Title: Updating a PMO

Analysis and recommendations for upgrade of an IT PMO

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1. Abstract

Optimizing the efficiency of managing projects lends itself to being governed by a Project Management Office (PMO). The objective of this project was to develop a PMO that would oversee and be an entity that directs projects and the portfolios of the company. A gap analysis has been performed via interviews that were conducted with the PMO managers and stakeholders of a large, Portland, Oregon, based manufacturing company. Several areas of improvement were identified in the research that was completed for which this report identifies and makes suggestions for as 2.0 version of the PMO for this corporation.

Contents

1. Introduction

The purpose of this project is to analyze and describe the artifacts and processes required to successfully create a functional Project Management Office (PMO). In order to provide context and scope for the effort of an existing PMO an analysis was used as a case. The project goals were to provide this PMO with the tools it would need to define projects, develop and manage schedules, monitor costs, provide organizational process assets and provide support for Project Managers (PMs) executing projects within the organization. Project Management Institute's (PMI) definition of a PMO was used as a reference for scope:

"A project management office (PMO) is a management structure that standardizes the project-related governance and processes and facilitates the sharing of resources, methodologies, tools, and techniques."[1]

1.1. Company Information

The project gap analysis was conducted on the PMO of an Infrastructure IT (ITI) team at a large manufacturing company in Portland Oregon. This PMO was chartered in 2013, two years before the study, in order to provide a central body for management, for the purpose of oversight and reporting for projects being executed by the ITI organization. The need for project oversight had been identified before 2013, but the initiation of two major programs, each with over a dozen projects, provided a catalyst for the formation of the organization.

This ITI PMO is set up as an independent entity within the Infrastructure IT team, which is itself part of a larger IT organization. The company has established governance and standards for major projects which all Project Managers must abide by, and other departments (engineering, manufacturing, etc.) have their own PMOs, but the PMO in question is the only one in existence within the four IT groups of the organization. Prior to 2008, there had been an attempt at establishing an IT wide PMO, but this effort failed for reasons that will be discussed later in the analysis and research findings.

1.2. Methodology

In order to address the needs of the existing organization, the team decided to follow a methodology of Vision to Gap Analysis. The analysis is conducted through a three step process:

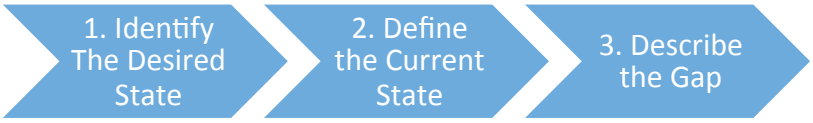

Figure 1. Analysis Process

1.2.1. Desired State

For the desired state phase of the process, the project team utilized a number of project management tools to describe the process for PMO implementation. These tools generated a set of artifacts such as but not limited to a Work Breakdown Structure (WBS), a Project Schedule, a Cost Estimate and many others. The artifacts can be used in the process of deploying a new PMO or in this case as a baseline for comparison with the current state. They also serve as functional examples and templates for how PM Tools can be used in future projects.

1.2.2. Current State

In order to determine what work has been done to establish the current PMO, the project team conducted a series of interviews with key members of the PMO. The interviews asked what tools were in use in the PMO, which were identified as missing or not well developed and each individual was asked for their opinion of what the current level of maturity of the PMO was, following the Organizational Project Management Maturity Model (OPM3)[2].

1.2.3. Gap Analysis

There were several tools identified by the team for the PMO creation and project management which were then compared to the existing effort to develop the PMO and tool set and an analysis conducted. The results of the analysis is a gap between desired and current state and a set of recommendations on additional tasks, tools and templates

that the PMO may choose to develop in order to further develop the office's capabilities and maturity.

1.3. PMO Formation Artifacts Documentation

In order to document the scope, timeline and schedule for the formation of the PMO, a set of project artifacts have been generated utilizing existing Project Management Tool templates. These artifacts are captured in a Microsoft Excel Workbook with different document tabs, one for each project document. The use of these tools is described in the body of this document, and the associated spreadsheets are shown in screen captures, however the full document will often not fit the confines of this document, necessitating that only a portion of the original is included. The reader is encouraged to read the workbook titled 'ETM 546 PMO Project Workbook' and follow along with the sections described below. To facilitate cross referencing, sections excerpted from the workbook will be tagged with a '**Workbook – Tab Name**' nomenclature. Some artifacts are found in additional files attached to this report such as the **Project Milestones**, **Project Full Schedule** and **Project Critical Path**, all of which are documented as Microsoft Project

2. PMO Creation

A Project Management Office serves as a central organization providing direct support to projects in the form of standards, best practices, centralized communication and staff. In order to provide appropriate value, the PMO must be tuned to the needs of the organization. For the case being studied, the proposed PMO has been scoped to support Information Technology (IT) projects, and Infrastructure (servers, network, storage, end user devices and all the services required to deploy, manage and monitor IT through the organization). One of the major goals of the PMO is to act as a liaison throughout the corporate structure as the groups relate through program, projects, and portfolios. The overall communication of information and strategies that the company is fulfilling, is handled by the PMO and dispersed through the various teams to meet and exceed the expectations of management.

The PMO that will govern for the IT group will have the direct responsibility to integrate and facilitate the interactions between stakeholders and those that have the authority to make decisions. Not only will the entity have the opportunity to be involved with project

evaluation and initiation but it will also have influence to terminate projects not in sync with corporate strategies, mission, or goals. Ultimately, this PMO will oversee and manage the project managers, portfolio managers, and program managers.

With this responsibility, the PMO will have to decipher how to manage the resources between business and functional groups. The PMO is going to incorporate the various standards, methodologies and practices which will be utilized throughout. In addition to the aforementioned, this group will be revered as a mentoring and training entity that will shape the team. Governing the procedures, standards, templates, and policies that will be adopted is a necessary part of the PMO's responsibilities. Creating these processes and tools will be an ongoing and iterative process for which the PMO will rule over as well. Involvement with initiating the process and creating the project charter and project management plan are the initial steps that the PMO will manage. Integrating the practices, procedures, policies, and the like throughout the functional groups of the organization is key to the success of a PMO.

