THE EFFECT OF PERFORMANCE TRACKING AND FINANCIAL OBLIGATION ON PERFORMANCE INDICATORS BY THE PROJECT MANAGEMENT OFFICE

by

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Abstract

Organizations are making sizeable investments into project management, but research has shown that one is better off betting on a roulette wheel then on projects. Poor results like these have led enterprises to implement a project management office (PMO), which have garnished worldwide attention as a hopeful means of helping businesses improve project performance. Unfortunately, PMOs often struggle during implementation to obtain the necessary traction they require to prove they can make a valuable contribution to successful project outcomes. This study gathered data in order to determine if performance tracking, performed by a PMO, would lead to improvements in project and program performance index (PI) results. In addition, the level of financial obligation associated with various projects and programs examined what impact different levels of obligation would have on project and program PI results. Finally, the data determined if there was an explanatory and predictive relationship between fully tracked and partially tracked projects and programs, along with the level of financial obligation, on these projects and program's PI.

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CHAPTER 1. INTRODUCTION

Introduction to the Problem

Organizations are beginning to recognize the influence that project management has on the achievement of their strategic vision. As noted by the Project Management Institute (PMI) (2013), projects have become the driving force in delivering market demands, strategic opportunities, social needs, and technological advancements, to name a few. Despite the many advantages that project management can deliver, there exists the risk of a high rate of project failures eclipsing these benefits. The Standish Group (2010), in their Chaos 2009 Summary Report, highlighted the sobering reality that 68% of projects failed to achieve their triple constraint requirements of delivering on time, on budget, and with the intended features and functions. Even more alarming was the rate of IT project failures. A number of publications have estimated IT projects flounder as much as 90% of the time in delivering on their triple constraints (Cerpa & Verner, 2009; Engle, 2005; Grenny, Maxfield, and Shimberg, 2007). These results led Keil and Mahring (2010) to note that IT projects can resemble a black hole where vast amounts of time and money often disappear, leaving little to nothing to show. These black holes have proven to have very large appetites. Grenny et al. (2007) reported that the US spent $255 billion per year just on IT projects, with the results being more than a quarter of them ending in failures or cost overruns. Hence, these authors asserted that one is better off betting on a roulette wheel than on an IT project.

Poor results like these have led organizations to consider implementing a Project Management Office (PMO). PMI (2013) described the PMO as an organizational entity intended to govern projects under its domain. As argued by do Valle, Silvia, and Soares (2008), PMOs have garnished worldwide attention as a hopeful means of helping businesses improve their

project performance. However, despite their growing popularity Aubry, Hobbs, and Thuillier (2009) highlighted that the concept of a PMO is fairly new and that it is still unstable and evolving, thus many have failed to gain traction within organizations. Singh, Keil, and Kasi (2009) also reported the trend where three quarters of PMOs shut down in the first three years, insisting the issue was that PMO activities failed to produce sufficient business value.

Of the various activities a PMO can perform, PMI (2013) recognized that one key consideration is the tracking and reporting of the performance index (PI) of projects and programs under its domain, which is the difference between stated goals and actual outcomes. Furthermore, Devine, Kloppenborg and O'Clock (2010) claimed that when it came to tracking performance, both financial and non-financial considerations were requirements in determining project success. Thus, this study explored the effect of the level of performance tracking and the size of monetary obligation, to understand the impact they would have on the PI of projects and programs. This in turn could determine how much consideration a PMO should give to these factors when governing projects. This understanding could also help to resolve the issue reported by Aubry and Hobbs (2011), that there is simply no consensus among the project management community on any particular activity that a PMO should perform to heighten its organization value. Hence, a study on how these factors might affect a project and program's PI could prove to be substantive to PMO knowledge, and to organizations, particularly when projects and programs account for billions of dollars. In addition, this new knowledge could help justify if these activities might raise a PMO's functional value, particularly in the initial years, when it is fighting to survive.

Background of the Study

The evolution of PMOs, according to Kezner (2003), began in the middle of the twentieth century to manage the defense industry's large complex projects. As project management practices matured, Rad (2001) reasoned that organizations followed the defense industry by utilizing a PMO when they recognized that their projects were running poorly or completely off target. Despite the growing popularity of the PMO that ensued, do Valle et al. (2008) contended that dedicated literature on PMOs only began to appear in 2003. Unfortunately, Hobbs and Aubry (2007) argued that consultants produced much of this literature, and that PMO practitioners claimed to know how to construct and run a PMO, yet their conclusions were questionable in terms of credibility and reliability.

Eventually, a call for more scientific PMO studies began to occur, which among other things, looked to determine how PMOs should function, and what value they should be generating. According to Julian (2008), one key function a PMO can deliver is to help projects from running out of control. When the Standish Group (2010), in their Chaos 2009 Summary Report, examined how well projects were functioning compared to previous years, they highlighted a downward spiral in projects delivering on their requirements of being on time, on budget, and with the required features and functions. Nelson (2007) offered one possible explanation for poor project outcomes when he reasoned that projects, especially those related to IT, had run out of control, which resulted in losses worth billions. The main culprit, Nelson contended, was the belief that the projects would manage themselves.

In project management's early evolution it may have been that the slow paces of change made it appear that projects could run themselves, but as Saynisch (2010) explained, the world is encountering a dramatic acceleration in technologies that are new and very complex. These

changes in complexity, Henrie and Sousa-Poza (2005) argued, are translating into projects that are increasing in intricacy, which is forcing project managers to have to head back to the drawing board when changes occur.

Some believe that once the development of a scope definition and charter creation occurs, all that remains is to deliver this scope, on time, and on budget. However, Collyer, Warren, Hemsley, and Stevens (2010) attested that arresting the scope of a project is rather unrealistic in an ever increasingly dynamic environment. Freezing the scope can be difficult at times, but constant changes make the exercise of properly resourcing projects even more problematic. As highlighted by Petit and Hobbs (2010), the repositioning and re-evaluation of resources is required in order for the project to adapt to the new environment. The complexity of changing projects and the difficulty it creates for resourcing can be unsettling for project management, as noted by Nelson (2007), who reasoned that a vast number of project missteps were the result of process or people, instead of technology being the villain.

When Müller, Martinsuo, and Blomquist (2008) analyzed failing projects they realized that there was a direct correlation to a lack of good communications. In addition, Ramsing (2009) reinforced that communication was the key that generated project success. Engle (2007) went one-step further to dictate that a dramatic reduction in high failure rates of IT projects could result if PMO leaders properly reported the progress of these IT initiatives. In fact, reporting project progress and measuring return on investment, according to Hanley (2007), is what spurs many organizations to initiate a PMO. Furthermore, Hobbs and Aubry (2007) disclosed that the majority of a PMO's responsibility is to report project status to senior management. This reporting responsibility, according to ISACA (2012), is one of the fundamental requirements of

good governance, and that good governance is ultimately the PMO's obligation, according to Aubry, Müller, and Glückler (2011).

Statement of the Problem

Despite the high hopes organizations place on PMOs to deliver value, PMOs typically struggle just to survive, and there appears to be little to no agreement on how they should go about governing projects and programs under their authority. As reinforced by Aubry and Hobbs (2011), there is simply no consensus among the project management community on how a PMO might conduct project performance assessments in a manner that ultimately produces PMO value. As argued by Aubry et al. (2009), PMOs are still unstable and evolving, thus many have failed to gain traction within organizations. Hence, a study on project performance tracking, along with an understanding how the program's level of financial obligation can affect PI, could prove to be substantive to PMO knowledge and to organizations, especially when projects and programs account for billions. In addition, this new knowledge could help justify the PMO's organizational value, particularly in its initial years, when it is fighting to survive.

Purpose of the Study

The purpose of this non-experimental quantitative records-based research was to test if modifying project and program performance tracking would have an influence on their PI values, and to determine the relationship between various levels of financial obligation and the project and program's resulting PI.

Fully tracking (measure) and partially tracking, along with the level of financial obligation were the independent variables. The project and program's PI was the dependent variable.

As argued by Aubry et al. (2009) PMOs are still undergoing massive changes, thus many have failed to gain traction within organizations. Furthermore, Aubry and Hobbs (2011) revealed that the questioning of PMO worth occurred in approximately 50% of organizations, and that there is no consensus among the project management community on how a PMO might govern project performance assessments in a manner that ultimately produces PMO value.

This research planned to contribute to the field of project management by determining how performance tracking and levels of financial obligation influenced the PI scores of projects and programs under a PMO's domain. Thus, the results could provide answers on how a PMO might conduct project performance assessments in a manner that ultimately produces PMO value.

Rationale

When considering the rationale of a study, Vogt (2007) reminded us that a proper research design should collect relevant evidence needed to answer the research question. The research questions in this study sought to gain an understanding of how the degree of PMO performance tracking and level of financial obligation could affect the PI of projects and programs under a PMO's domain.

When comparing how a PMO functions it became apparent that it is nearly identical to the function of the U.S.A. Government Accountability Office (GAO). Since the GAO and the PMO both contended that their responsibilities were to track performance of projects and projects under their domain, the GAO served the purpose of providing a reasonable examination of PMO measures. Therefore, the publicly available government data within the GAO August 2012 Report helped to provide an understanding of how the frequency of GAO performance tracking could affect the PI of projects and programs under a PMO's domain as well.

Research Questions

This study endeavored to advance the research performed by Aubry, Hobbs, Müller and Blomquist in *Identifying forces driving PMO changes* (2010). Their study argued that PMO routines and processes needed modification in order to improve its performance and often internal or external factors could lead to this transformation. Hence, this study looked to expand on their work by determining if the frequency of project and program performance reporting, and/or the level of financial obligation, would have an impact on the PI scores of projects and programs. Furthermore, this study examined how much of an explanatory and predictive relationship the reporting frequency, and level of financial obligation, would have on these scores. Thus, this led to the following three questions:

1. Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives?
2. How do various levels of financial obligation, affect a project, and program's PI scores?
3. Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index?

Significance of the Study

The significance of this study was to address the issue that there is no consensus among the project management community on how a PMO should govern projects and programs in a manner that ultimately produces PMO value, as noted by Aubry and Hobbs (2011). Therefore, a study exploring the influence of modifying performance tracking, and how the levels of financial obligation relate to PI, could also help the PMO overcome its most significant challenge, as

argued by Singh et al. (2009), which is gaining cultural acceptance that requires the PMO to demonstrate how it can benefit the organization. As insisted by Anderson, Henriksen and Aarseth (2007), if a PMO's perceived merits separated from business reality, it is likely to see its value diminished, particularly with senior leadership. Hence, there is a strong need for the PMO to provide empirical evidence to senior management that tracking the performance and financial obligation of projects and programs under its jurisdiction, could have an influence on the PI of these initiatives.

In addition, Julian (2008) emphasized that PMOs are in a favorable position to steer strategic change because of their desire to produce continuous improvement opportunities. Therefore, quantitative research that identifies how performance tracking and levels of financial obligation might influence the PI of projects and programs a PMO oversees could help to identify strategic change opportunities.

Theoretical Framework

This research also explored complexity theory to determine how complex forces might direct the PI of projects and programs, which in turn could dictate how the PMO should respond to these forces. Figure 1.0 illustrates how complexity theory interrelates with the PI of the projects and programs that the PMO functionally governs. The point where these three intersect represents the three research questions this study answered. These questions considered what influence the frequency of project and program performance reporting, and/or the level of financial obligation had on the PI scores of these projects and programs facing complex forces. Furthermore, these questions examined how much of an explanatory and predictive relationship the reporting frequency, and level of financial obligation, exerted on these scores.

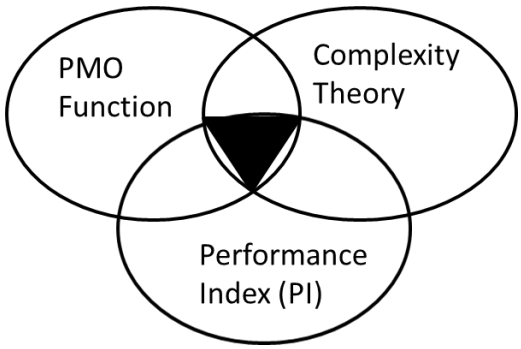

Figure 1. The interrelationship of complexity theory with PMO function and PI.

Figure 2.0 illustrates the nature of this non-experimental quantitative records-based research. Organizations typically plan at point A to have their projects/programs, at a later point signified by point B, hit 100 % of their performance objectives, represented by a performance index of 1.0. This study looked to address how much the degree of tracking and level of financial obligation (IV's) would influence the Program's performance index (DV), given that complex forces would likely have bombarded the projects during their execution.

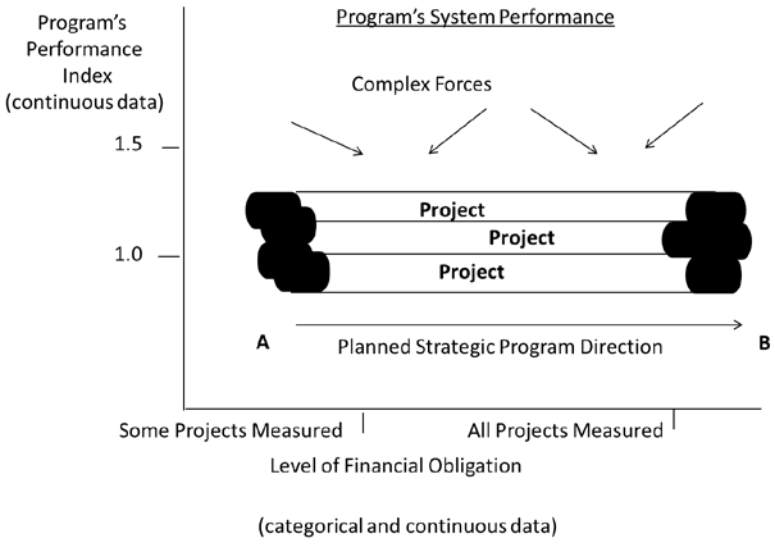

Figure 2. Complex forces interacting with a program's strategic direction.

Assumptions and Limitations

This study utilized a methodology that follows an objectivism epistemology, with a post-positivist theoretical perspective. As argued by Crotty (2010), a post-positivist will fail to take the solid position of a positivist because they assume that probability, rather than certainty, is a more tenable theoretical perspective.

This perspective is consistent with the assumptions that have guided much of the PMO research, which roughly began when Hobbs and Aubry (2007) used a correlational methodology to explore PMOs in their quantitative study. These authors explored their research using an objectivism epistemology and a post-positivist theoretical perspective. Their statistical analysis led them to conclude that there is no uniform agreement in the types of PMOs, their functionality, or what characterizes them. Thus, they concluded that there is no general agreement to how a PMO should track performance, or how it and the level of financial obligation might play a part in the performance index of projects and program.

Conversely, Martinez and Kennerley (2010) argued that the practice of performance measurement helps organizations to identify specific problems so they can find relevant solutions, which in turn would improve their performance. In addition, Abushaiba and Zainuddin (2012) insisted that the rapid changes and unpredictability that exists in business requires ongoing performance measurements and an awareness of financial obligations, so modification of strategies can take place regularly to keep organizations competitive. Therefore, this study assumed that the level of performance tracking, and the level of financial obligation, might both provide a predictable relationship to the performance index of projects and programs that the PMO looks to govern.

This study utilized a non-probability sample of data contained in the GAO report. One of the limitations with nonprobability survey sampling, as reasoned by Vogt (2007), is that there most certainly will be some degree of sampling error due to the probability of the survey sample mean varying from the mean of the population. Non-probability sampling dominates PMO research to date. This is likely due to the cost of getting a truly representative sample of all PMOs. Thus, as argued by Cooper and Schlindler (2011), when it is impractical to perform a random sample, where there is an equal chance of selection, then a nonprobability method is best. Furthermore, Swanson and Holton III (2005) noted that a sample will likely display inaccuracies, because individuals of the population will most likely be missing from it.

In addition, there is also a limitation in the details of how the GAO studied and produced the report. The report primarily focused on determining the extent of overlap and fragmentation among 52 federal programs that funded economic development activities, thus it may have missed other projects and programs that did not have this criterion, yet could have contributed to the non-probability sample of data.

Finally, as indicated in the data collection procedures, a limitation was that agencies in the GAO report had conducted evaluations of only 20 of the 52 active programs since 2000.

Definition of Terms

Authority: The right to influence others to perform work (PMBOK ®, 2013, p. 264).

Business Value: Performance metrics used to determine the success of processes that deliver on organizational strategic objectives (PMBOK ®, 2013, p. 16).

Governance: The monitoring of performance to determine if it complies with objectives that the organization has set (ISACA, 2013).

Performance Index (PI): The difference between stated performance goals and actual

performance outcomes used to improve organizational objectives (Abushaiba and Zainuddin, 2012).

Program: A related group of projects that managed in a particular way to obtain both benefit and control (PMBOK ®, 2013, p. 553).

Project: A temporary endeavor pursued to deliver a unique product, service, or result (PMBOK ®, 2013, p. 553).

Project Management Office (PMO): An organizational entity intended to govern projects under its domain (PMBOK ®, 2013, p. 11).

CHAPTER 2. LITERATURE REVIEW

Introduction

Times are becoming difficult, particularly for organizations besieged by a growing dynamic and complex environment. As reasoned by Saynisch (2010) traditional project management practices have become obsolete in the face of complexity. This obsolescence is even more apparent when it comes to IT initiatives. As reasoned by Engle (2007), approximately 90% of all IT projects fail to deliver on their intended scope, schedule, and budget. Efforts to improve these odds have led organizations to consider a PMO, which PMI (2013) proclaimed is an organizational body responsible for governing projects under its domain. As highlighted by do Valle et al. (2008), the recent assimilation of PMOs within organizations is a testament to its popularity throughout the world. However, despite its reputation Aubry and Hobbs (2011) reasoned that the perception of the PMO is that it is too costly and adds little value to projects in approximately 50% of organizations. Hence, a truncation of the PMO evolution could occur if PMO governance practices fail to provide organizational value.

COBIT 5.0 offers one potential solution on project governance that can ultimately produce organizational benefits, particularly for IT projects. As noted by ISACA (2012), COBIT 5 is a methodology that seeks to incorporate the Project Management Book of Knowledge (PMBOK) into a single integrated governance framework designed to deliver business value from its IT investments. Part of the implementation of this framework reflects on "where are we now", "where do we want to be", and "what needs to be done". Hence, the literature review on PMOs can be partitioned into these questions, with the final one focusing on how the PMO might be able to measure the extent it is driving organizational objectives, while also demonstrating the role that financial obligation plays in these measurements.

