellular Lookup Tool	2.75	1.125	1000
Retirement of TD Store	2.75	1.125	1000
SNOW Optimizations - Procurement	2.75	0.75	1000
Relaunch of CPQ	2.625	1.625	1000
Collections - Full Global Cash Automation	3.625	0.5	1000
Collections - Dashboards and Workflows	4.125	0.875	130000
TOMG - SFDC to ERP	5	1.125	1000
TOMG - Invoice Distribution Center	4.5	1.25	175000
TOMG - Mandatory Compliance Items	2.5	2.375	300000
AP/T&E - Internal Process Optimizations	3.25	0.5	82000
AP/T&E - IDW Optimizations	2.625	0.375	1000
AssureNet Upgrade/Replacement Project	2.875	1	63000
Trident Replacement	1.875	1.625	150000
Treasury Management System	4.375	2.5	83000
Callidus - Reporting Optimization	3	0.375	25000
Callidus - Dashboard Enhancements	3	0.375	15000
Callidus - Manual Transaction Tool	2.5	0.5	40000
Callidus - Agreement Acceptance	1.375	0.375	15000
Callidus - SIP Payment Cycle A vs. Cycle B Finalization	1.75	0.375	1000
Callidus - Planner Access & Automation	1.5	0.625	1000

Appendix G: Final Scored AFO Project List

Project Name	Overall Strategic Score	Overall Risk Score	2021 Estimated Project Cost
IPP Host Replacement	4.25	2.875	225000
New Travel & Collaboration Tool	2.25	0.75	30000
Collections - Dashboards and Workflows	4.125	0.875	130000
TOMG - Invoice Distribution Center	4.5	1.25	175000
TOMG - Mandatory Compliance Items	2.5	2.375	300000
AP/T&E - Internal Process Optimizations	3.25	0.5	82000
AssureNet Upgrade/Replacement Project	2.875	1	63000
Trident Replacement	1.875	1.625	150000
Treasury Management System	4.375	2.5	83000
Callidus - Reporting Optimization	3	0.375	25000
Callidus - Dashboard Enhancements	3	0.375	15000
Callidus - Manual Transaction Tool	2.5	0.5	40000
Callidus - Agreement Acceptance	1.375	0.375	15000
P-Tool Replacement	3.5	0.75	250000
Expanding Process Automation - RPA	4.25	1.625	150000

Hello! You are being asked to participate in a survey by Matt Muga. This survey is about the subject of "Opportunity Cost". Its results will be used for both internal team purposes as well as for an action research project through Claremont Graduate University which will be a part of Matt's Dissertation studying methods of maturing our PMO. Your name will not be used in any material or supplied to Management, only your scores and comments will be utilized.

According to the popular business terminology website www.businessdictionary.com , Opportunity Cost is "a benefit, profit, or value of something that must be given up to acquire or achieve something else. Since every resource (land, money, time, etc.) can be put to alternative uses, every action, choice, or decision has an associated opportunity cost. Opportunity Costs are fundamental costs in economics and are used in computing cost benefit analysis of a project. Such costs however are not recorded in the account books but are recognized in *decision making*".

Question 1:
How familiar are you with the concept and use of "Opportunity Costs" when it comes to understanding tradeoffs for IT projects for things like budget allocation or staff resourcing between competing projects?
☐ Extremely familiar
☐ Very familiar
☐ Somewhat familiar
☐ Not so familiar
☐ Not at all familiar

Question 2:
How familiar are you with the Project Management Institute's (PMI) framework OPM3?
☐ Extremely familiar
☐ Very familiar
☐ Somewhat familiar
☐ Not so familiar
☐ Not at all familiar

Question 3:
In past careers, to what level did your organization embrace the concept of Opportunity Cost in order to help guide decision making for the IT PMO?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

Question 4:
To what level do you think understanding and finding ways to employ elements of Opportunity Costs could positively impact your job here in the PMO?
☐ A great deal
☐ A lot
☐ A moderate amount

☐ A little
☐ None at all

Question 5:
To what level do you currently observe decision making at the PMO which is grounded in Opportunity Cost thinking and approaches?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

Question 6:
How familiar are you with the process of Executive Budget Reviews by PMO Leadership and its impact on project selection for the department?
☐ Extremely familiar
☐ Very familiar
☐ Somewhat familiar
☐ Not so familiar
☐ Not at all familiar

Question 7:
Do you think there are additional areas within the IT PMO where the concept of Opportunity Cost could aid in the efficiency and effectiveness of the group? Please comment below:
[TEXT BOX USED FOR COLLECTING FEEDBACK]

Appendix I: IT PMO Survey Two

Closing PMO Survey: Post Opportunity Cost Workshop Thoughts and Ideas

PMO Team – I'd like to thank all of you for participating in our discussion today exploring the subject of Opportunity Costs and its impact as a mechanism for driving maturity within the PMO. To close out with the team, I'd like to ask each of you to please take the following brief survey. I have also included a section at the end of the survey for any notes or comments you would like to provide on this subject. Thank you again for participating.

Please rate the below responses from 1 (Low) to 5 (High)
Question 1:
How familiar do you feel now regarding the concept and understanding of "Opportunity Costs" as it related to Projects?
☐ Extremely familiar
☐ Very familiar
☐ Somewhat familiar
☐ Not so familiar
☐ Not at all familiar

Question 2:
How familiar are you with the Project Management Institute's (PMI) framework OPM3?
☐ Extremely familiar
☐ Very familiar
☐ Somewhat familiar
☐ Not so familiar
☐ Not at all familiar

Question 3:
To what level do you think utilization of "Opportunity Cost Focused Thinking" in PMO tools and solutions will aid the team in advancing and maturing as a group?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

5. High level
Question 4:
To what level do you think the approach to understanding Opportunity Cost and the tradeoffs involved in project selection during our annual budget season will aid the team in maturing PMO processes in the future?
☐ A great deal
☐ A lot
☐ A moderate amount
☐ A little
☐ None at all

Question 5:
If you were to recommend future areas to study and experiment regarding Opportunity Cost for the PMO in order to find ways to advance our team's maturity in a rapid fashion, what might be some additional ideas?

Question 6:
Thank you again for your comments and participation in this study. Please feel free to share any closing thoughts on the process, the experimentation, ideas for improvement, etc., in the below text box:

Appendix J: Exit Interview Questions for IT PMO Executive Leader

Opening Statement:

Welcome to our meeting. I'd like to first thank you for your oversight and participation as the head of the IT PMO during this project. Your partnership and support during this project have helped evolved the solution tremendously through constant feedback, professional insights, and access granted to the IT team. The purpose of this meeting is to do a wholistic review of the project, to understand your opinions and perspectives as to the experiment, and to discuss what elements of the project worked well and what could be optimized on future possible research efforts by others in the days ahead.

1. How long have you now been at this Company?
2. How long have you now been in the Project Management field?

Main Questions:

1. Can you describe how the focus on Opportunity Cost during the 2021 budget review season has impacted the PMO? Has the focus helped, hindered, or not impacted the PMO team?
2. Can you describe how you used the additional intelligence offered via the guided interview and surveys completed with the Project Champions for projects in the Accounting, Finance, and Operations (APO) portfolio? If you were to rate the value of the additional Intelligence offered from a scale of 1-5 with 5 being the highest, what would it be?
3. What part(s) of the Action Research effort did you feel were the most beneficial to yourself? How about to the PMO Team?

4. What part(s) of the Action Research effort do you feel could be improved upon for future study?

5. What might be future incorporations of "Opportunity Cost Thinking" that could be leveraged by the PMO team in the years ahead?

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