Assisting the project managers and the like with scope development, defining the scope, creating a WBS, and accepting that with a bottom-up approach is key in this operation. The next step is considering the time constraints with the project and managing the schedule of the project. Understanding the scope and time constraints of the project allows the PMO to evolve the cost and financial restraints of the project with the project manager and team. Ultimately, communication and input is an absolute for the development and creation of the end goal of the project, for which the PMO will involve itself.

2.1. Mission and Vision

The mission of the PMO is to add value to projects; to ensure that projects are developed with notion of the modified constraint and excelling at delivering a project that accurately manages the scope, time, budget, quality, resources and risks of a project. In this matrix the vision is to communicate on a high level and deliver the mission as the company's project managers, portfolio managers, program managers, and the involved stakeholders work diligently to produce a project and product that meets the demand of the executive leadership of the company.

2.2. PMO Formation Charter

A project charter allows for a concise executive summary of the purpose, scope and objectives of a project. The charter provides stakeholders and participants alike a quick succinct reference to what the project is expected to execute and what is in and out of scope for the project effort. In additional to general project information such as the project name and ID, the charter will typically also include a list of business objectives, deliverable, and in and out of scope elements. Ideally, the charter is signed by the project sponsors and project manager and acts as a contract for the work being requested and the support being promised.

For the project to form a new PMO a Minicharter was prepared and documented in the **Workbook – Minicharter** tab and show in figure 2 below.

Project Minicharter			
Project	PMO Formation	**Project #**	PMO00001
Project manager	Anne Cleaver (Head of PMO)	**Sponsor**	Morgan Spriggs (PMO Func. Mgr)
Project artifacts	PMO SharePoint	**Updated**	6/6/2015
Background	The number of projects being executed by the DTNA ITI department in 2014 was significant and shows a growth trend. In order to best execute these projects in a controlled way and with maximum possibility for success a Project Management Office (PMO) needs to be established.		
Business need and business benefits	* Increase probabilities of project success * decrease total per project cost. * Provide managerial visibility and oversight over projects		
Objectives	The establishment of a functioning PMO for the ITI/NT organization		
Scope	**In Scope**	**Out of Scope**	
	Implementation of PMO office within ITI/NT	PMO for projects outside of ITI/NT	
	Communication and training plans for PMO rollout	Staffing plans for individual projects	
Deliverables	**Deliverable**	**Due Date**	
	Deliverables as defined in the WBS		
Flexibility matrix	**Scope**	Most flexible	
	Schedule	Least flexible	
	Cost	Moderately flexible	

Figure 2: Project Minicharter

2.3. Work Breakdown Structure (WBS)

While the charter provides a high level view of the project deliverables and scope, a much more detailed document of the tasks to be performed and deliverables that are needed for the subsequent work of planning and scheduling of the project. For the reformation of this organizational PMO, a Work Breakdown Structure (WBS) was generated and documented in two formats. In the first view, seen in Figure 2 below,

shows the WBS as a chart and can be used to document dependencies, durations and resources (these will be done later using the Project Schedule and with the aid of some scheduling tools). The original file is much longer than the excerpt below and can be found in the **Workbook – WBS** file.

Work Breakdown Structure						
Project		PMO Formation		**Project #**	PMO00001	
Project manager		Anne Cleaver (Head of PM		**Sponsor**	Daimler Truck PMO	
Project artifacts		PMO SharePoint		**Updated**	5/24/2015	
ID	**Task**	**Dependencies**	**Status**	**Start Date**	**Planned Completion**	**Resource**
1	**GAP Analysis of Current PMO**			**6/1/2015**	**10/1/2015**	5
2	Perform Interviews					
3	Analyze Data					
4	Define Areas of Improvement					
5	Implement Change					
6	Deliver Gap Analysis					
7	Identify goals for PMO					
8	Develop Current State					
9	ID Strengths and Weakness					
10	Prepare GAP Analysis Report					
11	**Implement Change to PMO Team**			**10/2/2015**	**3/1/2016**	5
12	PMO Director Assigned					
13	PM Manager					
14	Professional Development Manager					
15	PMO Analyst					
16	PMO Assistant Analyst					

Figure 3: Work Breakdown Structure

A WBS is considered a critical piece of the project management process which describes the work packages that are essential to the project. Identifying the scope and discerning this level of detail will generate buy-in from the team since they have a clear understanding of what the goals and deliverables are for a project. The table format for the WBS provides a great deal of functionality and can be used in number of downstream processes, but is not always the easiest to read, particularly for a project with a number of hierarchy levels. An alternative view is presented below in figure 4. Again only a

portion of the file is displayed as reference. For the full document see **Workbook – WBS-Hierarchical**.