Where are PMOs now?

Addressing the question of "Where are PMOs now" requires a reflection of figure one, located in chapter one, which shows the interrelationship of complexity theory, with PMO function, and PI. Analyzing each of these three separately is a prerequisite to evaluating and synthesizing a possible new direction for PMOs. Hence, this literature review will begin with an analysis of PI.

Performance Index (PI)

Determining "where are PMOs now" requires evaluating and reporting on the performance of projects and programs. This evaluation and reporting is not a passing fad according to Barclay and Ose-Bryson (2009), who insisted that there is an increasing trend to determine how well programs are supporting the strategic objectives of organizations.

Measurement therefore has become a key function of the PMO, as recognized by PMI (2013), who attested that PMO governance often requires an assurance that projects and programs are aligned to corporate requirements. In addition, Yazici (2009) declared that governance is needed so that project portfolios start and stay attuned to strategic requirements. This governance also helps to maintain stakeholder engagement. As asserted by Müller et al. (2008), organizations tend to want to understand the management of their projects and if they fail to do this, the result could lead to these projects veering from their intended course. Consequently, this deviation could ultimately produce a lack of stakeholder confidence. One particular area of concern with projects deviating from their strategic objectives is IT initiatives. According to Hanley (2007), organizations often fail in producing a sound measurable methodology for tracking the success of IT projects. Furthermore, Mähring and Keil (2008) articulated that a phase in project execution that can lead to issues like IT black hole projects is

the illusion that everything is fine. Hence, Aubry et al. (2010) observed that strategic alignment is considered to be a key factor in a PMO's portfolio management.

One measure that a PMO can use to help ensure there is alignment between project objectives, and organizational needs, is the PI. PMI (2013) divulged that the PI of projects and programs is simply the difference between their stated goals and actual outcomes. Furthermore, Devine et al. (2010) claimed that when it came to tracking performance, both financial and non-financial considerations were needed to determine project success. Hence, either financial or non-financial PIs could become the basis for reporting the progress of projects and programs.

One of the attributes of PI is its ability to demonstrate if the project or program is aligning to organizational expectations. As noted by Kaplan (2007), organizations need to have a metric in order to track how well they are achieving their intentions. Furthermore, Aubry et al. (2010) commented that projects not aligning to strategic measures were a key factor that could lead to the need for the PMO to make changes. Hence, PI measures help to validate the extent that the project or program is achieving their intention, which is to produce organizational value. As elaborated by Muller et al. (2008), projects do not exist in vacuums, and thus they are faced with a variety of organizational pressures. These pressures can easily nudge a project or program off of its PI course unsuspectingly, particularly complex projects like IT initiatives. As reinforced by Mähring and Keil (2008), IT systems are typically complex thereby making oversight difficult at best. In addition, Hanley (2007) proved that strategic failures are repetitive if there is no strategic measurement performed on IT initiatives. Finally, Singh et al. (2009) lectured that three quarters of all PMOs disbanded in three years, because they did not deliver the required metrics needed to support their value.

Providing metrics might be one functional requirement of the PMO, but to more fully understand how it can provide ultimate value requires a further consideration of its functions, both past and present.

PMO functions

How a PMO functions is the second part of this studies theoretical framework. To understand how a PMO operates today, first requires a reflection of where they began, and how they have evolved into the entities that now permeate organizations throughout the world. PMI (2013) reminded us that the PMO typically functions based on the organizational needs it is intending to satisfy, and that this in turn will likely influence its structure. Studies regarding the specific functionality and structure of a PMO can be followed all the way back to Dinsmore (1999), who rationalized that PMOs ranged from an entity coordinating a single project, to more intricate forms. Hill (2004) further explored this progress when he postulated that a PMO evolved in five stages ranging from a Project Office, with a single project manager providing some project oversight, to eventually the fifth stage being a Center of Excellence, which seeks to align project deliverables to benefits the organization requires. All five stages of evolution still exist today and each stage typically involve greater conformance to governance, which Julian (2008) argued is needed by a PMO to control projects under its domain. This type of control was the focus of Letens, Van Nuffel, Heene and Leysen, (2008) who maintained that risk management is synonymous with good governance. Therefore, as each stage in the PMO evolution moves to the next higher level, so too does the level of risk as the oversight moves from project importance to strategic importance. Figure 3 shows how the conformance to governance grows as the PMO evolves.

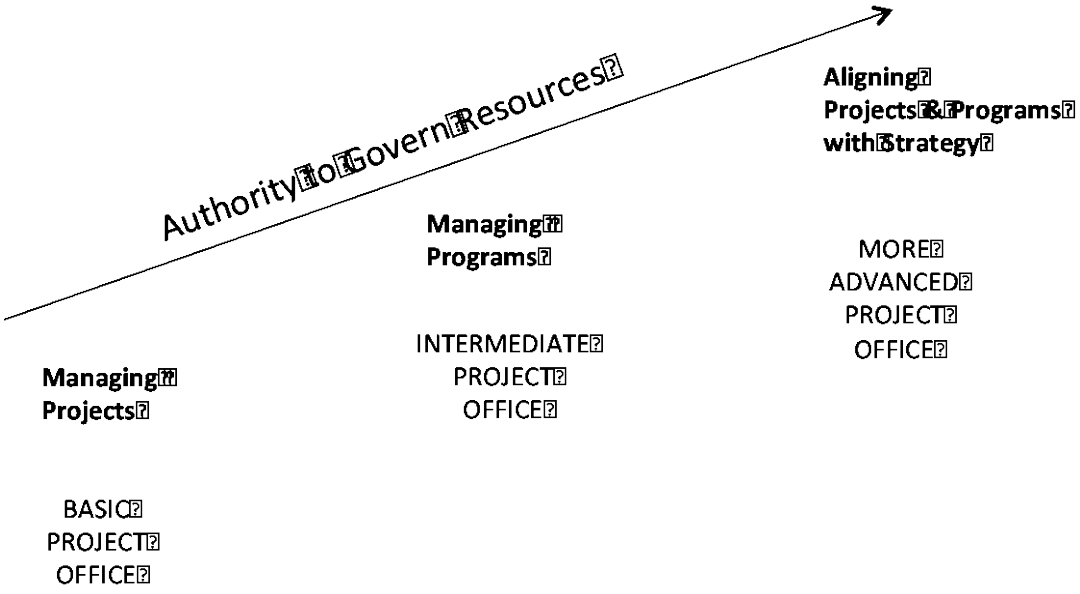

Figure 3. Governance conformance evolving as the PMO evolves.

At stage one, the Project Office level; Hill (2004) noted that the capacity of the PMO to influence governance is typically limited to single projects. Thus, the project manager in this type of office has minimal authority outside of managing the projects. However, as more and more projects begin to appear in an organization, the second level in PMO evolution begins to take shape, which is a Basic PMO that merges projects into programs. Barclay and Ose-Bryson (2009) reasoned that programs provide the opportunity to deliver strategic objectives and that these objectives would fail if projects were not interconnected. Furthermore, Besner and Hobbs (2008) recognized that as organizations gained maturity in their practice of project management, they tended to pursue more dynamic projects and programs. Consequently, this requires greater competency in individuals, managers with more authority, and the transformation from project to program management.

When business gains project maturity, Hill (2004) reasoned that the PMO starts to migrate from a basic entity to a Standard PMO, consisting of a director or full time program manager, along with either part-time or full-time PMO resources. A key priority for a PMO director is to measure projects and programs in order to determine their progress. As noted by Ives (2005), what tends to be missing in organizations is project governance. In addition, Hanley (2007) argued that neglecting to govern by tracking and measuring deliverables, frequently results in project performance that falls considerably short of the mark.

The next step in evolutionary trail of the standard PMO is the Advanced PMO, which has the support of committed technical resources. This junction in the PMO's evolution typically sees organizations that have become dependent on project management, which provides even greater levels of governance ability for the PMO. However, this level of PMO also finds itself generally deprived of a strong sponsor's presence within senior management, which is why an advanced PMO tends to evolve into the highest evolutionary phase called a Center of Excellence.

As proclaimed by Hill, a characteristic of the Center of Excellence is a vice president becoming a part of the PMO, along with additional human resources delivered by the organization. As highlighted by Kloppenborg, Tesch, Manolis, and Heitkamp (2006), the key to project success is mandating that the projects provide a suitable benefit realization for the organization. Furthermore, Zqikael, Levin, and Rad (2008) recognized that top management endorsement in a project heavily influenced the potential of a project to achieve its anticipated benefits. As advocated by Ramsing (2009), a significant requirement for strategic alignment calls for improved communications between those who manage the project, and senior leadership. Thus, the vice president in Centre of Excellence is often required to know what the PMO is accomplishing, and to translate this knowledge to other key stakeholders.

Literature that has since followed Hill's research on the types of PMOs, and their five evolving stages, is indicative of a faster and more dynamic environment than what Hill had reported in his article. Hobbs and Aubry (2008) research suggested that five possible typology patterns of a PMO could exist. These five typologies are size, location, authority levels, abundance of projects, and quantity of project managers. Further rationalization reduced these five into three categories of authority, size, and location.

When examining the authority level, as one possible way to also distinguish PMOs, PMI (2013) declared that the authority level granted to project management within an organization varies from functional, matrix, to projectized. Figure 4.0 illustrates how PMOs governance authority tends to increase from being functional to projectized.

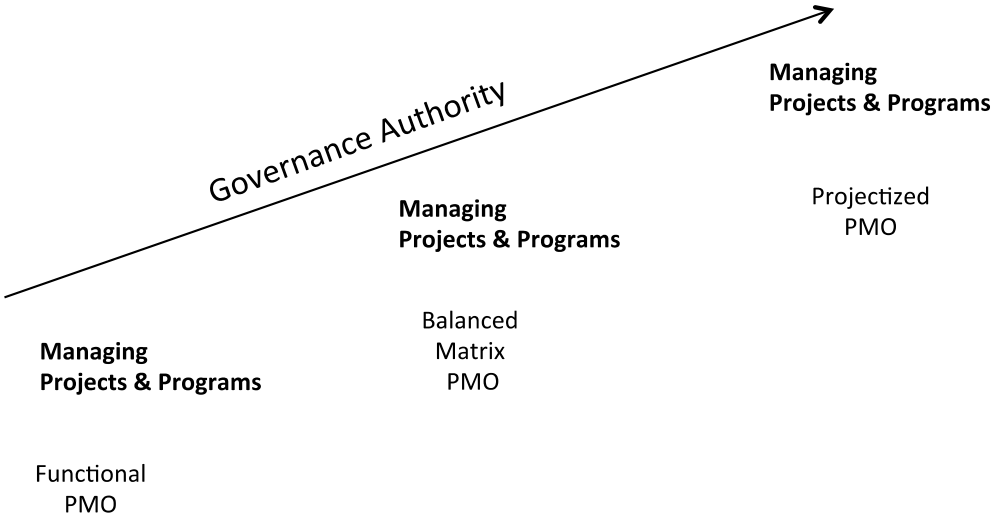

Figure 4. PMO governance authority.

When examining the spectrum, one end contains a functional structure consisting of a project manager with, minimal authority, limited resources, and minor ability to control the project budget. A structure of this kind would likely resemble a PMO office as detailed by Hill

(2004), where one project manager can generally be found providing project oversight surrounding the few projects they are responsible for.

Further examination revealed that a projectized entity exist at the other end of the organizational spectrum. According to PMI (2013), a projectized structure generally has a project manager with major, if not absolute authority; major, if not absolute access to resources; absolute budget control; and the availability to full-time resources. The Center of Excellence that Hill (2004) regarded as being the highest evolution of PMO, would best fit a projectized structure because this type of PMO would have the authority to ensure the projects and programs it is accountable for are in constant alignment with organizational objectives. Reporting project performance at this level would be different from the reporting of project performance at Hill's PMO Office level.

The continuum also revealed that a matrix type entity resides in the middle. PMI (2013) articulated that numerous matrix forms exists between functional and projectized structures, ranging from forms that are weak, balanced, or strong. The basic PMO, standard PMO, and advanced PMO highlighted by Hill (2004), closely resemble these weak matrixes, balanced matrixes, and strong matrixes. Each of these three PMO types tends to vary in the continuum from weak to strong, when it comes to their authority to track project performance relative to organizational goals. As reinforced by Hobbs and Aubry (2008), organizations that had more maturity in project management tended to have many project managers with greater authority than organizations that were not as familiar to project management.

Size is the next of Hobbs and Aubry's (2008) suggested typologies, which highlighted that the structure and function of a PMO is reflective of the number of resources within it. PMI (2013) further argued that the number of resources applied to projects correlates with the

authority provided to the entity managing those resources. Figure 5.0 shows how the availability of resources also can influence the authority of the PMO to govern its resources.

Figure 5. How PMOs size influences its authority to governance PMO resources.

In addition to the impact on size influencing the PMOs level of resource authority, Anderson et al. (2007) emphasized how the breadth of the PMO also reflects the types of tasks it performs. Furthermore, Petit and Hobbs (2010) concluded that PMOs continually face re-optimized and re-allocated so projects can adapt to the changing environment. This continuous optimization can cause the PMO to swell as concluded by Hobbs and Aubry (2008) who asserted that the larger the organization, the larger the PMO tended to be. However, PMO can face the challenge of becoming too big. Singh et al (2009) highlighted the troublesome reality that as a PMO grows it runs the risk of having an extra layer of costly bureaucracy that can limit its value. Muller et al. (2008) recognized that the key to preventing this value detachment meant

organizations needed to have a good communication flow from the project level up through to senior management.

Finally, location is the third way to distinguish possible types of PMOs, as noted by Hobbs and Aubry (2008). These authors reasoned that a PMO can exist within a functional area, or they can be centrally located. Furthermore, Curlee (2008) recognized that a PMO that is centralized provides those managing the project with processes, procedures, systems, and tools. Conversely, a PMO that is decentralized generally has a senior management group that direct the project management requirements, and thus they do not necessarily provide these tools. Finally, Rad and Levin (2007) declared that a PMO typically exists in one division or functional area, whereas an Enterprise PMO (EPMO) was an entity that existed throughout.

The PMO is often seen as a change agent therefore it might experience a variety of resistance from any part of the organization, particularly if new PMO processes and procedures are impacting these parts. As revealed by Singh et al. (2009), PMOs must be aware of the reluctance of a culture to change, and they should know where they are positioned in an organization to influence change, particularly when it comes to the introduction of new methodologies. Hence, figure 6.0 shows how a PMO's location can impact the capability it has on being able to govern those processes and procedures.

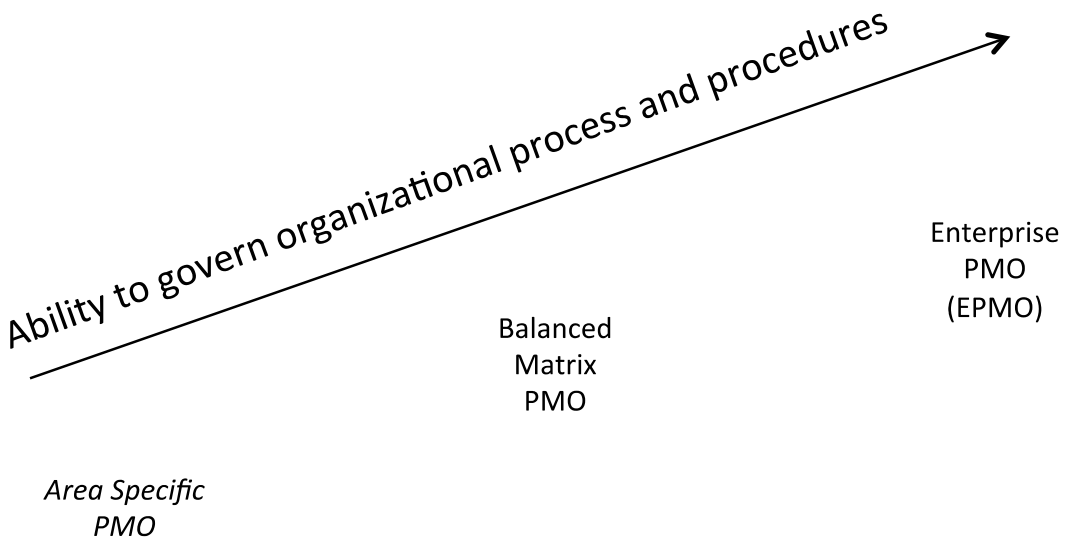

Figure 6. How PMO location influences its responsibilities to govern.

Figure 6.0 emphasizes how PMOs that look after a certain part of the business tend to be functional in nature, and thus they are likely to have area specific processes and procedures. More comprehensive processes and procedures would be typical in an enterprise PMO, which requires these tools to help align to organizational strategy. Furthermore, Anderson et al. (2007) articulated that enterprise PMOs should ultimately governance key project methods, and that these PMOs might have names like an IT PMO or HR PMO etc. Thus, it might come as little surprise that there may be any number of entities operating as a PMO, but under some other name.

The Government Accountability Office (GAO), whose data is contained in this study, is arguably a PMO by all definitions provided by PMI. A PMO, according to PMI (2013), can exist in a variety of forms and its purpose can range from governing, to being supportive by providing consultation. From a governance perspective, the GAO (2012) report claimed that the

GAO had the authority to analyze the use of public funds and evaluate federal projects and programs under their domain. In parallel to the GAO, PMI (2008) argued that the PMO can be delegated the governing authority, to audit, evaluate, and investigate how entities under its purview are using financial resources provided to them. From a supportive perspective, the GAO (2012) report also recognized the GAO provided analyses, recommendations, and other types of support to help Congress ensure proper oversight, policy, and funding decisions. This function mirrors the PMO requirements, according to PMI (2013), to provide consultative support through best practices like oversight needed for the sponsors and other key stakeholders to make informed decisions regarding corporate resources. Therefore, since the GAO functions as a PMO with the responsibility to track performance of projects and projects under its domain, the GAO serves the purpose of providing a reasonable examination of PMO measures. Thus, using GAO data has helped to provide a governance understanding of how the degree of PMO performance tracking, and level of financial obligation, affects the PI of projects and programs under a PMO's guidance. It has also helped to recognize possible PMO best practices.