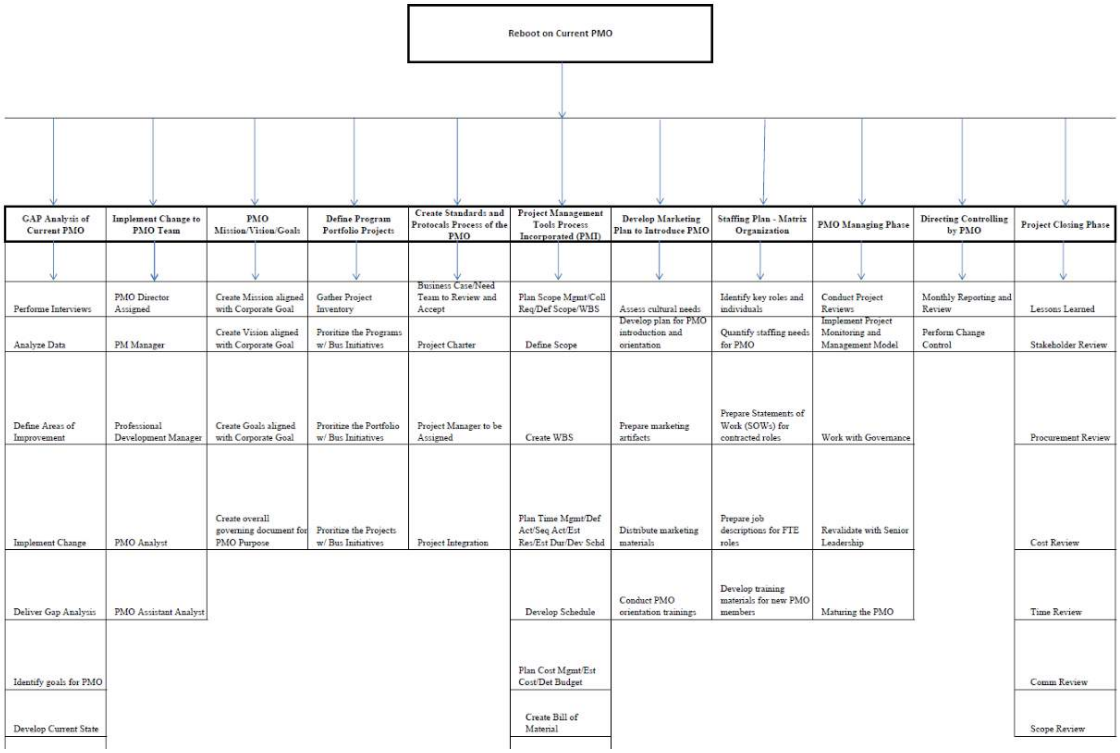

Figure 4: WBS - Hierarchical

2.4. Schedule

With the project tasks defined in the WBS, the team was able to estimate task durations and generate a realistic estimate to complete the work. Creating a schedule management plan requires defining the activities by utilizing the WBS, sequencing the activities, estimating the activity resources, then the durations, arriving at a schedule baseline and project calendars. Currently, the schedule forecast is predicated on completion in 19 months with a completion in October 2016 with the critical path identified. The team believes this schedule could be reduced through reduction of scope, addition of deployment resources or by identifying tasks that may be partially or fully complete through previous efforts. A complete version of the project schedule can be found in the **Project Full Schedule** file, an excerpt of the rolled up milestones is shown below in Figure 5.

ID	Task Mode	Name	Leveling Delay	Duration	Start	Finish	Total Slack
1		**Implement PMO Reboot**	**0 edays**	**414 days**	**Mon 5/4/15**	**Fri 12/2/16**	**0 days**
2		**GAP Analysis of Current PMO**	**0 edays**	**115 days**	**Mon 5/4/15**	**Fri 10/9/15**	**0 days**
12		**Implement Change to PMO Team**	**0 edays**	**25 days**	**Mon 10/12/15**	**Fri 11/13/15**	**0 days**
18		**PMO Mission/Vision/Goals**	**0 edays**	**10 days**	**Mon 11/9/15**	**Fri 11/20/15**	**20 days**
23		**Define Program Portfolio Projects**	**0 edays**	**28 days**	**Mon 11/23/15**	**Thu 12/31/15**	**20 days**
29		**Create Standards and Protocals Process of the PMO**	**0 edays**	**75 days**	**Mon 12/21/15**	**Fri 4/1/16**	**20 days**
34		**Project Management Tools Process Incorporated (PMI)**	**0 edays**	**105 days**	**Mon 4/4/16**	**Mon 8/29/16**	**69 days**
56		**Develop Marketing Plan to Introduce PMO**	**0 edays**	**80 days**	**Mon 4/4/16**	**Fri 7/22/16**	**20 days**
62		**Staffing Plan - Matrix Organization**	**0 edays**	**37 days**	**Mon 7/25/16**	**Tue 9/13/16**	**20 days**
68		**PMO Managing Phase**	**0 edays**	**25 days**	**Wed 9/14/16**	**Tue 10/18/16**	**20 days**
74		**Directing Controlling by PMO**	**0 edays**	**10 days**	**Wed 10/19/16**	**Tue 11/1/16**	**20 days**
77		**Project Closing Phase**	**0 edays**	**22 days**	**Wed 11/2/16**	**Fri 12/2/16**	**0 days**

Figure 5. Milestones Chart

The schedule is also presented in a Gantt view in Figure 6. From this schedule, a Gantt chart depiction has been compressed for presentation sake but does reflect the concurrence that will transpire as well as what the workflow is projected to be. Graphical representation of the various scopes as they relate to the time exhausted on the project provides an understanding of float and slack that the project has as well.

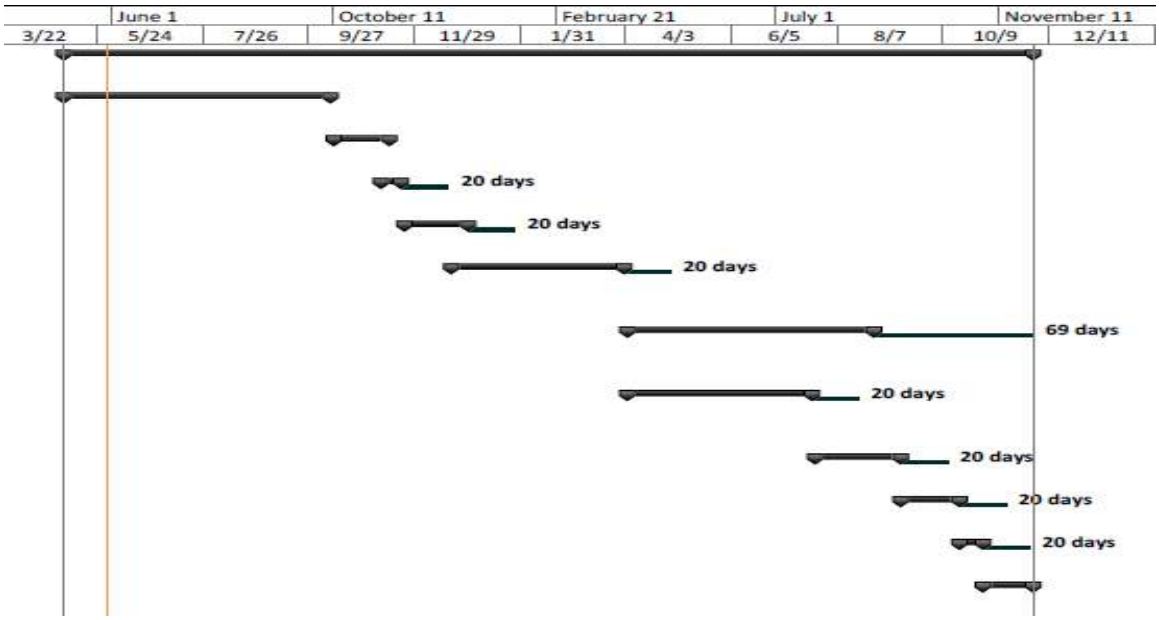

Figure 6. Gant Chart

Figure 6 above, reflects the milestones of the PMO project. This is the baseline and slippage will be measured throughout the project. Interviews with the necessary PMO and team stakeholders led to a detailed and prescribed schedule plan.

2.5. Cost Estimate

Using the estimated effort derived from the project schedule, the team was next able to create a general project budget and estimate of costs. While the project includes some funds for acquisition of software, consulting services and incidental expenses the bulk of the cost is (as was expected) in the hourly salary for labor to design and implement the project. The rates for the team have been normalized and follow corporate standards for a mixed rate. New scheduling software is necessary along with costing updates to the existing program that is utilized. With the rollout, additional consulting time is expected to take place to ensure that PMO fulfills the commitments necessary and is completed as projected. Other expenses have been budgeted for incidentals. Using these assumptions and estimates the total project cost is projected to be just under $400,000. The budget worksheet is shown below in Figure 7 and can be found in **Workbook – Budget**.

Budget				
Project	PMO Formation	Project #	PMO00001	
Project manager	Anne Cleaver (Head of PMO)	Sponsor	Morgan Spriggs (PMO Func. Mgr)	
Project artifacts	PMO SharePoint	Updated	6/6/2015	
Budget Status				
Approved Budget	Planned Expenditures to Date	Actual Expenditures to Date	Variance	
$500,000.00	$18,000.00	$15,000.00	$3,000.00	
	Planned Remaining Budget	Actual Remaining Budget	Variance	
	$482,000.00	$485,000.00	-$3,000.00	
Additional $ needed				
Budget Details				
Internal Expenses				
Salaries	Hourly Rate	# Hours	Total Cost	
Head of PMO	$75.00	500.00	$37,500.00	
Communications	$75.00	800.00	$60,000.00	
Advisor to PMO	$75.00	700.00	$52,500.00	
Sponsor and Functional Manager	$75.00	350.00	$26,250.00	
Methodology Development	$75.00	400.00	$30,000.00	
Quality process definition and reviewer	$75.00	150.00	$11,250.00	
Other Internal Expenses			Total Cost	
MSP Software			$50,000.00	
Costing Software			$20,000.00	
Other Internal Expenses			$15,000.00	
Total Internal Expenses				$302,500.00
External Expenses				
Consulting Costs			Total Cost	
Consulting PM			$50,000.00	
Consulting Asst PM			$25,000.00	
Project expeditor			$15,000.00	
Capital Expenditures			Total Cost	
Parking/meals			$5,000.00	
Type of expense			$0.00	
Type of expense			$0.00	
Total External Expenses				$95,000.00
Total Budget				$397,500.00

Figure 7. Work Book Budget

The value added by implementing the PMO at this level and the case for acceptance of this budget is the efficiency and accuracy that will be delivered saving the company significant costs from year to year.

2.6. PMO Tools, Templates, and Procedures

There are several tools, templates, and procedures that need to be adjusted and modified to conform to the new PMO. Each of the tools will revolve around the integration of the project, the scope, time, cost, quality, human resources, communication, risk, procurement, and stakeholders as they relate to the project, portfolio, or program. Companies that follow a PMI based effort tend to rely on their organization process assets (OPA). To be more efficient and escape typical pitfalls, lessons learned are typically carried forward to support the success of the next project. OPA consist of policies, procedures, templates, financial infrastructure, change control, risk management, work authorization processes, and more. This myriad of tools, templates and procedures

are not limited to but have been focused on for this company, the project charter, project management plan, WBS template, MSP scheduling tools, cost tracking and forecasting via SAP, responsibility matrix, risk matrix, risk response plan, and stakeholder analysis.

The PMO is not going to be restricted to utilizing the aforementioned tools, however, a focus and an emphasis has been expressed with regard to these areas and is discussed within the confines of this PMO analysis.

2.7. Roles and Responsibility

The roles and responsibilities are fairly straight forward as the PMO that currently exists does not require an overhaul. This information has been utilized to generate the responsibility assignment matrix of the PMO team as it navigates through the reboot of the project management office. Understanding the steps that have led to this point is an absolute but characterizing who has the role and level of responsibility will ensure that the direction received will be managed and disseminated correctly to the organization.

Roles and Responsibilities							
Project	PMO Formation				**Project #**	PMO00001	
Project manager	Anne Cleaver (Head of PMO)				**Sponsor**	Morgan Spriggs (PMO Func. Mgr)	
Project artifacts	PMO SharePoint				**Updated**	6/6/2015	
Name	**Core/ Extended Team**	**% Assigned**	**Deliverables Leading**	**Deliverables Participating On**	**Project Role**	**Responsibility**	**Other Project Assignments**
Anne Cleaver	Core	90%	Schedule, Risk Migitation, Costing	All	Head of PMO		Program Manager for STN Project
Lisa Latin	Core	75%	Communication Plan, Rollout Plan	All	Communications	Create communication materials, POC for project inquiries	Communications on current projects
Leopoldo Marino	Extended	20%	Maturity Assessment	n/a	Advisor to PMO	Advise on current status	n/a
Morgan Spriggs	Core	10%	Staffing Plan	All	Sponsor and Functional Manager	Provide staffnig, advice on all deliverables	Sponsor
Melanie Simms	Core	70%	PM Tool Development	Templates	Methodology Development	Set standards	Quality review
Greg Schatten	Core	65%	Quality control	All	Quality process definition and review	Quality	n/a

Figure 8. Roles and Responsibilities Chart

2.8. Success Analysis

An assessment and analysis of the relative success rates of establishing PMO's are dealt with on several variables. According to a study in PMO establishment there has been significant acceptance and growth of PMOs starting in the year 1994 and showed exponential increases in the year 1997 and 2000 as shown in figure 9. [1]