PMO best practices

How a PMO functions requires a consideration of best practices. According to Engle (2007), PMOs recently began to appear with the objective of formalizing best practices for project management within organizations. Although best practices can be beneficial to all projects in a PMO's domain, those that are likely to receive significant benefits are IT initiatives. As highlighted by Besner and Hobbs (2008), organizations that run innovative projects are more likely to achieve success the more extensively they use tools and techniques that make up project management best practices.

Though it might seem logical that a PMO employ best practices, the challenge is to determine which ones to follow. PMI (2013) charged that project managers and PMOs driven by different requirements ultimately pursue different objectives. Therefore, the PMO will likely follow best practices related to governing projects and programs relative to other projects and programs, whereas the project manager or program manager will likely follow best practices related to managing just their particular project or program. This realization led Anderson et al. (2007) to argue that organizations need to define a governing road map of PMO best practices in order to produce organizational value. Besner and Hobbs (2006) advised that this value creation occur when project management standards show how they enhance project success. Furthermore, these standards, according to Portny (2010), exist to validate that the work performed, is following the requirements of the predefined governing roadmap.

When creating a strategic roadmap, Fernandez and Fernandez (2008) asserted a variety of methods could exist, whereby the most traditional approach tended to be a basic linear strategy. Figure 7.0 depicts this linear strategy by showing that scope, time, and cost at the beginning of the project, defined as point A, is the same scope, time, and cost delivered at the end of the project, defined as point B. The anticipation is that the executional processes of design, build, and test, generates the planned results. Thus, the incorporation of checking rarely occurs in this linear approach. The check function however serves as the ability to monitor and control the project, which Aubry and Hobbs (2007) dictated is the most important functionality that a PMO can perform. Tracking and reporting performance is particularly important, because as reported by Rozenes, Vitner, and Spraggett (2006), project managers often show a lack of adherence to the methodology of project control. In addition, Hobbs and Aubry (2008) claimed that the value

of the PMO relates to the degree of best practices in project management. This becomes particularly apparent when the PMO exists in a complex environment.

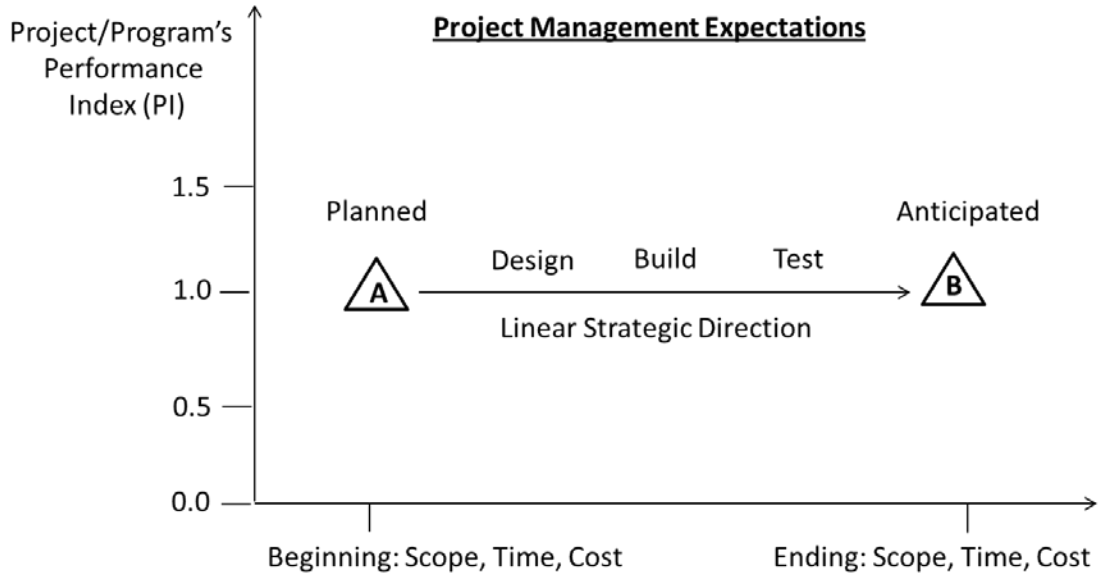

Figure 7. Project management expectation.

Complexity

The second of the three theoretical components of this research, as defined in figure one of chapter one, requires the examination of complexity in order to understand how it might impact projects and programs under a PMOs control. As noted by Saynisch (2010), complexity is forcing organizations to find new and more suitable ways to manage their projects. Thus, the assumption that projects will run in an orderly manner is being challenged by complexity theory, which according to Boulton (2010), looks at the world as a messy, interconnected place, where uncertainty and change dominate the landscape. Furthermore, Shaltry (2007) concluded that if one project in the program fails to achieve its objective, it puts all other projects in the program

at risk. Thus, the possibility of cascading failures due to complexity makes even the most senior executives nervous. As disclosed by Grenny et al. (2007), CEO turnover doubled in 2005 from the previous year, and over 66% were replaced in five years because of project failures. In addition Aubry et al. (2010) stressed that there are forces that can drive PMO changes, which include external factors like changes in the economy, to internal factors like changes in top management, to name a few. These changes identified by Aubry et al. (2007) are depicted as complex forces in figure 8.

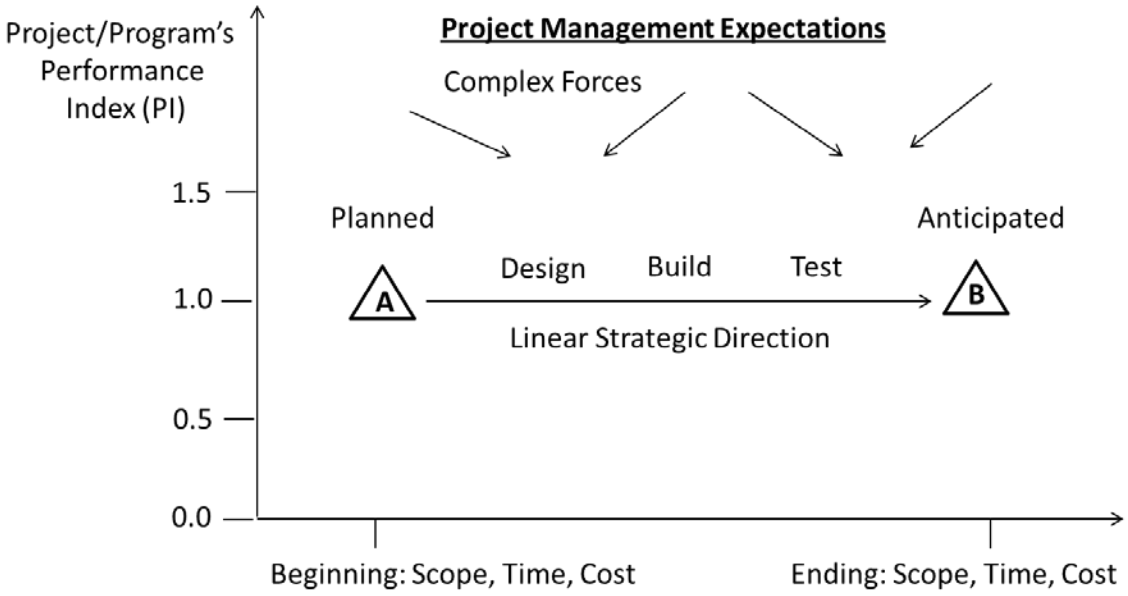

Figure 8. Project management expectations facing complex forces.

Aubry et al. (2009) noted that uncertainty and change spurred the evolution of a PMO as a means to resolve the organizational need to deal with projects that became more numerous and strategically complex. This complexity can exist in any manner of ways, as noted by Zdanytė

and Neverauskas (2011) who declared that single projects could often converge together to become complex undertakings.

A particular area of complexity that the PMO is often challenged with is IT. As noted by Gheorghe (2010), IT is changing so rapidly that it is becoming more and more difficult to understand the intricacies of IT related risks. In addition, Keil and Mahring (2010) proclaimed that IT projects typically have a high degree of complexity making them vulnerable to an escalation of commitment that can potentially resemble a black hole, where massive amounts of resources are applied with no value coming out. Figure 9 depicts how the black hole might form in a linear strategy, between the planned project objectives and the anticipated objective.

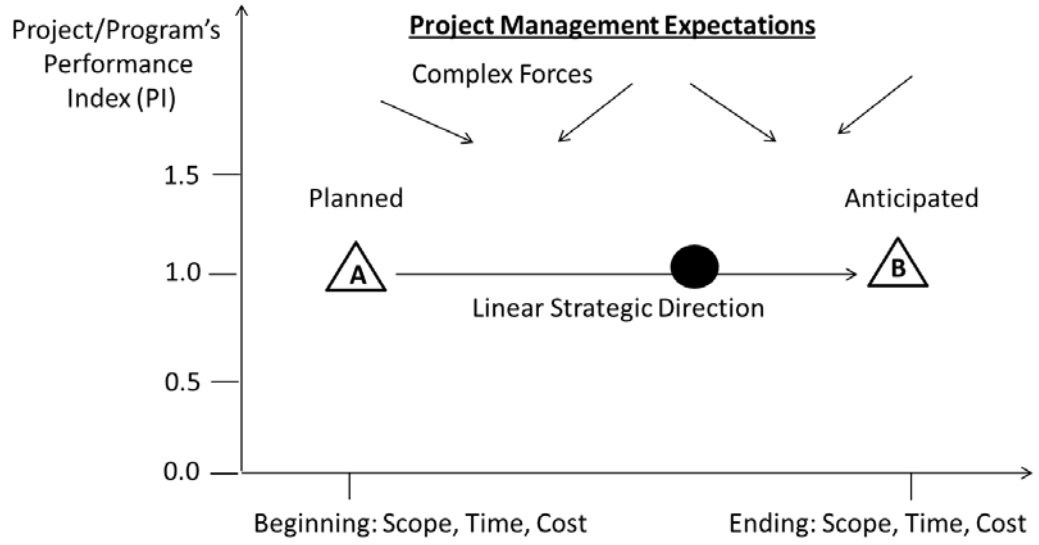

Figure 9. The formation of IT black holes.

Complexities that can create IT black hole projects suggest that there are very few certainties in project management, which is why Anderson et al. (2007) argued that a PMO needs to mature over time, gaining the necessary wisdom and capabilities required to manage more

complex tasks. Furthermore, Cooke-Davies, Cicmil, Crawford, and Richardson (2007) rationalized that certain dynamics often challenge projects including individuals who must come together to form a team. Thus, in order to avoid issues like IT black holes the PMO must respond by continually restructuring in order to adapt to complexity as identified by Aubry et al. (2009).

Complexity often results in the need to change. As asserted by Aubry et al. (2010), PMOs are a particular dynamic organizational entity that is continually being bombarded by the forces of change. Despite these numerous organizational changes, the PMO is still required to ensure projects and programs are aligned to organizational needs. As Aubry and Hobbs (2011) observed, when a PMO and organizational objectives are aligned, it is felt the PMO is a good fit.

Where do PMOs Want to Be?

Supporting Organizational Growth

Following the discovery of "Where are PMOs now" is the implementation requirement to understand "Where do PMOs want to be". One consideration is the need to support the growth of the organizations. Davis, Kee, and Newcomer (2010), contested that the purpose of strategic organizational growth is to aid in the long-term survival of an organization. Strategies therefore serve the purpose of providing the roadmap of how to move an organization towards its strategic vision, while also reminding them of their present position, and where they have been. As argued by Brockmann and Lacho (2010), when an enterprise determines where it is, and the direction it must go, it then must examine its internal and external realities. A key examination requires the organization to focus in on how well the PMO is functioning, and to determine if its projects and programs maintain proper alignment to the planned strategic transformation. Kaplan and Norton (2005) emphasized that organizations should not make a balanced scorecard their only means for improving performance. These authors argued that the key is for business

processes to align to organizational strategy if organizations truly want to improve performance. Thus, the obvious reality is that as strategy changes, this change is most likely to have an impact on how the PMO operates.

In addition to strategic changes directing PMOs, Kaplan (2007) added that senior management should surmise whether the organizational alignment produce the required critical success factors. As challenged by Davis et al. (2010), strategic transformation generally requires notable transition that often influences staff, organizational culture, or structure. This strategic transformation will most certainly experience future acceleration. The reason for the acceleration, according to Yongbo (2009), is that rational strategy no longer becomes rational in the face of a complex and dynamically changing environment. Thus, the future is likely going to require businesses to adapt to greater flexibility and continuous change. Cravens, Piercy, and Baldauf (2009) reinforced this change when they explained that the ability to provide superior value is contingent on the organization's ability to reshape its strategic thinking. McCrea and Betts (2008) also disclosed that when an organization fails to modify its strategy following an unsuccessful initiative, it is likely destined to continue to fail because it is ignoring the learning that failure brings. Thus, this suggests the PMO must also learn from the organizations' past missteps and ensure that the PMO processes and structure are in constant alignment with any changes that strategic organizational growth might bring. This need to re-align is likely to direct the role of the PMO.

Determining if the PMO is in stride with strategic organizational growth, typically involves an understanding of the project portfolio alignment. As debated by Petit and Hobbs (2010), project portfolio can play a significant role in the organizations' strategic success. Therefore, this suggests that the PMO pursue projects and programs that deliver the largest

benefit to the business. As highlighted by Aubry and Hobbs (2011), PMOs are likely to work best in organizations that considers them to be in sync with where the organization is headed. If PMOs fails to maintain this synchronicity needed to produce organizational benefits, they could be required to make modifications. As charged by Aubry et al. (2010), projects that find they no longer align to organizational strategy, should seek the advice of the PMO on how they can make these necessary changes. One of these changes could require that one project or program be replaced with a different more suitable project or program. Sanchez et al. (2008) punctuated this point when they concluded that when an organization fails to follow proper portfolio management, the end result is likely going to be too few resources, for too many projects.

When organizational goals and the PMO role become misaligned, the result could be a push for the PMO to improve its governance. As challenged by Yazici (2009), governance is the prerequisite for ensuring project portfolios maintain alignment with organizational requirements.

Finally, the possibility of strategic organizational growth infers when the organization expands its strategies must follow suit. Judgev and MÜller (2005) recognized this when they suggested that the critical success factor for a PMO included having upper management approval in order to garnish the PMO with a sense of strategy, vision, and sponsorship. Consequently, the more the organization evolves and grows, the more acute the PMO must be to the changes that could be occurring at a senior level, so the PMO can also adjust its requirements as needed.

Strategic organizational advancement is likely to permeate throughout a PMO. As divulged by Blomquist and MÜller (2006), managing a portfolio can often require frequent changes to roles and responsibilities within the portfolio. Hence, the more dynamic and complex the organization, the more pressure is likely to be exerted on the PMO to constantly transform its functional requirements. As recognized by Aubry et al. (2009), a PMO evolution is often the

result of an organizational requirement for managing the projects, which typically grow in complexity and in numbers. Failing to recognize that change is inevitable could result in a PMO facing dire consequences. According to Singh et al. (2009), of the 500 PMOs they surveyed almost half lost support of the organizational leadership in the ability to be recognized as having benefits that exceeded the PMO cost. Therefore, when a PMO gains a greater appreciation for delivering strategic value, it will in turn be able to appreciate what it must do to survive, irrespective of what organizational structure it fits into.

The realization that PMOs must generate value that is in tune with organizational advancement is most certainly going challenge future generations of PMOs. Hobbs and Aubry (2007) elaborated on this challenge by emphasizing the fact that the organizational value of PMOs will continue to be challenged. Anderson et al. (2007) also explained that if a PMO's outcomes fail to garnish senior management favour, the PMO would most certainly falter. In addition, Singh et al. (2009) assured that the PMO would be forced to continually struggle with rigid organizational cultures that fail to see the need to change. Hence, this proposes that the PMO take a proactive stance in dealing with change, and that it endeavours to evolve in order to provide strategic value. Furthermore, Julian (2008) felt that PMOs were in a great position to drive strategic change because of the PMO's ability to continually produce opportunities for strategic improvement. Anderson et al. (2007) also determined that a PMO enjoys the advantage of dealing with projects that span the enterprise. Therefore, the PMO has the ability to be at various levels within the organization that would allow it to evaluate the performance of organizational strategies.

Operating at various organizational levels suggests that the PMO transfer the knowledge they gain to the rest of the organization. Hanley (2007) reinforced this transfer of knowledge by

claiming that a PMO has the responsibility to continually communicate results upwards. The ability to be perceived as providing vital information up to senior leadership could enhance the PMOs strategic value beyond the communication of just project and program status. This suggests that if the PMO were to be structured accordingly, it could become the eyes and ears for senior leadership on how well strategic advancement is progressing. As reinforced by do Valle et al. (2008), a key role of the PMO is to help guide strategic planning. Thus, the PMO has the advantage to see its value grow as the organization grows, which could help to sustain the PMO's future.

Sustaining a PMO

If PMOs hope to change the overwhelming odds of their termination in three years, the governance they employ must appear as producing organizational value. According to ISACA (2012), establishing proper governance requires an entity like a PMO to determine "where it wants to be". This question requires a reflection on the demands the PMO is facing. As argued by Anderson, et al. (2007), PMOs generally exist relative to their desire to provide valuable services, rather than being seen a form of bureaucracy. This suggests that evolving a PMO from a Basic PMO to a Center of Excellence, as defined by Hill (2004), may not necessarily improve the performance of PMOs. As challenged by Yazici (2009) no evidence exists that concludes the more technical project management becomes in an organization, the more likely it will be in having successful projects. Instead, the way to improve PMO performance may simply be to enhance how they govern the progress of projects and programs. This became apparent when Hobbs and Aubry (2007) surveyed over 500 respondents from various industries, in countries including Canada, USA, and Europe, and found that only 50% of these PMOs bothered to monitor and control performance.

Neglecting governance has made it difficult for the PMO to manage change. As Saynisch (2010) commented, traditional project management has become somewhat mechanical and archaic in dealing with the complexities of project management. Furthermore, Blomquist and Muller (2006) revealed that program and portfolio management remains challenged by ongoing changes in roles, responsibilities, and organizational structure, which contribute to a lack of project-business value. Finally, Hurt and Thomas (2009) emphasized that PMOs value is contingent on it changing to adapt to new environments that are volatile, particularly when it comes to IT initiatives. Thus, Gheorghe (2010) contested that some form of governance is required to help ensure IT, and other project initiatives, align to organizational objectives.