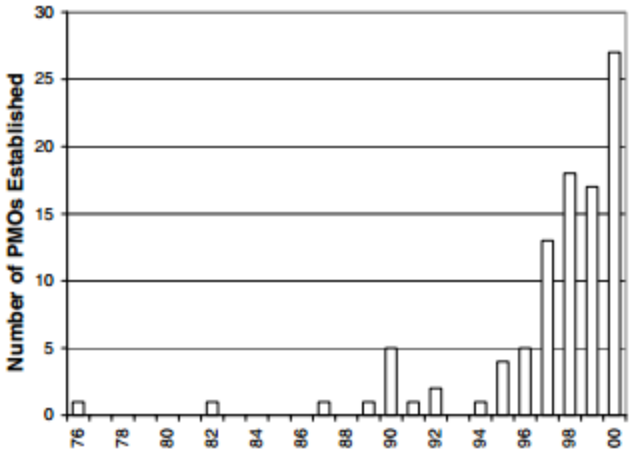

Figure. 9 Growth in PMO establishment over time

The analysis reported the motivation for establishing a PMO is shown in figure 2. Reported motivations for PMO Establishment [1]. A major reason for PMO establishment is because it is at the highest of all elements for improvements of project management which includes performance outcomes, lesson learned, and support for project managers, to reduce troubled projects. The lowest being changing to a matrix organization or due to complexity of a multiple project environment which was not the problem with DTNA IT department as with the interviews it was shown that DTNA IT department was already a working matrix organization. Next, the highest motivator was achieving the common approach with methodologies, standards, and accountability which was a goal that the DTNA IT department wanted as there were templates that could be in use but some employees did not know about, the people that knew about the templates were the senior project managers and coordinators while others used different planning tools where some used Microsoft excel and the other would use Microsoft project for budgeting. Based on the interviews there was not a lot of uniformity and the workers showed that they indeed want it. Another catalyst was to ensure consistent training, competence, and performance which in the survey showed be zero percent of the motivator but the DTNA IT department has shown great demand for a training program but due to DTNA terms, a contractor is not allowed to receive formal training and this furthers the problem due to the lack of full time employees and a surplus of contracting employees.

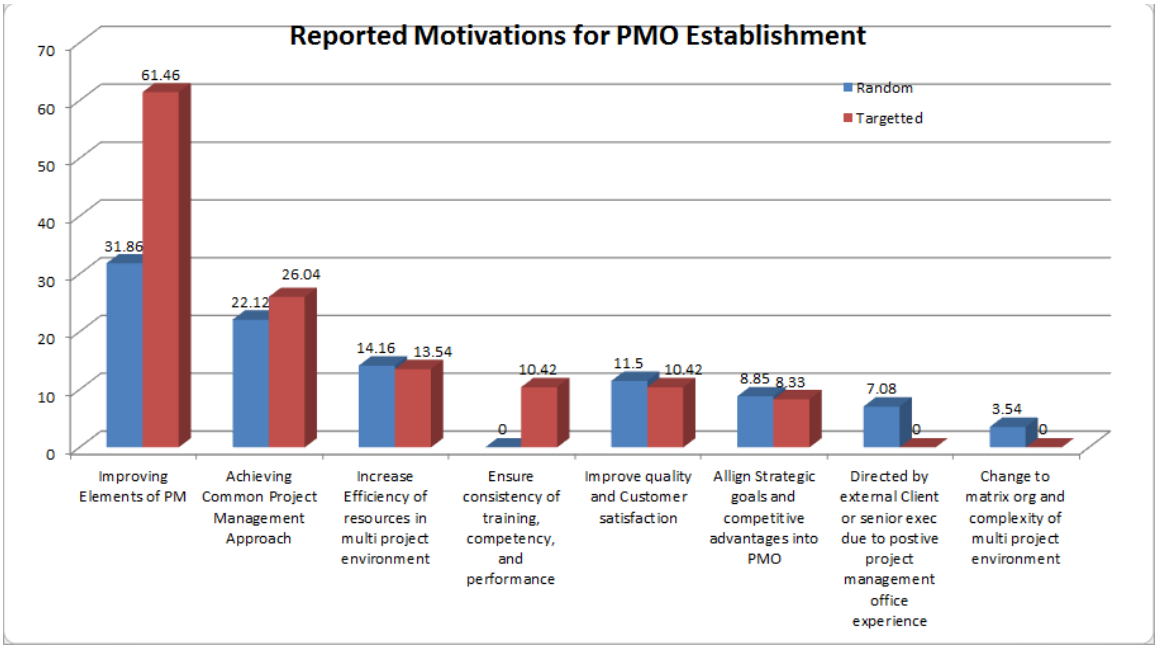

Figure 10. Reported motivations for PMO Establishment [1]

The last instigator that has a relation to the PMO of the DTNA IT department is directed by external client or senior executives wanting a positive PMO, which would be the current PMO head and the portfolio manager for infrastructure, these two had good experience with PMOs in their past careers and know what a PMO can truly be capable of managing this type of entity. The data shows that two of the major motivators in the analysis is prevalent as a motivator within the DTNA IT department.

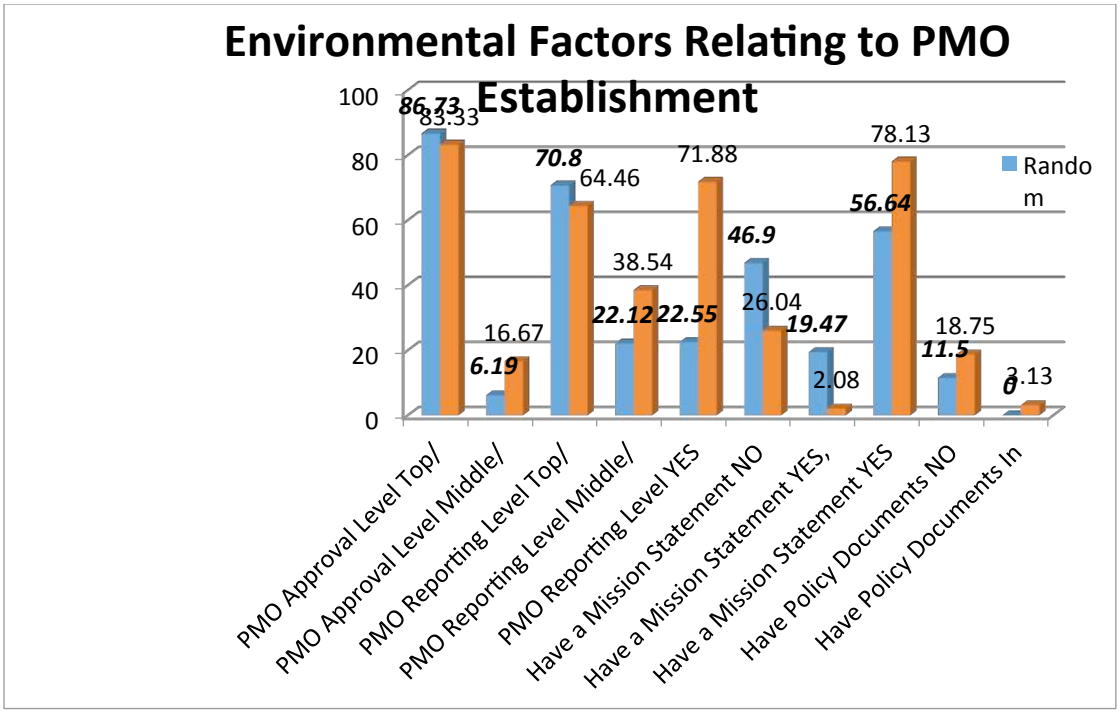

Figure 11. Environmental Factors Relating to PMO Establishment [1]

The next analysis is the environmental factor analysis which is to show that highest percentage of established PMOs have the approval of top or upper management at 86.73 percent and 83.33 percent random and targeted data respectively. From analysis of DTNA ITs PMO it is shown to have several of the environmental factors that established PMOs, tend to have before being established. The first is that they have top and upper management supporting the PMO and are current champions of the establishing the PMO, these are the PMO head and the portfolio manager. The next environmental factor is the reporting level and there is reporting level that is being done on all levels, even one of the newer contracted employees that is a project coordinator, report to the PMO head and the senior project managers which report to the head of the PMO and the portfolio manager and holds them both in high regard. From the interviews it seems that there is a clear cut way of starting up a PMO and from the interviews with the head of the PMO it is shown to have a clear mission statement and current status of the PMO. The analysis proves that DTNA ITs PMO holds many of the similarities to a majority of the established PMOs which means the direction that the DTNA IT department is heading in the correct direction in establishing the PMO.

Staffing types is the next analysis for the PMO shown in figure 12, summary of PMO staffing type. The three types are 1) those that perform PMO functions and services as full time job responsibility, 2) those that perform PMO functions and services as only part of their job responsibility, and 3) contractors that perform PMO functions.

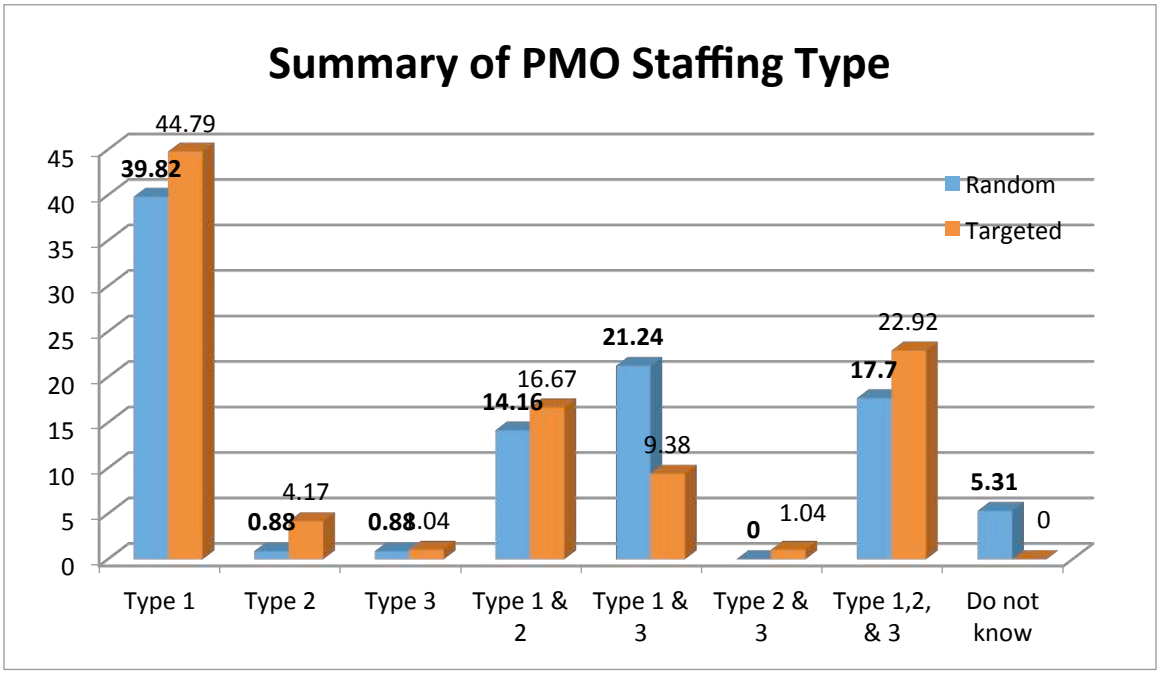

Figure 12. Summary of PMO staffing type

The staffing type that was analyzed at DTNA IT department is primarily type 3s and a few type 2s. The reason being is that due to the nature of DTNAs hiring norms, they have a surplus of contracted employees. If DTNA was categorized the department's PMO would be type 2 and 3 which would be the lowest percentages of staffing types. This raises concerns as probable reasons for the low staffing type would mean that the type that the PMO has selected could be extremely niched or it does not perform very well.

2.9. Risk Management

The goal of DTNA is to establish a PMO for the IT department that operates within the company's confines. No project is without risks, some of the major factors that lead to an IT project failing, are misunderstood requirements, inadequate risk assessment, over optimism, inconsistency and lack of training, poor management of resources, unclear charter for project, and lack of communication [2].