More Fluid Organizational Structures

Given the complexity, PI, and current functional requirements of the PMO, it stands to reason that the PMO functions should generate a more dynamic PMO structure. As recognized by Haried and Ramamurthy (2009), project challenges will likely force organizations to communicate more with its external environment. In addition, Byosiere and Luethge (2007) argued that the need to interact with the external environment could mandate organizations to collaborate with some of its fiercest competitors, if it hopes to survive. Therefore, an organizational framework that is suitable in a relatively stable environment could become a liability when managing the relationships within complex projects. As argued by Azmi (2008), organizations that are best in their class have developed the ability to learn what is new. Thus, organizations dealing with complex IT projects may have adapt to their new environment in the same way that many species have adapted to their surroundings in order to thrive.

Organizations attempting to keep pace in a global project environment are even more likely to be challenged by agility. Besner and Hobbs (2008) maintained that as organizations

matured so too would their ability to pursue more complex and innovative projects, which would necessitate the need for competent individuals and greater management authority, along with the transformation from project to program management. Therefore, organizations wanting a more dynamic entity might have to relinquish their firmly held authority to a PMO, in order for the project management practices to adapt to changes in project governance. As Blomquist and Müller (2006) bolstered, the speed of evolution has placed greater demands on organizations to heighten their ability to manage programs and portfolios. In addition, global project management is getting business to consider making other further refinements. As affirmed by Byosiere and Luethge (2007), traditional silo thinking that might inhibit an organization's internal and external relationships can be enhanced through the use of project management.

Organizations also looking to acquire a more dynamic framework for global project management could be required to adjust how they approach strategic management. Cooke-Davies, Crawford, and Lechler (2009), lectured that organizational pushes designed to improve the strategic value of their projects, would be wise to enhance the economics of their processes in order to achieve a form of differential advantage. Hence, project management and PMOs are no longer being forgotten in the strategic discussions. As Leybourne (2007) proclaimed, following certain practices in project management might lead to better strategic outcomes. Furthermore, Barclay and Osei-Bryson (2009) emphasized that organizations are being subjected to the need to measure how well projects and programs are succeeding in delivering on strategic requirements. Consequently, projects and programs are taking on a new level of importance in boardroom decisions, and in financial reviews. According to Ika and Lytvynov (2011), the effectiveness of projects is beginning to be questioned from a cost-benefit ratio. Thus, the rewards that project and programs deliver might become a major component to the organizations

bottom line. As further noted by Byosiere and Luethge (2007), projects that transcend geographical borders will most certainly require senior sponsorship support if they are to succeed. Therefore, changes in organizational thinking about projects and programs will likely be the key to advancing trends in project management. This in turn could result in the creation of new project management norms.

What do PMOs Need to Do?

Creation of New Project Management Norms

The trends in project management complexity, performance indicators, functionality, organizational support, sustainability, and demands for a more dynamic PMO framework, suggests that improved project management practices transforms the methods used in traditional project management. Scharmer (2000) recognized some time ago that transformation often calls for an organization to strive for an emerging future, and that this transformation needs to be a sustainable enough to elicit new behaviors. According to Crawford et al. (2008), this transformation is already in motion as recognized by the growing need to enhance global project management standards. The formulation of new standards would require the support of a vast number of global stakeholders in order to produce global project management governance. As noted by Yazici (2009), governance not only assists projects and programs to stay aligned to strategic objectives; it also helps to keep the stakeholders involved. As positioned by Müller et al. (2008), organizations are developing a keen desire to comprehend the management and governance of their projects. This suggests that if stakeholders are ill informed, the organization risks an escalation resulting from projects going off track in terms of stakeholder's expectations.

Producing measurement of PMO effectiveness

The question of what a PMO needs to do to ensure it is in line with organizational goals. Brockmann and Lacho (2010) punctuated this when they declared that once an organization recognizes where it is, and where it wants to be, the next requirement is to consider a reality check. According to Saynisch (2010), increasing complexity typically requires organizations to make changes to their management techniques. As dictated by Hurt and Thomas (2009), one of these organizational changes could be to establish measures of PMO effectiveness in order to calculate its value. Furthermore, Aubry et al. (2010) insisted that a key factor in the PMO function is the monitoring and reporting of project performance.

The need for greater emphasis in monitoring and reporting project performance is a key responsibility of the PMO. Hanley (2007) charged that organizations often fail in producing a sound measurable methodology for determining the payback of IT projects. As to how frequent the evaluations should be, Rad and Levin (2008) suggested a midstream evaluation of projects would help ensure the project's deliverable is still in line with the organization's strategic vision. However, McCrea and Betts (2008) went one step further to suggest numerous strategic check points could help to confirm if a projects means, will in fact deliver on its intended ends. As counselled by Srivannaboon (2009), the same plan-do-check-act process we apply to projects can also help to ensure projects stay aligned to strategy, but that this process must be communicated.

Improve communication

The desire for strategic alignment led Ramsing (2009) to recognize that there was a growing sense of urgency to improve communications between project management and strategic expectations. In particular Maheshwari and Credle (2010) proposed that leadership must remain aware of a project's movements using tools like performance indicators that provide

a sense of earned value. As Anderson et al. (2007) advocated, the number one success criteria for a PMO is to gain and maintain senior management support, because as Crawford et al. (2008) explained, a lack of senior management ownership and support is essentially a death sentence for projects and programs. One rational for this loss of leadership support is offered by Ramsing (2009), who lectured how project management can do a reasonably good job communicating a project to those external to the organization, yet fail to properly address the internal communication needs surrounding that project. Among those who require communication on a regular basis, are the executive leadership. Singh et al. (2009) emphasized that the largest challenge faced by a PMO is cultural resistance, and that leadership support for the PMO is the key to overcoming this resistance.

Communicating performance results is also vital to the organization's well being, as articulated by Krane, Rolstadås and Olsson (2010) who argued that strategic risks, which are identified in a project, may not be perceived to be the responsibility of the project manager, and thus is not likely to be communicated upwards. A lack of communicating performance results can also hinder the perceived value of a PMO, according to Hobbs and Aubry (2008). As lectured by Besner and Hobbs (2006), PMO value is created when project management practices enhances project success. Furthermore, Portny (2010) stressed that the function of a PMO is to validate to senior management that the work being performed, is following the requirements of the project plan. Consequently, Hobbs and Aubry (2007) recognized that communicating the project status to upper management was one of the most important functions of the PMO.

Keeping stakeholders properly advised as to the status of projects and programs implies that governance surrounding traditional project management should focus on improving communications. Anantatmula and Thomas (2010) charged that communication is a key

requirement to building trust among project stakeholders. Furthermore, Ramsing (2009) added that it is becoming critical that there be a communication improvement between project management and strategic expectations. As to how to facilitate this communication, Maheshwari and Credle (2010) advised that a value analysis exist to keep management informed of a project's progress. This value analysis does not just equate to financial considerations. According to Saynisch (2010), a paradigm shift is beginning to happen where projects are starting to become a part of organizational social systems, which is forcing social value to form a part of project management. Considering social value is likely to force many organizations to work with a large number of stakeholders. As Mähring and Keil (2008) disclosed, the success of project management rests on its desire to draw out the wisdom contained in all of its stakeholders. Thus, if the PMO is to improve its organizational value, it must appear to all stakeholders as having created value, which will require it to reflect on how its governance and management supports proper reporting to these stakeholders.

Value Creation from a Governance and Management Perspective

Although most agree that reporting noted by PMI (2013), and ISACA (2012), is a fundamental part of governance, it is not yet understood just how the frequency of reporting might determine performance metric results, like PI, or how the level of financial obligation might also influence these performance metrics as well.

ISACA (2012) claimed that forces driving change in project management have culminated into the need for a business framework that can govern and manage enterprise IT. COBIT provides this framework, which is required to create optimum business value of IT initiatives. COBIT 5.0, the most recent version, delivers this framework by integrating the

standards of the Project Management Book of Knowledge (PMBOK) into overarching governance and management of IT. ISACA (2012) emphasizes it has approximately 95,000 constituents in 160 countries looking to IT governance as a possible means to deal with IT complexity.

Complexity is a factor that led Grenny et al. (2007) to recognize that poor project performance over the years has mandated the need for some type of project governance in the future. ISACA (2012) asserted that governance necessitates an understanding of roles, activities and relationships surrounding initiatives like projects and programs. Figure 10 illustrates the role, activities, and relationships that might be coordinated through the PMO.

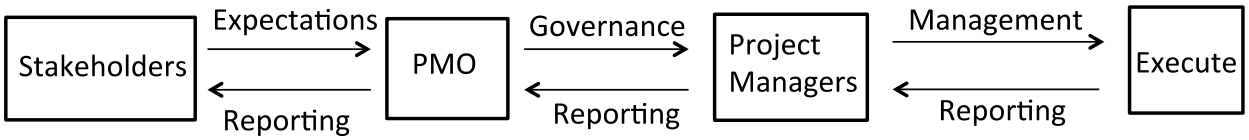

Figure 10. Governing roles, activities, and relationships through the PMO.

Applying a framework to governing projects and programs would have project and program stakeholders at one end of the governance spectrum communicating their expectations to a governing body like a PMO. The PMO would then set direction for both program and project managers, who in turn would instruct and align work packages according to the owners and stakeholder's scope, time, and cost expectations. As highlighted in figure 10, reports serve to inform program and project managers so they in turn can provide the monitoring knowledge required by the PMO, which is ultimately accountable for reporting the status of these projects and programs to the stakeholders.

When Fernandez and Fernandez (2008) explored other ways project management reported project outcome during execution, they found that reporting ranged from linear with no checking of performance, to extreme where continuous checks allows the outcome to be discovered and reported. This extreme method of discovering the ultimate requirements for a project or program to be successful, takes place in a similar manner to what PMI (2013) refers to as progressive elaboration, which means that the project plan becomes clearer the more iterative the process of reporting.

Figure 11 illustrates how strategic checks, following the IT project testing, might report the project's progress and thus determine if the deployment should occur, or if the scope required modification, which typically ensued with a later check. This can create an iterative checking process that allows the scope to become more progressively elaborative, particularly in complex IT projects where it is not easy to define the end state.

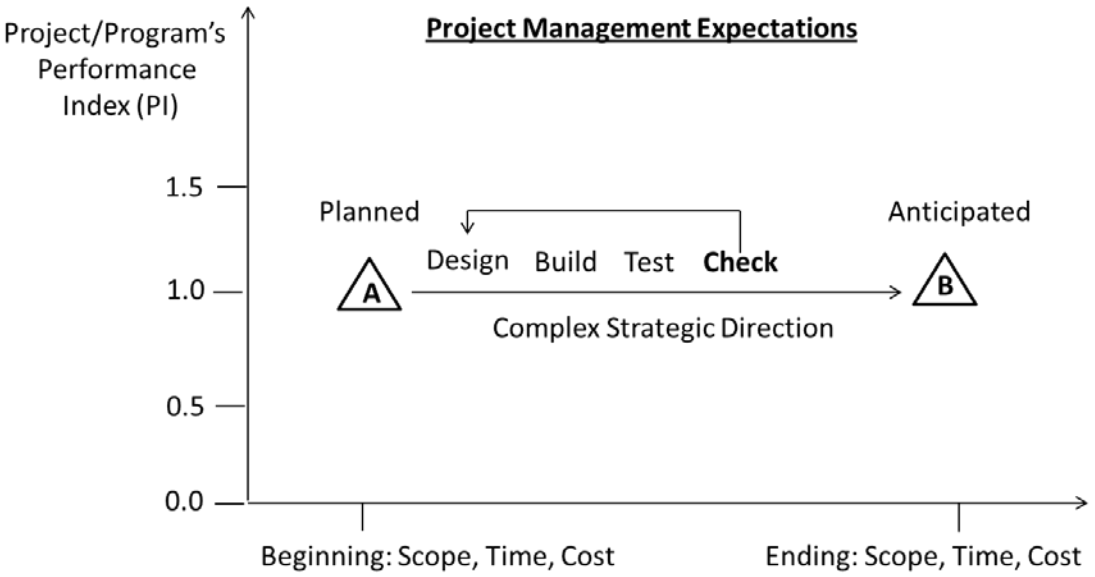

Figure 11. Complex strategic direction in project management.

What makes this strategic project management process unique, compared to a linear strategy, is the check, which the linear strategy does not employ. Fernandez and Fernandez (2008) claimed that an extreme strategy of reporting the project's progress is more suitable in complex environments, where the outcome is not apparent enough for a linear strategy to work, because the linear strategy assumes the planned results will not vary much from the anticipated results. The need for checking performance, according to Hanley (2007), is vital for strategic plans that are highly prone to going off the tracks, when there are no measurements taking place.

When comparing the coordination of project management identified in figure 10, with managing expectations in figure 11, there appears to be a similarity in that the two rely on some form of governance regarding the performance of the project. As reminded by Chinta and Kloppenborg (2010), project management is the business of managing today, whereas strategic governance is the business of managing tomorrow. Hence, when the future is less certain than today, governance appears to become important. This could answer the question that plagued Patanakul et al. (2010) when they pondered what might be the appropriate tools to use to deliver project success.

The resolution might be that project management is the tool for managing the present, whereas project governance would be the tool for managing the future. When further examining the governance model as identified in figures five's governing roles, activities, and relationships around a PMO, it appears that management and governance are two sides of the same coin, where one complements the other. The PMO is delegated the needs of the stakeholders, which in turn is used to help establish a prioritization of the projects and programs. The PMO then establishes this prioritization to govern the processes of the project and program managers, so that their activities are in line with the stakeholder's expectations. Singh et al. (2009) reinforced

this when they argued that the strength of a PMO is its ability to help an organization improve upon its project management skills, as well as assisting it in developing its processes and project governance. This governance should complement the organizational strategy as protested by do Valle et al. (2008), who commented that one of the main roles of the PMO is to complement strategic planning. The owner or stakeholder also has an obligation, according to Crawford et al. (2008), to endorse a project governance perspective, particularly when the organization is facing rapidly changing market conditions. Chinta and Kloppenborg (2010) further supported this when they suggested that even though a project has been given strategic approval, it still requires some type of governance regarding assessments.

As noted by Yazici (2009), governance is required to ensure that project portfolios stay aligned to organizational objectives, so that top management support can be achieved. Gaining this support is particularly important according to Andersen et al. (2007), who advocated that top management support was one of the key criteria for determining PMO success. Table 1 illustrates five functional priorities for a PMO as defined by PMI (2013)

Table 1

Five Functional Priorities for PMOs

PMO Function
Standardizes project governance
Helps to provide a transfer of resources, methods, tools and techniques
Providing project support
Providing project control
Providing project directive

Loosing senior management support, or straying from organizational objectives, could be due to a lack of reporting governance, as argued by Williams and Samset (2010). Hence, failing to communicate the facts of project performance can have significant negative impact on a

project outcome. As declared by Grenny et al. (2007), the number one crucial thing that project leaders can do is to plan around facts, which they claim 85% of projects fail to do. Some of these facts should consider how the project would continue to support the organization's changing strategic direction, as well as the project's scope, time, and cost requirements. Sanchez, Benoit, and Robert (2008) reinforced this by stressing that organizations create project portfolios to implement strategic plans expected to deliver strategic value, and that it would be very risky to underestimate the importance of delivering this value.

Risk Management

Performance reporting in a complex environment is one way a PMO can monitor for risk. As petitioned by Palamo and Insua (2007), there are several project risk sources that include; acts of nature, financial, physical, and economical events, to name a few. They also claim that these need to be accounted for before the decision to go forward is made. As Aubry et al. (2009) acknowledged, one of the contributions the PMO makes towards organizational performance, is to report on the variety of internal and external forces that can have an impact on organizational success.

Failing to continually re-assess and report on external and internal risks, according to Cerpa and Verner (2009), is one of the most common factors related to project failure. Furthermore, Woon, Azlinna, and Abdul (2011) suggested that the process of identifying and analyzing risk should become an integrated company-wide perspective. As reasoned by Grenny et al. (2007), powerful stakeholders can skirt around formal decision-making processes, when they don't want to be burdened with these practical considerations, thus hindering the PMO's ability to govern. As argued by Singh et al. (2009), many PMO's visions of having project governance, goes unfulfilled because of organizations resistance to change at all levels. As

recognized by Hobbs and Aubry (2007), the inability to build organizational support needed for governance, has led most PMOs to experience a short life span of only a couple of years.

This inability to recognize that performance reporting is a risk management requirement, could be harmful for organizations, particularly when it comes to IT projects as illustrated in figure 12.

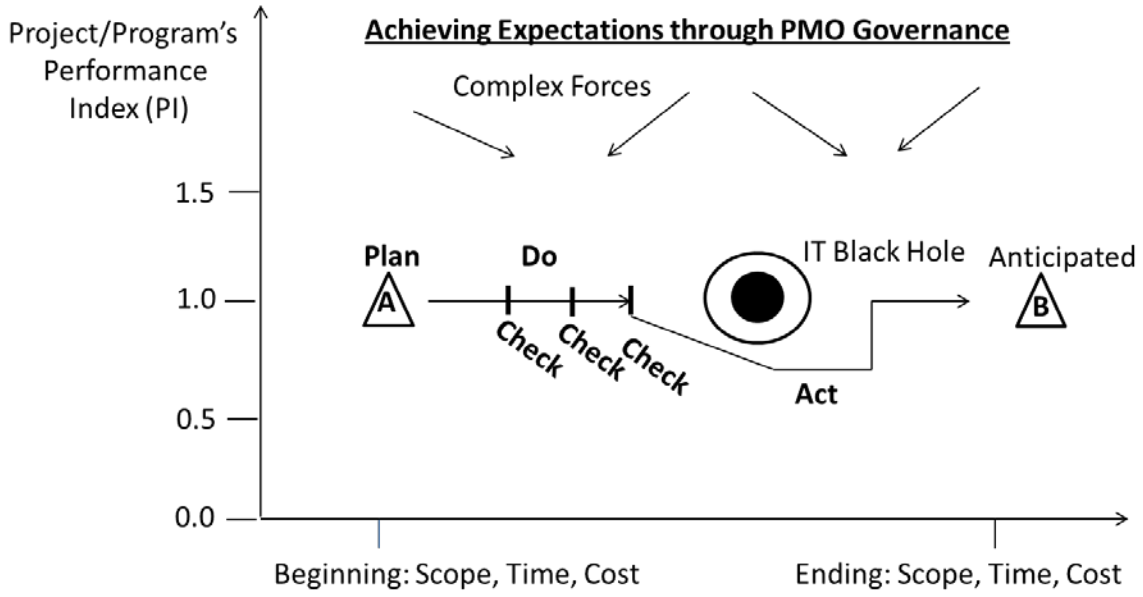

Figure 12. PMO governance for avoiding IT black hole projects.