From analyzing the structure of DTNA and from the interviews, some risks are more prevalent than the others. The first risk is misunderstanding the requirements; this is mostly due to information that is not shared frequently; this is shown when the interviewees were asked individually, the level of the PMO on an ORG chart and most of them were able to match each other in the level of the PMO with the exception of a few that were slightly more optimistic with the level of the current PMO. However, there were variances within each of the interviewee answers which could lead to the conclusion that the requirements are not fully understood.

Mitigation to the risk would be to have the head of the PMO and the portfolio managers create a list of requirements or standards that the PMO should uphold. The next risk would be optimistic schedules and budgets and this does not exist within the current DTNA IT PMO; most of the employees are not optimistic on the budget or the schedule as the schedule is pushed back due to projects that take priority over establishing the PMO. This constant deferment of establishing the PMO would cause the PMO to eventually be unfinished and forgotten.

A risk mitigation strategy would be to assign the necessary resources to the PMO project and that project only as their sole work. Another risk discussed surrounds the inadequacy of having risk assessment and the management. This did not appear to be a problem as the team portrays having a vision of how a PMO should be and what the risks are. What they cannot do is assign the necessary resources which brings us to the next type of risk which would be the mismanagement of resources, the problem is not the management of resources but the lack there of. Another risk mitigation strategy for both risks would be to hire more FTEs.

Defining the charter has been identified as a common risk on projects; however, there is no risk for as DTNA IT PMO since charter is the corner stone of the project. Lastly, a lack of communication is a possible risk and was stated as a concern by head of the PMO and the Portfolio manager. The risk mitigation strategy would be to establish more meeting times and interactions between FTE’s and contractors.

2.10. Project Sizing Guide

In order to best utilize project management tools, projects must start with an understanding of how relatively large or complex the scope of the work that is to be performed. Rather than ask an individual project manager to make that determination independently, a Project Sizing Guide can be used as a general guideline for establishing the size of the project and level of oversight required. In the case of this particular PMO, the portfolio of projects being executed range in size from extremely small (just a couple of individuals delivering in a few weeks) to tremendously large (dozens of individual contributors working on a multi-year project) and from simple (a single well understood technology) to the complex (various technologies, spanning multiple functional areas and including new technology adoption). The sizing guide shown in figures xxx to xxxx is tuned to the needs of the PMO in question and provides guidelines by which projects can be evaluated for relative size and complexity.

2.11. Earned Value Application

The critical path has been identified in Figure 13. Understanding the critical path and operating on an understanding of our budget at completion (BAC) being $397,500.00, as the project proceeds, the team will track the project using the earned value method (EVM). A forward pass and a backward pass has been completed to understand the early start (ES), early finish (EF), late start (LS), and late finish (LF) principles to that are tied to the various tasks.

ID	Task Mode	Task Name	Duration	Start	Finish	Total Slack
1		**Implement PMO Reboot**	**414 days**	**Mon 5/4/15**	**Fri 12/2/16**	**0 days**
2		GAP Analysis of Current PMO	**115 days**	**Mon 5/4/15**	**Fri 10/9/15**	**0 days**
12		Implement Change to PMO Team	**25 days**	**Mon 10/12/15**	**Fri 11/13/15**	**0 days**
77		Project Closing Phase	**22 days**	**Wed 11/2/16**	**Fri 12/2/16**	**0 days**
85		Completed	0 days	Fri 12/2/16	Fri 12/2/16	0 days

Figure 13. Critical Path

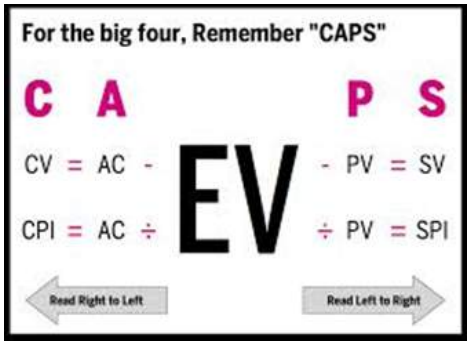

Figure 14. CAPS

The values of each task will be assigned so that any slippage as it relates to the task in that timeframe can be measured for the cost variance (CV), schedule variance (SV), cost performance index (CPI), schedule performance index (SPI), estimate to completion (EAC), estimate to complete (ETC), variance at completion (VAC), and to complete performance index (TCPI). Based on this notion, the PMO will begin to govern and measure the success of the project on a monthly basis that follows CAPS. EV is often overlooked by companies, but costs and schedule of the project is not. Melding the need to monitor the activities is essential to a projects success. Having this metric to reflect issues and tracking the progress of a project will aid the team in completing a project more efficiently and in a more cost effective manner.

2.12. Maturity Model

Maturity of a PMO is necessary for the success of the organization and how it relates to the rest of the company as it influences processes and culture. Understanding that the current status is a directing PMO, the implementation of the various tools and OPA is key to measuring the maturity of the PMO. Level 3 is approximately where the PMO currently resides with aspirations to make it to level 4 in the near future. It is more realistic to achieve this standard with the areas that have been identified as it pertains to the tools and techniques that have been identified in this paper. Measuring and managing the OPA and understanding the reporting that is generated is how the company will attain the level 4 status. Level 5 is the goal for this company as it should be for all organizations that plan to incorporate and implement a successful PMO.