Figure 12 depicts how a PMO can use governance to avoid going down the throat of an IT black hole, by checking performance relative to shareholder expectations. As charged by Mauléon and Bergman (2009), the Deming's cycle has become paramount in today's competitive business environment, because it purpose is to enforce the importance of producing a quality output. Thus, when Deming's cycle is applied to governance it emphasizes how the checking ability can allow PMOs to steer clear of IT black holes, as well as other serious issues

the check may have indicated. Hence, being able to perform repeated checks could be the governance a PMO needs to ensure quality outcomes are being delivered.

Enforcing quality output is particularly important, as identified by Gheorghe (2010) who proclaimed that IT is changing so rapidly that IT related risks are going largely unnoticed. Thus, performance analysis can be an important metric in managing risk, according to Maheshwari and Credle (2010). Kutsch and Hall (2009) also argued that value analysis, among other activities, is an important proactive metric that can help reduce the exposure to risk. Finally, Srivannaboon (2006) advocated that project execution should be monitored for risks to allow for information to be relayed back to business leaders, so they can modify the business strategy. This in turn could also result in a modification to the course of the IT project. Thus, this process of monitoring for risk and modifying performance, according to ISACA (2012), is the governance required to ensure proper value is being created for IT initiatives. The question that still remains however is how much checking should be performed, and does the level of financial obligation attached to a project or program make a difference? These are the questions this study sought to resolve.

Summary

The purpose of a PMO, according to PMI (2013), is to govern projects under its domain. Unfortunately, as proclaimed by Hobbs and Aubry (2008), there is a lack of agreement on how a PMO might go about providing this governance, which has prevented the adoption of any formal standards. This is particularly problematic; because Aubry and Hobbs (2011) reasoned that the perception of PMOs is that they are an expensive means of producing little organizational value. Nowhere is this more apparent than when it comes to IT projects. As reasoned by Grenny et al.

(2007), governance has shown improvements in projects, but there is still something missing because two out of three IT projects continue to fail.

The identification of what might be lacking led ISACA (2012) to argue that an integrated framework is required for governance, which involves some form of reporting. However, to determine the proper level of reporting requires an understanding of "where are we now", "where do we want to be", and "what needs to be done." The answer to the "where we are now" requires an examination of the functions that PMO deliver. The conclusion is that the PMO can resemble many forms, and produce a variety of offerings, with no agreement on any standard. Looking at best practices of a PMO is another way to determine "where are we now." Aubry and Hobbs (2007) concluded that monitoring and controlling project performance was one of the top best practices a PMO could employ. This is particularly important because complexity, according to Boulton (2010), makes the world a messy, interconnected place, where uncertainty and change dominate the landscape. One way to reduce this uncertainty is to track the PI of projects, which is the difference between actual and stated goals.

The answer to "where does the PMO want to be" determined that PMOs wants to have the ability to govern projects and programs in a manner that is perceived by senior leadership as helping to drive key organizational objectives. As emphasized by Judgev and Muller (2005), a critical success factor (CSF) for a PMO is to gain leadership approval. Finally, the answer to the governance framework question of "what does the PMO need to do" is further addressed by this study's research on how the frequency of reporting, and the level of financial obligation, might affect the PI of projects and programs under a PMO's domain.

CHAPTER 3. METHODOLOGY

Introduction

The purpose of this research was to determine what influence that project and program performance reporting, along with various levels of financial obligation, would have on these projects and program's PI scores.

Restatement of the Problem

The main question this study addressed: To what extent does the level of performance tracking, and the level of financial obligation, affect the PI if projects and programs under a PMO's domain?

In addition, this primary question supported the following subsidiary questions:

Question 1: Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives?

Question 2: How do various levels of financial obligation, affect a project, and program's PI scores?

Question 3: Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index?

Research Design

This quantitative study used a non-experimental records-based research design to determine the impact that project and program performance reporting, along with various levels of financial obligation, would have on these projects and program's PI scores.

Setting for the Study

The setting for this study was the publicly available government data, which is contained in the United States Government Accountability Office (GAO) August 2012 Report to Congressional Committees entitled: " Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management. Appendix III, within this report, lists the performance goals and accountability for 52 Programs that can support entrepreneurs, fiscal 2011. The GAO's function was to analyze the use of public funds; evaluate federal projects, programs and policies; and provide examination, recommendations, and other assistance to help Congress provide proper oversight, policy, and funding decisions. This functional requirement reflected the PMO responsibilities, as argued by PMI (2013) who charged that a PMO is delegated the authority as a key stakeholder, to audit, evaluate, and investigate how entities under its domain are using financial resources provided to them. Since the GAO and the PMO functional responsibilities mirrored one another, the results of the GAO 2012 report on federal projects and programs helped to provide an understanding of how the degree of performance tracking and level of financial obligation could influence the PI of projects and programs under a PMO's domain as well. More specifically, the data in this GAO 2012 report was instrumental in answering each of the following three research questions:

Question 1

Question 1: Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives?

The hypotheses and null hypothesis for the first research question is as follows:

$H_0$1: There will be no difference in PI scores of fully tracked and partially tracked projects and programs.

H_A1: There will be a significant difference in the PI scores of fully tracked and partially tracked projects and programs.

Methodological Approach

The alternative hypothesis had one continuous dependent variable, the PI, and two categorical independent variables, partial and full tracking, which came from different participants. Figure 13 depicts this relationship. These variables came from the various projects and programs identified in the GAO report. There are 76 samples of independent data, which met the assumption for parametric tests according to Field (2009), who claimed that samples of 30 or more tend to be normally distributed. An independent *t*-test was the most suitable approach to answering this research question according to Field (2009), who argued that a *t*-test becomes necessary when there is one continuous dependent variable with two categorical independent variables.

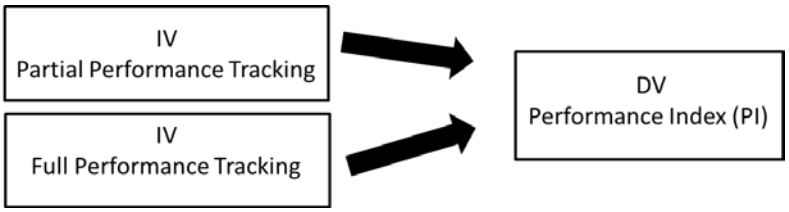

Figure 13. The relationship of the DV and IV for research question 1.

Calculating the size of the independent sample *t*-test effect, according to Vogt (2007), requires converting the *t*-statistic into a value of *r*, which calls for squaring the value of *t,* and then dividing it by the squared value of *t,* plus the degrees of freedom *df.* Finally, the square root of the remaining number produces the *r*.

Question 2

Question 2: How do various levels of financial obligation, affect a project, and program's PI scores?

The hypotheses and null hypothesis for the second research question is as follows:

$H_0$2: There will be no relationship between the project and program's level of financial obligation and its PI score.

H_A2: There will be a significant relationship between the project and program's level of financial obligation and its PI score.

Methodological Approach

The alternative hypothesis has one continuous dependent variable, PI, with one continuous independent variable, level of financial obligation as illustrated in figure 14. The GAO report provided 76 samples of data showing different projects and programs having various levels of financial obligation and corresponding PI scores. As was the case with the categorical data, the 76 samples of continuous data also met the assumption for parametric tests, thus a simple regression analysis addressed the second research question of whether or not there will be a significant relationship between the program's level of financial obligation and its PI score. Field (2009) noted that a simple regression analysis is required when there is one dependent variable with a continuous outcome, using one continuous independent variable.

Figure 14. The relationship of IV and DV for research question 2.

Question 3

Question 3: Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index?

The hypotheses and null hypothesis for the third and final research question is as follows:

$H_0$3: There is no explanatory and predictive relationship between the independent variables -- fully tracked and partially projects and programs, and the level of financial obligation -- and the dependent variable, performance index.

H_A3: There is an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index.

Methodological Approach

The alternative hypothesis had one continuous dependent variable, PI, with two independent variables, which were both continuous and categorical. Figure 15 illustrates these variables. The GAO report provided 76 samples of independent data, which also met the assumption for parametric tests, thus a Multiple Regression analysis was the best approach to address this research question. As argued by Field (2009), a multiple regression analysis is required when there is one continuous outcome and two or more independent variables, which can be both continuous and categorical.

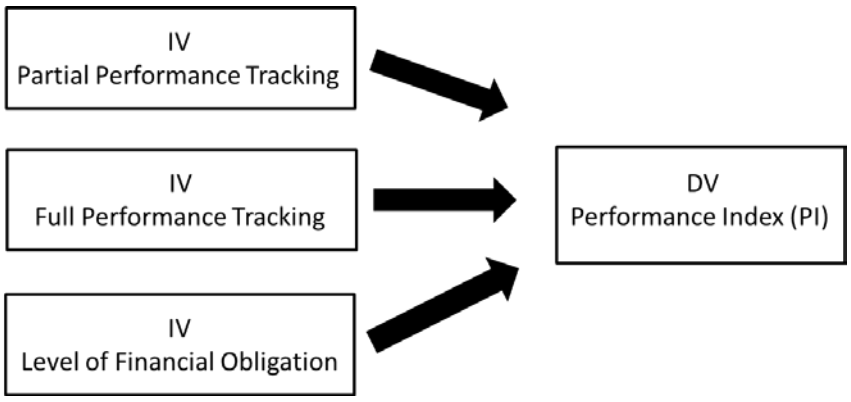

Figure 15. The relationship between the IV and DV for research question 3.

The Population

The population the sample intended to generalize is a standard PMO. Hill (2004) noted that PMOs could evolve from a Project Office and Basic PMO, to a Standard PMO, an Advanced PMO, and eventually a Center of Excellence. When comparing the GAO to the evolution of PMOs it would exemplify the standard PMO, which has the authority to monitor projects and programs, but does not have the ability to control resourcing in the same manner that is indicative of higher forms of PMOs.

Sample Frame

The publicly available government data, collected by the government, is contained in the United States Government Accountability Office (GAO) August 2012 Report to Congressional Committees entitled: "Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management. In this report, appendix III listed the performance goals and accountability for 52 Programs that can support entrepreneurs, fiscal 2011 that had an estimated $2.0 billion in funding.

Included in the sample frame were projects and programs from the Department of Agriculture (USDA), Commerce, and Housing and Urban Development (HUD) and the Small Business Administration (SBA). This sample frame addressed all projects and programs listed in the GAO report for 2011 in order to determine how the degree of tracking and level of financial obligation (IV's) would influence the program's performance index (DV). The report provided data on project and program performance tracking of 80 different entrepreneurial assistance project and program initiatives, along with various levels of financial obligations attached to these projects and programs.

The following is a short section from this GAO highlighting the importance of the programs to support entrepreneurs, yet it also states that performance measurements were lacking, which in turn could be a contributing factor to program failures.

> August 23, 2012
>
> Congressional Committees
>
> Entrepreneurs play a vital role in the U.S. economy. The federal government provides a variety of support and assistance to them, and dozens of programs exist to support entrepreneurs across numerous federal agencies… Agencies do not maintain information in a way that would enable them to track activities for most of their programs. Further, the agencies lack information on why some programs have failed to meet some or all of their goals. While information from program evaluations can help measure program effectiveness, agencies have conducted evaluations of only 20 of the 52 active programs since 2000.

Sampling Procedure

The GAO conducted a performance audit of their entrepreneurial projects and programs from June 2011 to July 2012 in accordance with generally accepted government auditing standards. The GAO interviewed 14 officials from four federal agencies, nine officials from two regional commissions, four entrepreneurs who have received federal support, and five state and local partners in both urban and rural areas. The GAO also reviewed agency documents and conducted interviews in both headquarters and the field to identify the entrepreneurial performance goals and accomplishments, as well as to determine the level of project and program evaluation used.

Data Analysis

Data collected from the GAO August 2012 Report to Congressional Committees entitled: " Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management was tabulate into Appendix B and the 76 cases, which had all the variables required for this study, was summarized into an Excel file as noted in Appendix A. SPSS Version 20 analyzed this Excel file. The analysis included an independent sample *t*-test, simple regression analysis, and multiple regression analysis. The results of the analysis exist in Tables 3 to 14.

An independent sample *t*-test determined if partial performance tracking and full performance tracking created significant differences in PI scores of project and program initiatives. This research question had one continuous dependent variable, the PI, and two categorical independent variables, partial and full tracking, which are from different participants.

As argued by Field (2009) a *t*-test is required when there is one dependent variable with a continuous outcome and two categorical independent variables.

A simple regression analysis determined how various levels of financial obligation, affected a project, and program's PI scores. Field (2009) noted that a simple regression analysis is required when there is one dependent variable with a continuous outcome, using one continuous independent variable. This was the case in this question as there was one continuous dependent variable, PI, with one continuous independent variable, level of financial obligation.

Finally, a multiple regression analysis proved to be the best option to determine if there was an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index. As argued by Field (2009), a multiple regression analysis is required when there is one continuous outcome and two or more independent variables, which can be both continuous and categorical. This was the case in this question as PI was the one continuous dependent variable. The level of financial obligation was the one continuous independent variable. Finally, partial and full tracking were the two categorical independent variables.

Table 2 provides a summary of this study's three research questions along with the variables and statistical analysis used.

Table 2

Statistical Analysis

Research Questions	Variables	Statistical Analysis
1. Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives?	Dependent Performance Index (PI) Independent Partial and Full Tracking	Independent Sample *t*-test
2. How do various levels of financial obligation, affect a project, and program's PI scores?	Dependent Performance Index (PI) Independent Level of Financial Obligation	Simple Regression Analysis
3. Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index?	Dependent Performance Index (PI) Independent Partial and Full Tracking	Multiple Regression Analysis

Validity and Reliability

When considering validity and reliability Vogt (2007) noted that a chosen methodology should have particular strengths relative to other possible methods. The strength of this quantitative methodology is that this records-based research provided the best approach to confirm or deny the two hypotheses. The literature review showed how the GAO mirrors the PMO in essentially every way, thus the PI reported in the United States Government Accountability Office (GAO) August 2012 Report to Congressional Committees entitled: "Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-

Tracking, and Performance Management, provides the evidence that directly aligns with this research.

In this GAO report, appendix III listed the performance goals and accountability for 52 Programs and numerous projects that supported entrepreneurs in fiscal 2011. This sample provided a sufficiently large amount of data to provide a robust analysis to address the research question of whether there would be a significant difference in the PI scores of fully tracked and partially tracked projects and programs. It also generated an even larger amount of data to determine if there was a significant relationship between the project and program's level of financial obligation and its PI score. Finally, the results also provided an initial step towards additional research that can focus on generating PMO value for the organizations they intend to serve.

Ethical Considerations

This record-based research used publicly available government data, in the United States Government Accountability Office (GAO) August 2012 Report to Congressional Committees entitled: " Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management. Thus, the government data collected by the government should not pose any ethical considerations.

In addition, the GAO conducted a performance audit of the entrepreneurial assistance projects and programs from June 2011 to July 2012 in accordance with generally accepted government auditing standards.

CHAPTER 4. RESULTS

Introduction

This study's purpose was to gather data from the GAO (2012) report in order to better understand if the frequency of project and program performance reporting, and/or the level of financial obligation, would have an impact on the PI scores of these projects and programs. Furthermore, this study also set out to examine how much of an explanatory and predictive relationship the reporting frequency, and level of financial obligation, would also have on these scores.

Description of the Data in the GAO (2012) Report

The GAO August 2012 Report to Congressional Committees: " Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management, contained the accomplishments of 52 programs, which were designed to support entrepreneurs in fiscal 2011.

These 52 programs and their raw data are contained in appendix B. Four major agencies were responsible for all the programs and projects in the report. The first was Commerce, whose projects were to provide economic development and technical assistance. The second were projects within the Indian Community Development initiative of Housing and Urban Development call (HUD). The third were projects designed to help start up the businesses in the Small Business Administration (SBA). Finally, the fourth was the U.S. Department of Agriculture (USDA), who had projects intended to build rural business opportunities.

The program number in the far left hand side of appendix B, under the heading "Program", represented the 52 programs that were run by one of these agencies. When a number

under the heading "Program" repeated it meant that particular program had various projects, with one overall program budget obligation for these projects. For example, Program number one had the number one repeated to show three projects that made up this program. This is why all three of these projects had the same financial obligation. However, each of these project initiatives within these programs also had their own individual targets, which could have been a specific project scope, cost, or time requirement. These specific targets had both a planned starting value, and a planned ending value, which when divided created the PI value under the heading "PI" for each of these project initiatives.

Appendix B also contains the goal value of the projects and programs in the report, listed right after the PI column. The column heading "Met Indiv" refers to projects that met their individual goals. Since projects typically have three constraints being, scope, time, or cost, three possible individual goals exist, to measure a project. This is in addition to the total goal of achieving all three triple constraints. PMI (2013) highlighted this duality of project management responsibility, because when it came to the triple constraints of scope, time, and cost, there is typically one that becomes the dominant constraint, which requires particular attention be given to it, as the other two constraints are being managed.

Under the heading "Met Indiv" in Appendix B, a project achieved a goal value of zero if the project reported it did not achieve any goal in relation to its scope, time, or cost objective. If the project partially delivered its individual goal, the value was one. Finally, if the project met its entire individual goal, it achieved a value of two, which could mean it fully met a scope goal, time goal, or cost goal. The same existed for all goals achieved. If the project did not obtain any of its targets of all goals required, it generated a zero. If it met some of its targets, of all goals

acquired, it earned a value of one. Finally, if it met its entire target, of all goals obtained, it received a two, which suggests the project fully met all three, of its scope, time, and cost targets.

In appendix B, the "Track value" of the projects exists in the far right part of the heading. A project displaying a "y", representing "yes", under the heading of "0-Track", "1-Track", and "2-Track" to signify that one of these three types of tracking had taken place for each of the projects. If there was a "y" under the heading "0-Track" it implied that the project did not track any goal related to its scope, time, or cost requirements and hence it was given a track value of zero. If the project partially tracked any individual goal, it obtained a "y" to represent "yes" and a tracking value of one. Finally, if the project fully tracked both individual, and all goals, it received a "y" for both, and a total value of two. This value of two could signify for instance that it fully tracked a specific goal in scope, time, or cost, as it also continued to track all these goals.

The GAO (2012) report noted that many agencies, within the report, failed to provide a sufficient understanding of the data tracking and performance management bestowed upon them. Hence, of the 141 possible cases displayed in appendix B, only 76 contained all three variables required for this study, as highlighted in appendix A. The three variables were levels of performance tracking, financial obligation, and their associated PI score.

Exploring each of these three variables in more detail begins with the variable called tracking. Table 3 shows how the level of performance tracking factored into the 76 projects and programs from the GAO (2012) report, as highlighted in appendix A. Table 3 shows that 55.3% of the performance tracking of the projects and programs in these 76 cases existed partially, whereas 44.7% of these 76 projects and programs had full tracking throughout their lifecycle.

Table 3

Tracking

			Value	Count	Percent
Standard Attributes	Position		1		
	Label	Tracking			
	Type	Numeric			
	Format	F8.2			
	Measurement	Ordinal			
	Role	Input			
Valid Values	1.00	Partial performance tracking		42	55.3%
	2.00	Full performance tracking		34	44.7%

Table 4 highlights the second variable used in this study, which was the level of financial obligation. The 76 projects and programs acquired from the GAO (2012) report, highlighted in appendix A had an average amount of approximately $44 million, with a standard deviation of approximately $37 million. This emphasizes the large dollar investments behind these various projects and programs, which in the lower range was about $15 million in the first quartile, to approximately $30 million in the second quartile, and finally up to approximately $78 million in the third quartile.

Table 4

Financial Obligation

		Value
Standard Attributes	Position	2
	Label	Financial Obligation
	Type	Numeric
	Format	DOLLAR16
	Measurement	Scale
	Role	Input
N	Valid	76
	Missing	0
Central Tendency and Dispersion	Mean	$44,132,596
	Standard Deviation	$37,729,075
	Percentile 25	$15,493,500
	Percentile 50	$31,352,000
	Percentile 75	$78,720,000

Table 5 displays the third and final variable used in this study, which was the performance index (PI). The 76 projects and programs utilized from the GAO (2012) report, highlighted in appendix A had a mean value of approximately 1.47, with a standard deviation of 1.09. This suggests that these 76 projects and programs had exceeded their expected outcome on average by 47%. In the first quartile, the PI value was approximately .95, which means projects that fell in this range were 5% below their intended target. In the second quartile, the PI value was approximately 1.08, which indicates that projects and programs in this range ended up approximately 8% better than their original target. Finally, the third quartile went up to a PI of approximately 1.8, which indicates that projects and programs in this range had nearly doubled their intended performance objectives.

Table 5

Performance Index

		Value
Standard Attributes	Position	3
	Label	Performance Index
	Type	Numeric
	Format	F8.2
	Measurement	Scale
	Role	Input
N	Valid	76
	Missing	0
Central Tendency and Dispersion	Mean	1.4780
	Standard Deviation	1.09099
	Percentile 25	.9550
	Percentile 50	1.0850
	Percentile 75	1.8050

Table 6 provides a description of all three variables together. What are particularly helpful in this table are the minimums and maximums. In the case of tracking the minimum level was a 1 note partial tracking, and full tracking noted by a 2. There were numerous cases of no tracking existing in the GAO (2012) report, but as can be expected, this lack of tracking failed to produce all the variables needed for this study, particularly a PI value, which would require both a starting and ending outcome to determine.

Additional minimums and maximums showed that financial obligation in the GAO (2012) report went from a low of approximately $2.5 million, to a high of approximately $130 million. Finally, Table 6 also reveals that PI values went from a low of zero, suggesting no starting objectives had been achieved, to a high of 6.03, which indicates that some projects and programs had exceeded their original target by 600%.

Table 6

Description of the Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Tracking	76	1.00	2.00	1.4474	.50053
Financial Obligation	76	$2,581,000	$130,323,000	$44,132,596	$37,729,075
Performance Index	76	0.00	6.03	1.4780	1.09099
Valid N (listwise)	76				

The data from the GAO (2012) report, contained in appendix B, which was further rationalized into the 76 usable cases, contained all three variables, as indicated in appendix A. The data displayed in these 76 cases were checked for assumptions of normality using a p-plot as displayed in figure 16. This normal P-P plot of PI values is indicative of normally distributed residuals as noted by Field (2009), who asserted that normal probability plots can have moderate deviations from the line. Hence, it can be assumed that the distribution of PI scores, although moderately skewed, is still a good representation of a normal distribution.

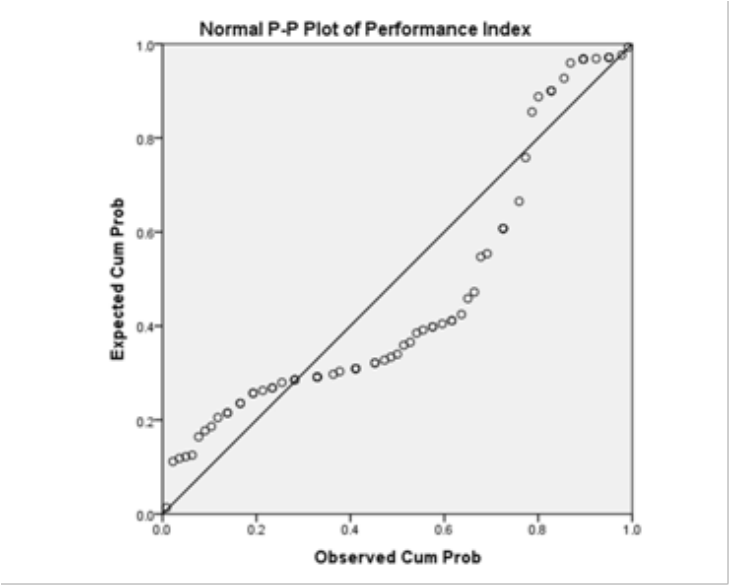

Figure 16. Normal P-P Plot of Project and Program PI Scores.

Response to Research Question 1

The first question is as follows:

Question 1: Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives?

The hypotheses and null hypothesis for the first research question was as follows:

$H_0$1: There will be no difference in PI scores of fully tracked and partially tracked projects and programs.

H_A1: There will be a significant difference in the PI scores of fully tracked and partially tracked projects and programs.

Rejecting the null hypothesis in this first research question called for the analysis to prove that there was a difference in PI scores of fully tracked and partially tracked projects and programs within the GAO (2012) report.

Table 7 is the output of the independent sample *t*-test. It provides an understanding as to the significance of the difference in mean values between the two levels of reporting by using an independent *t*-test, which Field (2009) argued is performed when there are two conditions being examined that have different participants being used in each condition. In this study each of the 76 cases was unique in that they were either classified as partial reporting or full reporting.

Table 7

Group Statistics of Partial and Full Performance Tracking

Tracking		N	Mean	Std. Deviation	Std. Error Mean
Performance Index	Partial performance tracking	42	1.2381	.52728	.08136
	Full performance tracking	34	1.7744	1.48187	.25414

The group statistics in table 7 showed that the 42 projects and programs using partial performance tracking had a mean PI value of 1.23, whereas the mean PI value for the 34 projects and programs that performed full tracking had a noticeably higher mean score of 1.77. When dividing 1.77 into 1.23, the difference represents an approximate 44% improvement in the mean PI scores, when performance reporting in the GAO (2012) report went from partial tracking to full tracking.

Table 7 also shows that in the case of partial performance tracking, the standard deviation was .527 from its mean PI value of 1.23. In addition, the standard error of the partial

performance tracking was .0813. Finally, table 7 highlights that full performance tracking had a standard deviation of 1.48 from its mean PI value of 1.77, which is a larger deviation than existed in partial performance tracking.

Table 8 is also an output of the independent sample *t*-test. It has two rows that display the values for the test statistics. The first row called "equal variance assumed" represents the parametric test assumption that the variances between partial and full tracking are roughly equal. The second row called "equal variances not assumed" allowed adjustments to be made if the variance between partial and full tracking were not assumed to be equal.

Table 8

Independent Sample T-Test

		Levene's Test for Equality of Variances	
		F	Sig.
Performance Index	Equal variances assumed	12.339	.001
	Equal variances not assumed		

Independent Sample T-Test

		t-test for Equality of Means						
		t	*df*	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval	
							Lower	Upper
Performance Index	Equal variances assumed	-2.184	74	.032	-.53632	.24559	-1.02567	-.04696
	Equal variances not assumed	-2.010	39.775	.051	-.53632	.26684	-1.07572	.00309

Determining if the variances between partial and full tracking are equal can be resolved using the Lavene's test. According to Vogt (2007), tests if the variances are different in the two groups. As further noted by Field (2009), if Lavene's test has a significance that is equal or less than .05, there is confidence that a violation in the homogeneity of variances has occurred, which implies that the variances are different.

As displayed in Table 8, the Levene's significance test has $F = 12.33$, and a significance of .001. In this case, as noted by Field (2009), if the Levene's test is significant then the test results should be read from the row entitled equal variances not assumed. Thus, the equal variance not assumed in Table 8 shows the mean difference in PI scores between partially tracked and fully tracked performance to be -.536, and that the standard error of the sampling distribution of differences was .266. In the case of the 2-tailed test, the value is .051, which is greater than .05. Therefore, it can be concluded that there is no significant difference between the means of the two samples.

Calculating the size of the effect, according to Field (2009), requires converting the *t*-statistic into a value of *r*, which came to .246. As argued by Vogt (2007), an effect size of .3 represents a medium threshold effect. Thus, it can be further concluded that the difference in mean values between partial and full tracking, represented a fairly substantive effect.

The independent t-test in Table 5 indicates that on average, full performance reporting generated a greater PI value (PI = 1.77, SE = .254), than partial tracking PI value (PI = 1.23, SE = .081). This difference was significant whereby $t(74) = -2.184$, $p < .05$. In addition, the difference represented a medium-sized effect $r = .246$.

Hence, the conclusions of the results for this first research question that the mean values are both sizeably different, and statistically significant, confidentially supports the rejection of

the null hypothesis that there will be no difference in PI scores of fully tracked and partially tracked projects and programs.

Response to Research Question 2

The second research question is as follows:

Question 2: How do various levels of financial obligation, affect a project, and program's PI scores?

The hypotheses and null hypothesis for the second research question was as follows:

$H_0$2: There will be no relationship between the project and program's level of financial obligation and its PI score.

H_A2: There will be a significant relationship between the project and program's level of financial obligation and its PI score.

Rejecting the null hypothesis in this second research question called for the analysis to prove that there was a relationship in the GAO (2012) report data, between the project and program's level of financial obligation, and its PI score. More specifically, this research had to examine if financial obligation, a continuous independent variable, had an influence on the dependent variable, a continuous PI score. Thus, the best analysis for this was a simple regression, which Field (2009) noted is required when one dependent variable has a continuous outcome, which could be influenced by one continuous independent variable. In addition, Vogt (2007) declared that a regression analysis is a suitable way to predict one outcome variable from one predictor variable.

One of the first considerations in determining if a relationship exists between the independent variable and dependent variable is through a scatterplot. Figure 16 displays the results of performing a scatterplot on the variables PI, and their associated financial obligation.

This scatterplot shows the financial obligation amounts on the *y*-axis, and the PI scores on the *x*-axis. The regression line that these two variables produced has a slightly positive slope up and to the right, which Field (2009) claimed is indicative of a positive relationship. Thus, the more money that was invested into the 76 projects and programs, within the GAO (2012) report, the more the PI value grew. The scatterplot also showed that there were some very large PI values, despite the minimal amounts of money that were invested in these projects and programs. Conversely, the scatterplot revealed that even when large amounts of money are invested, the PI values could still be relatively low.

The scatterplot in figure 17 recognized that there are a few outliers in the plot, which are the PI value of approximately 6.0. These outliers suggested that these projects and programs performed six times better than their initial target. Thus, their outcome was 600% better than what was to be expected when they were first initiated. Despite this amazing showing, the other PI values appeared to be more evenly dispersed around the regression line, and were also more uniformly spaced out, suggesting there is homoscedasticity in this data.

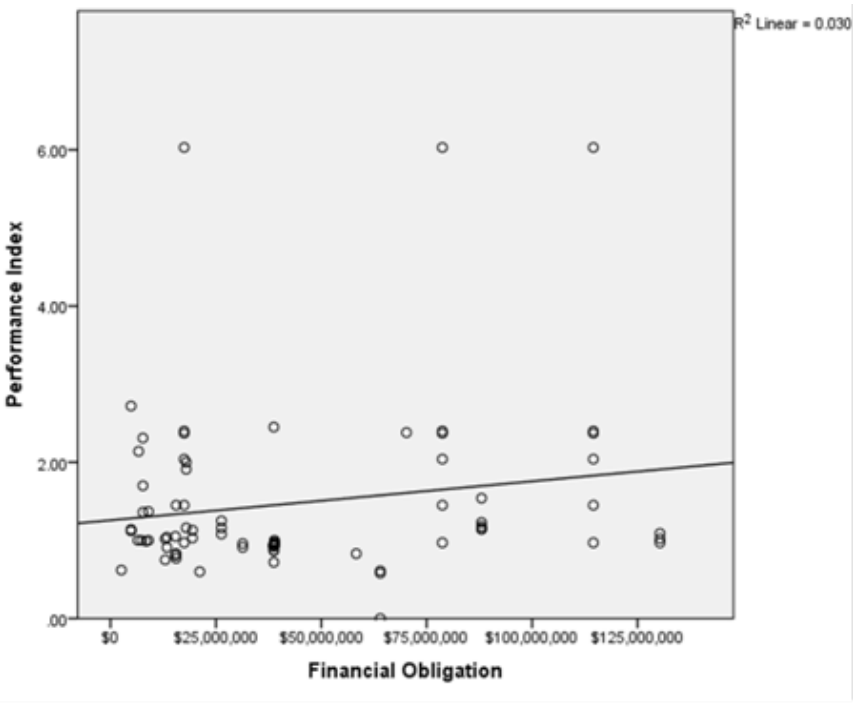

Figure 17. Scatterplot of Project and Program Financial Obligation and PI Scores.

Further interpreting this simple linear regression can be understood through the summary table 9. This table provided the *R* and R^2 for the regression model in figure 17. The *R* value of .173 represented the simple correlation between the level of financial obligation and the associated PI score. The R^2 value of .030 indicated that financial obligation could account for approximately 3% of the variation in PI scores. Conversely, this also suggested that approximately 97% of the variation in PI couldn't be explained by financial obligation alone. Thus, it further argued that there must be other variables that were having an influence on PI.

Table 9

Summary Table of Simple Regression

Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate
1	.173[a]	.030	.017	1.08186

Table 10 provided a report on the variance called the analysis of variance (ANOVA). As announced by Vogt (2007) the ANOVA indicates whether the regression line will result in a significantly good degree of predicting the dependent variable, which in this study is the PI score. The summary table shows the various sums of squares and the degrees of freedom for each. According to Field (2009), the mean squares are determined by dividing the sums of squares by the associated degrees of freedom. A key in this table is the *F*-ratio, which in this case is 2.27, and according to Vogt (2007), could be significant at $p < .05$. Because the significance is .136 it does not provide the confidence that there is less than a .5% chance that this 2.27 value would happen if the null hypothesis were true. Thus, it cannot be concluded that that the relationship between the level of financial obligation and the PI scores is statistically significant. Furthermore, it cannot be concluded that the regression model predicts PI scores in a manner that is statistically significant, even though the scatterplot suggests there is some type of positive relationship.

Table 10

An Analysis of Variance of the Simple Regression

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	2.658	1	2.658	2.271	.136[b]
	Residual	86.611	74	1.170		
	Total	89.269	75			

Table 11 helped to provide a further understanding regarding the contribution that financial obligation made in predicting the PI scores. This table contains the details of the model parameters, defined as the beta values, and what significance they represented. The table showed the b_o value was 1.258, which can be understood to mean that when no financial obligation exists, the regression model predicts that PI will be 1.258. The b_1 value in Table 11 was 4.990E-009, which represented the gradient (slope) of the regression line. As highlighted by Field (2009), the gradient of the line represents the change in outcome that results from a unit of change in the predictor. Thus, a unit change in financial obligation would suggest a 4.990E-009 change in the PI score, however it is not statistically significant because .136 is much larger than .001, therefore the financial obligation is not a particularly good predictor of the level of PI.

Table 11

Coefficients to Determining the Contribution of Financial Obligation

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	1.258	.192		6.561	.000
	Financial Obligation	4.990E-09	.000	.173	1.507	.136

The simple regression analysis may not have suggested that financial obligation is a good predictor of the level of PI, however the Scatterplot of project and program financial obligation and PI scores did demonstrate there was a slightly positive slope up and to the right, which is indicative of some type of positive relationship. Thus, the more money that was invested into the 76 projects and programs, within the GAO (2012) report, the more the PI values grew.

Hence, the conclusions of the results for this second research question provided the basis to reject the null hypothesis that there will be no relationship between the project and program's level of financial obligation and its PI score.

Response to Research Question 3

The third research question is as follows:

Question 3: Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index?

The hypotheses and null hypothesis for the third and final research question was as follows:

$H_0$3: There is no explanatory and predictive relationship between the independent variables -- fully tracked and partially projects and programs, and the level of financial obligation -- and the dependent variable, performance index.

H_A3: There is an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index.

Rejecting the null hypothesis in this third research question called for the analysis to determine that there was an explanatory and predictive relationship between the independent variables -- fully tracked and partially projects and programs, and the level of financial obligation -- and the dependent variable, performance index. Accomplishing this required a multiple regression analysis, which Vogt (2007) maintained is used when you have several predictor variables and one outcome variable.

Table 12 shows a description of statistics for regression analysis. The performance index (PI) had a mean value of 1.47, with a standard deviation of 1.09, for the 76 projects and

programs within the GAO (2012) report. This suggested that these projects and programs, on average, exceeded their initial performance target by 47%. The mean score of performance tracking (PI) of these 76 projects and programs was 1.44, with a standard deviation of .5. This average value can be better understood by examining the codebook in appendix B that highlighted that 55.3% of the performance tracking of the projects and programs in the GAO (2012) used partial performance reporting, whereas 44.7% of these 76 projects and programs had full tracking throughout their lifecycle. Finally, financial obligation had an average investment of $44, 132, 596, with a standard deviation of $37, 729, 075, for the 76 GAO projects and programs that this study analyzed.

Table 12

Descriptive Statistics for Regression Analysis

	Mean	Std. Deviation	*N*
Performance Index	1.4780	1.09099	76
Tracking	1.4474	.50053	76
Financial Obligation	$44,132,596	$37,729,075	76

The model summary in Table 13 represented a stepwise multiple regression analysis, where model 1 was the level of performance tracking, and model 2 was the level of financial obligation. This sequence was chosen because the previous research question indicated that financial obligation could not be proven to be statistically significant, hence it was put second.

Table 13 also reported the PI scores, which is the dependent variable. If just the level of performance measuring was used, then it would be a simple regression, but the addition of the independent variable, level of financial obligation, created a multiple regression. The *R*

measurement of .246 represented the correlation between the level of performance tracking in the GAO (2012) report and the associated PI score. However, since the second model was added to represent the level of financial obligation, this score increased to .313.

The R^2 value in this table for model 1 is .061, which indicated the variability in PI that can be accounted for by the level of project and program performance measurement in the 76 cases from the GAO (2012) report. This suggested that 6.1% of the variability in PI scores can be connected to the level of performance tracking however, when the level of financial obligation was added in model 2, the R^2 value increased to 9.8%. Therefore if the level of performance measurement accounted for 6.1%, the 3.7% difference can be attributed to the influence of the financial obligation. Thus, the inclusion of the financial obligation explained an increase in variation in PI scores.

Table 13

Model Summary of Multiple Regressions

					Change Statistics					
Model	*R*	*R* Square	Adjusted *R* Square	Std. Error of the Estimate	*R* Square Change	*F* Change	*df1*	*df2*	Sig. *F* Change	Durbin-Watson
1	.246[a]	.061	.048	1.06457	.061	4.769	1	74	.032	
2	.313[b]	.098	.073	1.05034	.037	3.018	1	73	.087	1.722

The adjusted R^2 value provided an idea of how well these two models could be generalized. As explained by Field (2009), the difference between R^2 value, and the adjusted R^2 value, suggests how much the sample can be derived from the population it is intending to represent. In model 1, the difference for the second model was .098-.073 = .025, which is a departure of about 2.5%. Thus, this shrinkage of 2.5% implied that if the model were derived

from the population, rather than a sample, it would account for roughly 2.5 % less variance in the outcome.

The R^2 change value in Table 13 explained whether the change in R^2 was significant. Hence, in this table, model 1 caused the R^2 value to change from 0 to .061, and that the amount of variance change was explained by the F-ratio of 4.76. As charged by Field (2009), an *F*-ratio represents the amount of improvement in making a prediction from fitting the model. In the case of model 1, this *F*-ratio is significant at a $p < .05$, as reinforced by Vogt (2007) who affirmed that if a significance value is less than .05, the predictor is making a statistically significant contribution to the model. The addition of the level of financial obligation in the second model caused the R^2 to increase by .037. The change in this amount of variance can be explained by the *F*-ratio of 3.018 that had a significance of .087, which is more than $p < .05$, making it less significant.

The last statistic in table 13 is the Durbin-Watson statistic, which Field (2009) acknowledged determines if the assumption of the independent error can be defended. Field indicated that values of less than 1, or greater than 3, should cause concerns. In this model the value was 1.722, which would suggest it is acceptable and is also fairly close to the value of 2. As Field indicated, a value close to 2, suggests the assumption has most likely been met.

Table 14 displays an ANOVA, which helped to determine if the regression model was a better fit, then the alternative of making a "best guess" using the PI mean value of 1.47.

Table 14

ANOVA for Multiple Regressions

Model		Sum of Squares	*df*	Mean Square	*F*	Sig.
1	Regression	5.405	1	5.405	4.769	.032[b]
	Residual	83.865	74	1.133		
	Total	89.269	75			
2	Regression	8.734	2	4.367	3.958	.023[c]
	Residual	80.535	73	1.103		
	Total	89.269	75			

In Table 14 both the level of performance tracking, model 1, and the level of financial obligation, model 2, were both represented. The sum of squares in the two models showed the improvement in prediction when the regression line was fitted to the data. According to Field (2009), if the value of the sum of square is large, the regression model is a much better predictor of the dependent variable, than just using the mean value. In this model the sum of square was 5.4 for the level of reporting, and 8.73 for the level of financial obligation.

The residual sum of squares (SS_R) represented the total difference between the model and the observed data. In model 1 the SS_R was 83.8, and in model 2 it was 80.53. Table 11 also produced the degrees of freedom (*df*), which highlighted the improvement due to the model, as indicated by its value that is equal to the number of predictors. In model 1, level of reporting, the *df* was 1, and in model 2, level of financial obligation, the *df* was 2. The residual sum of squares SS_R was equal to the number of observation, which in this research was 76, minus the number of coefficients in the regression model. Table 14 shows that both the first and second model had two coefficients, one for the predictor, and one for the constant. Thus model 1, level of

reporting, and model 1, level of financial obligation, both had 76 – 2 = 74 degrees of freedom. The average sum of square, referred to as the mean square, in Table 14 was calculated by dividing the sum of squares by the degrees of freedom.

The *F*-ratio in table 14 was determined by dividing the average improvements in the prediction model by the average differences between the model and the observed data. As argued by Field (2009), if the improvement that results from fitting the regression model is greater than the inaccuracies within the model, then the *F* value will be greater than 1. Thus, in model 1, the level of performance reporting, was 4.76, and in model 2, level of financial obligation, was 3.95. Both of these values were above 1 suggesting the regression model was a better fit than using the mean PI value of 1.47, as the prediction to what the dependent variable would be. The statistical significance for both models was less than $p < .05$.

Therefore, the results in Table 14 can be understood to mean that the level of performance tracking improved the ability to make a prediction of the resulting value of PI, but that the level of financial obligation actually reduced the ability to predict. As noted in Table 14, the *F*-value went from 4.76 in model 1, down to 3.95 in model 2.

Table 15 addressed the parameters of the models used in the regression analysis. The first part of this table provided estimates of the *b*-values, which indicated the relationship between PI scores and the predictors of tracking and financial obligation. A positive value suggested that there was a positive relationship between the predictor and the outcome, being the PI score. This table also showed that the level of tracking, and the level of financial obligation, both had positive *b*-values, thus indicating a positive relationship.

Table 15

The Parameters of the Models

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	*t*	Sig.
1	(Constant)	.702	.376		1.867	.066
	Tracking	.536	.246	.246	2.184	.032
2	(Constant)	.405	.408		.992	.325
	Tracking	.571	.243	.262	2.347	.022
	Financial Obligation	5.603E-09	.000	.194	1.737	.087

The Parameters of the Models

Model		95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	*VIF*
1	(Constant)	-.047	1.451					
	Tracking	.047	1.026	.246	.246	.246	1.000	1.000
2	(Constant)	-.409	1.219					
	Tracking	.086	1.055	.246	.265	.261	.993	1.007
	Financial Obligation	.000	.000	.173	.199	.193	.993	1.007

These positive relationships suggested that as tracking increased, PI scores increased. This was also the situation with financial obligation, as it increased, so too did the PI scores. The *b*-value also suggested the extent that each predictor had in determining the PI scores, if all the other predictor were held constant. In model 1 the *b*-value of .536 implied that as the level of tracking increased by one unit, the PI score would increase by .536 units. In model 2 the *b*-value

of .571 indicated that as the level of tracking rose by one unit, the PI score would rise by .571 units. The additional predictor, level of financial obligation, had a value of 5.60, which suggested that as the level of financial obligation increased by one, the PI score would increase by 5.6.

Table 15 also showed the standard error for each beta value, which explained the amount that these values would vary across different samples. The standard error values, according to Field (2009), also determine if the b-value is radically different than zero. The *t*-test in this table helped to define whether or not the predictor was making a significant contribution. In addition, the smaller the significance, along with the larger the t-test result, the more the predictor was felt to contribute. Tracking performance had a *t*-test value of 2.34 and was significant at .022; however the financial obligation *t*-test value of 1.71 was less than the tracking value, and was also not as statistically significant with its value of .087. Therefore, it appeared from the magnitude of the *t*-statistic that the level of tracking had a bigger, more significant impact on the PI scores, then the level of financial obligation.

The standardized version of the *b*-values in Table 15 provided an understanding of just how much the number of standard deviations the PI would change, from one standard change in the predictor. What makes the standardized beta values more meaningful, according to Field (2009), is that they are measured in standard deviations units. Thus, this allowed the deviations to be comparable to one another. In Table 15 the standardized beta values for tracking and financial obligation in model two were different with tracking at .26, and financial obligation at .19, indicating that tracking had a greater degree of importance in the regression model than financial obligation.

Table 15 also provided a measure of whether there was collinearity in 76 projects and programs contained in the GAO (2012) report. It did so by giving the *VIF* and tolerance statistics. As expressed by Field (2009), if the largest *VIF* is greater than 10, it is a concern, or if the average *VIF* is substantially greater than 1, it could suggest the regression is biased. Finally, Field indicated that tolerances below .2 implied a serious problem existed. The *VIF* in Table 15 were all well below 10, and the tolerance statistics were also well above .02, thus it can be concluded that there was no collinearity within the data used from the GAO (2012) report.

Table 16 displays a collinearity diagnostics that indicated whether there was a high variance proportion in the eigenvalues from the data used from the GAO (2012) report. It contained model 1, a regression with just the level of tracking, and model 2, with both the level of tracking and the level of financial obligation.

Table 16

Collinearity Diagnostics

				Variance Proportions		
Model		Eigenvalue	Condition Index	(Constant)	Tracking	Financial Obligation
1	1	1.946	1.000	.03	.03	
	2	.054	5.989	.97	.97	
2	1	2.612	1.000	.01	.01	.05
	2	.338	2.781	.02	.07	.86
	3	.050	7.243	.97	.92	.10

In model 2, of Table 16, each predictor had most of its variance loading onto different eigenvalues. Tracking had 7% of its variance on dimension 2, and financial obligation had 10% of its variance on dimension 3. As articulated by Field (2009), if any Eigenvalue in the table is

fairly similar, it provides the confidence that the regression model is relatively accurate. Furthermore, if the Eigenvalues are fairly similar, then the regression model will likely not change by small differences in the predictors or outcome. Since 7% and 10% were relatively close this suggested that the regression model was fairly accurate.

Table 16 also contains the variance proportions. As noted by Field (2009) variances in each regression coefficient can be distributed across the eigenvalues, and that the variances proportions indicate the proportion of the variance for each predictor's regression coefficient, which results from each eigenvalue. In the case of performance tracking, 7% of the variance of the regression coefficient was associated with the eigenvalue of dimension 2, and 1% was associated with the eigenvalue for dimension 1. However, Field indicated that when it comes to collinearity, the key is to determine if there are predictors that have high proportions on the same small eigenvalue, which would suggest that the variances of their regression coefficients are dependent. Therefore when examining the bottom row of small eigenvalues in Table 16, it indicated that 10% of the variance in the regression coefficient of both tracking and financial obligation was related to eigenvalue dimension 3, which had the smallest eigenvalue. This relationship implied that there was a minimal dependency between these two variables.

Table 17 provided a summary report of the multiple regressions associated with the 76 project and programs from the GAO (2012) report. In step 1, when just the level of tracking was used, it produced a Beta-value of .536. This *b*-value indicated that as the level of tracking increased by one unit, the PI score would also increase by .536 units, and that this was found to be statistically significant at $p < .05$.

Table 17

Summary Report of the Multiple Regressions

		Beta-Value	Standard Error	Standardized Coefficient
Step 1	Constant	0.702	0.376	
	Tracking	0.536	0.246	0.246
Step 2	Constant	0.405	0.408	
	Tracking	0.571	0.243	0.262
	Financial Obligation	5.60E-09	0	0.194

In step 2 of Table 17, the *b*-value of .571 indicated that as the level of tracking increased by one unit, the PI score would increase by .571 units. When the additional predictor, level of financial obligation was added, the resulting value was 5.60E-9, which suggested as the level of financial obligation increased by one, the PI score would increase by 5.6E-9. However, the addition of financial obligation to the level of tracking was not considered to be statistically significant, as its significance value of .087 was higher than $p < .05$.

The combination of both tracking and financial contribution in step 2 did not prove to be statistically significant in predicting the improvement of PI scores, the level of tracking by itself, in step 1. However, it appeared statistically significant enough at $p < .05$ to show that it alone had an explanatory and predictive relationship on the resulting PI score.

Hence, the analysis for this third research provided the basis to reject the null hypothesis that there is no explanatory and predictive relationship between the independent variables -- fully tracked and partially projects and programs, and the level of financial obligation -- and the dependent variable, performance index.

Summary

This study gathered data from the GAO (2012) report to download into SPSS where each of the three research questions was tested. This chapter produced statistical analysis that analyzed the data in this report to address each of the three questions. The conclusions and recommendations that the analysis produced are included in Chapter 5.

CHAPTER 5. DISCUSSION, IMPLICATIONS, RECOMMENDATIONS

Introduction

The PMO is gaining worldwide recognition as a possible solution to the difficulties organizations are experiencing in getting their projects to achieve their stated objectives in scope, time, and cost. However, despite their growing popularity Aubry and Hobbs (2011) asserted that justifying the value of a PMO is a continuous struggle for organizations because PMOs often fail to convincingly demonstrate how it contributes to the performance of the organization. There can be many reasons for this struggle. Williams and Samset (2010) highlighted this conflict by declaring that the general reputation with project management is that it doesn't work. This sentiment is reinforced by the Standish Group International (2010), who claimed in their Chaos 2009 Summary Report, that the majority of projects failed to achieve their expectations of delivering on time, on budget, and with the intended features and functions, and that this poor performance has been a long ongoing trend. One of the most problematic types of projects the PMO has had to deal with is the ones that come from the functional area of IT. As noted by Grenny et al. (2007), one is better off betting on a roulette wheel then on IT projects, which are estimated to fail anywhere between 66% and 91% of the time. The PMOs future is ultimately tied to this roulette wheel because as PMI (2013) reasoned, the PMO is ultimately responsible for governing the projects and programs under its domain. In addition, Cook-Davies (2007) recognized that complexity theory is the new landscape that will prevail in project management and that it will ultimately define what functions entities like a PMO must pursue in order to survive. Thus, the PMO is being forced to find a governance function that will work in its continually increasing complex environment.

Therefore, the objective of this study was to investigate what how the level of performance tracking, and the size of monetary obligation, would influence the PI of projects and programs under PMOs governance. Data used to answer these questions was drawn from the GAO August 2012 Report to Congressional Committees entitled: "Entrepreneurial Assistance", Opportunities Exist to Improve Programs' Collaboration, Data-Tracking, and Performance Management. As demonstrated in the literature review of this study, the GAO and the PMO essentially mirror each other in terms of their functionality, thus the data contained in the GAO (2012) report on performance tracking, financial obligation associated with the projects and programs, and their associated performance index (PI) scores were downloaded into SPSS for data analysis.

Results

The main question this study addressed was "to what extent does the level of performance tracking, and the level of financial obligation, influence the PI if projects and programs under a PMO's domain?" This main question was then distilled into three specific questions that could be statistically analyzed.

Question 1

Question 1: Do partial performance tracking and full performance tracking create significant differences in PI scores of project and program initiatives? This study found that there was a sizeable difference in the mean PI scores of fully tracked and partially tracked projects and programs within the GAO (2012) report, which was determined to be statistically significant using an independent *t*-test. This report provided 76 cases of projects and programs, which had various combinations of outcomes on how they were reporting on goals. Having different ways of reporting performance is not considered unusual. As PMI (2013)

acknowledged, tracking a project can often involve a singular focus on an individual goal, be it scope, time, or cost, because one of these typically puts a constraint on one or two of the others. Conversely, managing a project or program can also require the need to stay multi-focused on all three constraints, as challenged by Henrie and Sousa-Poza (2005) who described the triple constraints as the iron triangle because all three ultimately tended to play a factor in a successful project outcome.

In the GAO (2012) report it was recognized that much of the missing data regarding the level of performance tracking was due to various reasons, including the feeling that performance reporting was too costly. Thus, of the 76 cases that reported variables levels or performance tracking, there were 42 cases in which partial tracking of either, individual goals, or all goals, had a reported value, but not both. The remaining 34 cases provided full tracking where both individual and all goals had a reported value, even if it meant reporting if neither had been met. The mean PI score for the 42 cases that used partial tracking was 1.23, whereas the mean PI score for the 34 projects and programs that performed full tracking had a noticeably higher value of 1.77. Thus, on average partial tracking produced a 123% improvement between stated objectives and actual outcomes, but full tracking achieved a 177% improvement between the stated and actual outcome. In addition, when dividing 1.77 into 1.23, this analysis showed that there was an approximate 44% improvement in the mean PI scores of these 76 cases, when performance tracking in the GAO (2012) report went from partial reporting, to full reporting. When calculating the size of the effect of these mean values it was also determined that the differences between the two was fairly substantive. Hence, the conclusion of this first question was that there was a fairly substantive difference in PI scores of the 76 project and program using partial performance tracking to those that followed full performance tracking.

Question 2

Question 2: How do various levels of financial obligation, affect a project, and program's PI scores? This research determined, through a simple regression analysis, that the level of financial obligation associated with the projects and programs in the GAO (2012) report did have a slightly positive affect on these project and program PI results. When comparing the amounts of financial obligation to the PI scores of these projects and programs in the 76 cases, the resulting scatterplot showed a regression line that confirmed the more money at stake in the GAO (2012) projects and programs, the more the PI values grew. However, what was also noteworthy was that the minimum and maximum amounts of financial obligation ranged from a low of approximately $2.5 million, to a high of approximately $130 million, yet the scatterplot showed that there were some very large PI values, despite the minimal amounts of money that were invested in these projects and programs. Conversely, the scatterplot also revealed that even when large investments of money existed, the PI values were still relatively low.

The R and R^2 from the regression model within this study provided an even further understanding of the relationship between the level of financial obligation and the resulting PI scores for the 76 cases of projects and programs in the GAO (2012) report. The R value of .173 represented the simple correlation between the level of financial obligation and the associated PI score. As acknowledged by Vogt (2007) the Pearson correlation coefficient R can be no less than -1 and no more than +1, where it would suggest the two variables are in perfect sync. Thus, the R= .173 value this research generated, further supports that there is a slightly positive relationship between the level of financial obligation to the projects and programs and their resulting PI scores.

The R^2 value of .030 this research revealed indicated that financial obligation attached to the 76 projects and programs in the GAO (2012) report could account for approximately 3% of the variation in the PI scores. Conversely, this also suggested that approximately 97% of the variation in PI couldn't be explained by financial obligation alone. Hence, despite the large sums of investments made, something more substantial than the level of financial obligation, appears to be causing the resulting regression line.

The *F*-ratio in this study provided an awareness of how well its resulting regression model would improve the prediction of the PI score compared to the inaccuracies in this model. The *F*-ratio in this study was 2.27, which is considered to represent a good model as noted by Field (2009), who claimed that an *F*-ratio larger than 1 was a sign of a model that improved the prediction of the outcome, over making a best guess using the mean value. However, the statistical significance of this model was .136, which is noticeably larger than $p < .05$ made it less statistically sound.

Hence, the results of this study indicated that the simple regression analysis may not have been statistically significant in proving that financial obligation is a good predictor of the level of PI in the 76 cases from the GAO (2012) report. However, the Scatterplot, which paired these projects and programs financial obligation to the resulting PI scores, did demonstrate there was a slightly positive slope up and to the right. This suggested the more money that was invested into these projects and programs; the more the PI values were likely to grow. Thus, the conclusions to this second research question determined that there was some relationship, although minimal, between the 76 project and program's level of financial obligation and its PI score.

Question 3

Question 3: Is there an explanatory and predictive relationship between the independent variables -- fully tracked and partially tracked projects and programs, and the level of financial obligation -- and the dependent variable, performance index? The response to this third and final question built on the results to research question 2, where a simple regression helped to conclude that there was some predictive relationship between the level of financial obligation, and the resulting PI scores from the 76 cases of projects and programs contained in the GAO (2012) report. Question 3 examined what effect the variables of financial obligation and level of performance tracking would have on a multiple regression model intended to predict the PI scores of these 76 cases.

The multiple regression analysis was performed in a step manner by inputting the level of tracking first and level of financial obligation second, because the simple regression analysis results from research question two suggested financial obligation was not a strong predictor of PI. Hence, regression model 1 contained just the level of tracking, whereas model 2 consisted of both variables.

In regression model 1, which signified a simple linear regression, the Pearson correlation coefficient value of $r = .246$, highlighted the correlation between the level of performance tracking in these 76 cases and their associated PI score. As noted in the results to research question two, the more that the value r gets closer to +1, the more it represented a strong correlation of these two variables. When comparing the level of tracking from this regression analysis, which was $r =. 246$, to the level of financial obligation, which in the results to question two was $r =. 173$, it became apparent that the level of performance tracking had a stronger correlation with the PI score than the level of financial obligation. However, what is equally

important is that the Pearson correlation coefficient for the level of performance tracking was statistically significant, whereas the level of financial obligation correlation was not.

In regression model 2, which contained the multiple variables of the performance tracking, and financial obligation, the R^2 value suggested that 6.1% of the variability in PI scores could be connected to the level of performance tracking however, when the level of financial obligation was added in model 2, the R^2 value increased to 9.8%. This implied that if the level of performance measurement accounted for 6.1%, the 3.7% difference could be attributed to the financial obligation increasing the variation in PI scores.

The R^2 change value in regression model 1, for level of tracking, explained that the change in R^2 was significant and that the amount of variance change, as identified by the F-ratio of 4.76. As noted in the results to research question 2, an F-ratio larger than 1 was a sign of a good model that improved the prediction of the outcome of just using the mean as a best guess. Later, when the level of financial obligation was factored in, the positive increase in R^2 change value could not be considered statistically significant.

Although the R^2 was not considered statistically significant, the use of ANOVA for this multiple regression did verify the significance of these two models in providing a better prediction of PI scores than just using the mean PI value of 1.47. However, in model 1, the F value for the level of performance reporting, was 4.76, and in model 2, level of financial obligation, the F value was 3.95, which indicates that the level of financial obligation actually reduced the ability to predict the PI scores.

When examining the *VIF* and tolerance statistics in the parameters of the two models it could be concluded that there was no collinearity within the 76 cases used from the GAO (2012)

report. In addition the Eigenvalues of these regressions were fairly similar indicating these models would likely not change by small differences in the predictors or outcome.

Thus, it could be concluded from the multiple regression analysis that the combination of both tracking and financial contribution did provide a better prediction of the resulting PI value, than just using the mean PI value of 1.47 as a guess. However, this improvement was not considered to be as statistically sound as just using the correlation between the level of tracking and the resulting PI value. What was notable was that the simple regression in the first regression model was considered to be statistically significant enough at $p < .05$ to show that it alone could provide a much more reliable explanatory and predictive relationship on the resulting PI score.

Conclusion

The data gathered helped to further address the question raised by ISACA (2012) in the literature review which asked "what needs to be done" relative to the issue where PMOs are failing to gain traction in organizations. The results from the data provided statistical significance that there could be an anticipated increase in the performance index (PI) level of projects and programs that continually track and report their progress, over projects and programs that only do partial performance tracking. This would seem to suggest that a PMO consider how they are tracking projects and programs under their domain. Although it might seem like common sense to increase the level of performance reporting in order to gain a greater sense of understanding as to where a project or program is headed, the question remains, is this common practice? As indicated in the GAO (2012) report, measuring performance allows organizations to track the progress they are making, and that this information is crucial for decision making. However the report went on to indicate that despite the fact that measuring

performance made good sense, a majority of the programs designed to assist entrepreneurs had yet to be evaluated, and that most of the 20 that had, were only evaluated by agencies once in the past decade.

As presented in this study, the function of the GAO and the PMO were considered to mirror each other. Thus, this suggests that PMOs should follow the advice of the GAO and ensure that its project and programs provide an increased level of reporting. This increase could be particularly important to senior leadership. As advocated by Petit and Hobbs (2010), organizations need to begin to sense what the future will bring, and seize opportunities if they hope to survive. Thus, PMOs that have the authority to increase the level of performance reporting may be seen to provide senior leadership with valuable strategic intelligence these leaders likely need in their complex environment. When this value is combined with the possible increase in PI value from projects and programs following full reporting the results could create a shift in the leadership's perceptual paradigm that moves the PMO from being viewed as too costly to maintain, to it being perceived as an entity that is too costly to loose.

The data gathered also suggested that the more money that got invested into the 76 cases from the GAO (2012) report, the more the PI value would rise, but that this increase would likely be minimal at best, and could not be verified to be statistically significant. Therefore, this observation implies that PMOs should not be deceived into thinking that the larger the financial obligation of projects and programs under their domain, the more their chances are likely to be significantly better in producing a larger PI value than projects and programs with much smaller financial obligations.

Finally, the analysis of the data indicated that if the PMO were to have to determine if either the level of reporting, or the level of level of financial obligation, had a larger effect on the

PI of projects and programs, this study indicated that the PMO would be wise to focus on the level of performance tracking taking place in projects and programs. As identified in this study, the frequency of reporting was likely to have a larger impact on these projects and programs PI, and that this impact would be statistically significant. In addition, the level of financial obligation also appeared to decrease the level of reporting's ability to predict a potential PI value when the two formed part of the same regression model. Once again, this suggests that the PMO maintain vigilant governance towards frequent levels of reporting on all projects and programs, rather than just those that have higher levels of financial obligation.

Limitations

A limitation of this study was that it examined a non-probability sample of data contained in the GAO (2012) report. One of the limitations with nonprobability survey sampling, according to Vogt (2007), is that there will always be some form of sampling error because of the likelihood of the survey sample mean differing from the population mean. Non-probability sampling dominates PMO research to date. This is likely due to the cost of getting a truly representative sample of all PMOs. Thus, as argued by Cooper and Schlindler (2011), when it is not possible to conduct a random sample where everyone in the population has a chance of selection, then a nonprobability approach is best. Furthermore, Swanson and Holton III (2005) noted that a sample would always have inaccuracies because members of the population will most certainly be missing from it.

In addition, there is also a limitation in the details of how the GAO studied and produced the report. The report primarily focused on determining the extent of overlap and fragmentation among 52 federal programs that funded economic development activities, thus it may have missed other projects and programs that did not have this criterion, yet could have contributed to

the non-probability sample of data. Finally, as indicated in the data collection procedures, a limitation is that agencies in the GAO report have conducted evaluations of only 20 of the 52 active programs since 2000.

Recommendations

This research focused on the issue of PMOs failing to gain traction within the organizations that often employ a PMO to ensure that their projects and programs are delivering on market demands, strategic opportunities, social needs, and technological advancements, to name a few. Since PMOs are still relatively new in their evolutionary tract they will likely continue to be challenged with an environment that is growing in complexity, particularly when overseeing IT projects. In addition, their ability to gain authority over needed resourcing is likely not going to become any less painful in the future. Thus, trying to decipher how they should go about governing projects under their domain, in a manner that will deliver a suitable PI value, is likely to become even more problematic. Therefore, the following recommendations are made for further research:

1. Develop a study of the impact that no reporting has on the PI of projects and programs to determine what the mean PI value would be relative to partial and full reporting.

2. Develop a study to determine what other variables, besides the level of tracking, which could serve to provide a sizeable and statistically significant prediction of PI values.

3. Develop a study to determine how the level of tracking could specifically affect IT projects and their black hole issues, relative to other less complex initiatives.

4. Develop a study to examine the impact that PMO level of authority has in being able to track the progress of projects and programs it is responsible for.

5. Develop a follow-up study in order to determine if there is a significant change in the data contained in future GAO reports.

Clearly more work is required in understanding how a PMO might manage future complexities, which will most certainly continue to challenge its survival. Given all that a PMO can deliver, reason dictates that the project management community persists in making PMO research a priority.

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APPENDIX A. SUMMARY OF 76 CASES FROM THE GAO (2012) REPORT

Project	Tracking	Financial Obligation (000)	PI
1	1	$114,529	0.97
2	1	$114,529	1.45
3	1	$114,529	2.37
4	1	$78,720	0.97
5	1	$78,720	1.45
6	1	$78,720	2.37
7	1	$17,466	0.97
8	1	$17,466	1.45
9	1	$17,466	2.37
10	1	$13,373	1.04
11	1	$31,352	0.96
12	1	$15,418	1.05
13	1	$17,948	2.00
14	1	$17,948	1.16
15	1	$64,000	0.58
16	1	$64,000	0.61
17	1	$88,000	1.15
18	1	$88,000	1.23
19	1	$88,000	1.18
20	1	$88,000	1.14
21	1	$38,888	0.96
22	1	$38,888	0.98
23	1	$38,888	0.95
24	1	$38,888	0.93
25	1	$38,729	0.92
26	1	$38,729	0.72
27	1	$38,729	2.45
28	1	$38,729	0.87
29	1	$38,729	0.96
30	1	$4,865	1.14
31	1	$4,865	2.72
32	1	$130,323	1.09
33	1	$130,323	0.97
34	1	$19,446	1.13
35	1	$12,980	0.75
36	1	$8,995	1.00
37	1	$15,569	0.83
38	1	$15,569	0.77

Project	Tracking	Financial Obligation (000)	PI
39	1	$26,305	1.25
40	1	$26,305	1.08
41	1	$7,681	1.36
42	1	$7,681	1.70
43	2	$114,529	2.04
44	2	$114,529	2.40
45	2	$114,529	6.03
46	2	$78,720	2.04
47	2	$78,720	2.40
48	2	$78,720	6.03
49	2	$17,466	2.04
50	2	$17,466	2.40
51	2	$17,466	6.03
52	2	$13,373	0.91
53	2	$31,352	0.91
54	2	$15,418	0.81
55	2	$17,948	1.91
56	2	$64,000	0.00
57	2	$88,000	1.54
58	2	$38,888	1.00
59	2	$38,729	0.87
60	2	$4,865	1.12
61	2	$130,323	1.02
62	2	$19,446	1.03
63	2	$12,980	1.02
64	2	$8,995	1.37
65	2	$6,502	1.00
66	2	$58,274	0.83
67	2	$15,569	1.45
68	2	$21,171	0.60
69	2	$26,305	1.16
70	2	$7,681	2.31
71	2	$7,364	1.00
72	2	$38,586	0.93
73	2	$2,581	0.62
74	2	$6,668	2.14
75	2	$8,424	0.99
76	2	$70,202	2.38

APPENDIX B. RAW TABULATED DATA FROM THE GAO (2012) REPORT

Program	Obligation (000)	Planned	Actual	PI	Met Indiv	All Goals	0-Track	1-Track	2-Track	Track Value
1	$114,529	$1,940	$3,960	2.04	2	1			y	2
1	$114,529	$674	$1,617	2.40	2	1			y	2
1	$114,529	$245	$1,475	6.03	2	1			y	2
1	$114,529	57,800	56,058	0.97	1	0		y		1
1	$114,529	18,193	26,416	1.45	1	0		y		1
1	$114,529	6,256	14,842	2.37	1	0		y		1
2	$78,720	$1,940	$3,960	2.04	2	1			y	2
2	$78,720	$674	$1,617	2.40	2	1			y	2
2	$78,720	$245	$1,475	6.03	2	1			y	2
2	$78,720	57,800	56,058	0.97	1	0		y		1
2	$78,720	18,193	26,416	1.45	1	0		y		1
2	$78,720	6,256	14,842	2.37	1	0		y		1
3	$17,466	$1,940	$3,960	2.04	2	1			y	2
3	$17,466	$674	$1,617	2.40	2	1			y	2
3	$17,466	$245	$1,475	6.03	2	1			y	2
3	$17,466	57,800	56,058	0.97	1	0		y		1
3	$17,466	18,193	26,416	1.45	1	0		y		1
3	$17,466	6,256	14,842	2.37	1	0		y		1
4	$13,373	75%	68%	0.91	0	1			y	2
4	$13,373	80%	83%	1.04	2	0		y		1
5	$31,352	95%	86%	0.91	0	0			y	2
5	$31,352	89%	85%	0.96	0	0		y		1
6	$15,418	90%	73%	0.81	0	1			y	2
6	$15,418	95%	100%	1.05	2	0		y		1
7	$0	$1.1	$2.1	1.91	2	2			y	2
8	$0	$0.9	$1.80	2.00	2	0		y		1
8	$0	5,000	5,787	1.16	2	0		y		1
9	$17,948	$1.1	$2.1	1.91	2	2			y	2
9	$17,948	$0.9	$1.8	2.00	2	0		y		1
9	$17,948	5,000	5,787	1.16	2	0		y		1
10	$214		15,549		NA	NA				NA
10	$214		24,331		NA					NA
11	$325,549		15,549		NA	NA				NA
11	$325,549		24,331		NA		y			0
12	$559,961		15,549		NA	NA	y			0
12	$559,961		24,331		NA		y			0

Program	Obligation (000)	Planned	Actual	PI	Met Indiv	All Goals	0-Track	1-Track	2-Track	Track Value
13	$338		15,549		NA	NA	y			0
13	$338		24,331		NA		y			0
14	$6,000		7,306		NA	NA	y			0
15	$0	3,157	2,409	0.76	0	0			y	2
16	$0		NA		NA	NA	y			0
17	$0		NA		NA	NA	y			0
18	$0		NA		NA	NA	y			0
19	$0		NA		NA	NA	y			0
20	$50,000	794	NR		NA	NA	y			0
20	$50,000	$988	NR		NA	NA	y			0
20	$50,000	6,060	NR		NA		y			0
20	$50,000	None	NA		NA		y			0
21	$0	None	NA		NA	NA	y			0
21	$0	None	NA		NA		y			0
21	$0	None	NA		NA		y			0
21	$0	None	NA		NA		y			0
21	$0	None	NA		NA		y			0
21	$0	NA	NA		NA	NA	y			0
21	$0	NA	NA		NA	NA	y			0
22	$64,000	24	0	0.00	0	0			y	2
22	$64,000	701	409	0.58	0			y		1
22	$64,000	49	30	0.61	0				y	1
22	$64,000		NA		NA		y			0
22	$64,000		NA		NA			y		0
23	$88,000	$12.8	$19.7	1.54	2	2			y	2
23	$88,000	40,700	46,749	1.15	y			y		1
23	$88,000	474,100	582,707	1.23	y			y		1
23	$88,000	3,000	3,537	1.18	y			y		1
23	$88,000	24,800	28,389	1.14	y			y		1
23	$88,000		$1,882		NA		y			0
24	$38,888	$4.8	$4.8	1.00	y	1			y	2
24	$38,888	8,100	7,752	0.96	No			y		1
24	$38,888	88,800	87,337	0.98	No			y		1
24	$38,888	4,800	4,548	0.95	No			y		1
24	$38,888	267	249	0.93	No			y		1

Program	Obligation (000)	Planned	Actual	PI	Met Indiv	All Goals	0-Track	1-Track	2-Track	Track Value
33	$15,569		$0.0015		NA		0			0
33	$15,569	3%	2.3%	0.77	0			y		1
34	$21,171	35.9%	21.65%	0.60	0	0			y	2
35	$781		NA		NA	NA	y			0
35	$781		NA		NA		y			0
35	$781		NA		NA		y			0
36	$352		NA		NA	NA	y			0
36	$352		NA		NA		y			0
36	$352		NA		NA		y			0
36	$352		NA		NA		y			0
37	$26,305	1,150	1,339	1.16	2	2			y	2
37	$26,305	345	430	1.25	2			y		1
37	$26,305	$2.6	$2.8	1.08	2			y		1
37	$26,305		19,645		NA		y			0
38	$0		NA		NA	NA	y			0
39	$1,885		NA		NA	NA	y			0
39	$1,885		NA		NA		y			0
40	$7,681	$400	$924	2.31	2	2			y	2
40	$7,681	990	1,346	1.36	2			y		1
40	$7,681	4,000	6,790	1.70	2			y		1
40	$7,681		5,707		NA		y			0
40	$7,364	14,600	14,601	1.00	2	2			y	2
41	$38,586	14,330	13,265	0.93	0	0			y	2
42	$2,581	950	586	0.62	0	0			y	2
43	$6,668	580	1,240	2.14	2	2			y	2
44	$8,424	326	324	0.99	0	0			y	2
45	$70,202	11,705	27,806	2.38	2	2			y	2
46	$1,318	151	0	0.00	0	0			y	2
47	$2,940		NA		NA	NA	y			0
48	$0		NA		NA	NA	y			0
49	$0		NA		NA	NA	y			0
50	$22,635	50%	Ongoing		NA	NA			y	2
51	$2,075		NA		NA	NA	y			0
52	$3,000		NA		NA	NA	y			0