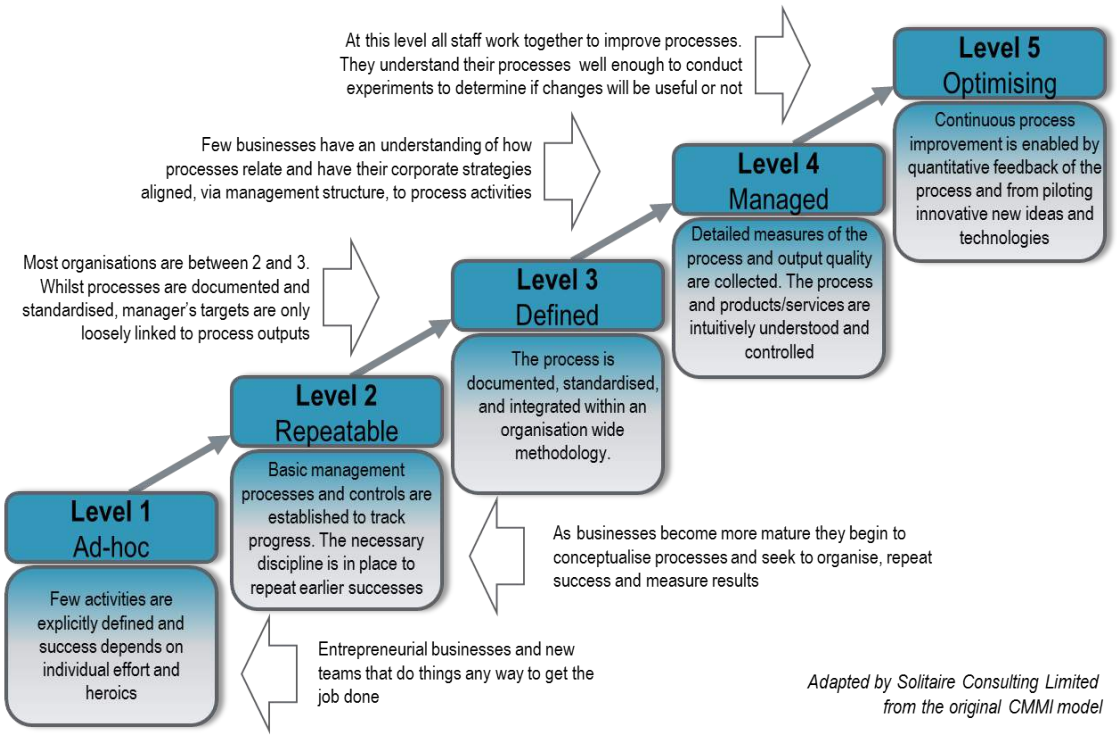

Figure 15. PMO Maturity Chart

3. Current State

3.1. DTNA PMO Interviews

In order to develop an understanding of how close the current PMO is to the vision described, the team conducted a series of interviews with key PMO staff members. The Interviews were conducted within the Daimler Trucks North America Infrastructure IT department on May 11th, 12th, and 13th. Several people were interviewed which consisted of the Portfolio Manager, the Head of the PMO, two project coordinators, two senior project managers, and a governance officer. The questions asked were all based on the template shown in below:

1. What is your role in the PMO?
2. Which PMO tools do you see being regularly used?
3. What tools do you see missing from the PMO?
4. Which tools do you believe need to be improved or evolved?
5. What change to the current PMO do you believe would add the most value?

6. Given the OPM3 Maturity Model, how mature would you say the current PMO is?
7. Project Change Control Board? How does the company handle change orders?
8. Is the PMO more of a supportive, controlling, or directive type of PMO?
9. What types of templates do you use and what for?
10. As for tools, what do you use?
    a. PMO charter,
    b. Project management plan,
    c. Metrics for costs,
    d. Program for tracking scope, cost, and time?
    e. Scheduling program,
    f. Scoping progress,
    g. WBS?
    h. Responsibility Matrix,
    i. Stakeholder list?
11. How are stakeholders handled on projects? Involvement of resources from various functional manager?
12. Is it a project based organization?
13. What is the acceptance of the PMO by the functional managers?

The interviews revealed a great deal of experience and knowledge of Project Management including achievement, successes, and some shortcomings of the current PMO. There was a trend with the information received in which the higher up the position of the interviewee, the more proficient they were with regard the current PMO and its history. This can be assessed with question 1. It can also be ascertained with asking their role in the PMO that DTNA operated on a heavy contractor to full time employee ratio. An understanding was learned by the sense of the contractor operation causing a strain and reduction in commitment within the workforce.

From assessing the second question, with identifying the current tools in the PMO refers back to, “Houston” which is the project methodology adopted from the parent company Daimler located in Germany and derived from PMI standards. A heavily used document

is the WBS with schedule development mostly using Microsoft project and Microsoft excel. Statements were made, that using IPWC is used to track slippage which indicates a more reactive type of approach. However there is a critical path management tool that is not well known, which supports a more proactive type of approach. It also shows a trend that the higher the position is in the PMO, the more they know about the tools offered. In response, they are more pessimistic in terms of how many staff members use the tools. Another tool discussed multiple times, was the milestone management, however it is deemed to not have enough granularity in which they believe tasks should be the replacement but is usually not implemented.

The third question addressed is what tools are deemed missing from the PMO that should be added. The tools specifically mentioned that need to be added is risk management, project modules and a project management information system. When asked this question in the interview, most of the responses were a negative analysis of the current PMO or how it was viewed. The question also led the discussion towards a gap analysis of the current PMO and what should be improved to acquire the desired state of the PMO. An overall consensus is that the contracting staff sees the current PMO tools as an evaluation tool and therefore as a threat and most of the knowledge of tools is in a sense known mostly by the PMO senior staff with some outliers that have close connections to the senior staff.

The fourth question addressed what current tool needs to be improved or evolved. An understanding of the tools singled out for improvement is the communications between contracting staff and senior staff to break the formalities of seniority. Another tool asked for improvement is skill assessment and documenting the admin process. However, there is a consensus that the tools that are provided need to be used and broadcast throughout the PMO as well as a defined standard on what to use.

The fifth question asked what change would bring the most value to the current PMO. Communication appeared to be the frontrunner in this response. These comments pertained to communicating what needs to be done and defining the standard in what tools the PMO needs to use as well as the process in which they are used. Another need expressed is to define how groups are represented as well as roles within the PMO. Properly training the staff to use project management techniques which is limited due to

DTNA corporate policy for contractor heavy staffing was also noted as a valuable change.

The sixth question was to define the level of the PMO based on the OMP3 maturity model. An encompassing consensus is that the PMO was in the levels of 1 and 2 and evolving with majority of the answers being a level 2 maturity. They stated that there are tools provided but not being used and a stronger communication tool needs to be implemented throughout the entirety of the PMO.

The seventh question addressed how the PMO handles a change process. From the answers given, a majority of them showed that the change order process is very mature. All change processes are handled through a ticketing form which is sent to executive management for approval. The problem that is identified in the answers is that change has order of magnitudes in which the lower the magnitude of the change the less approval required. In some instances the milestone dates can be changed as long as the final product is delivered on time.

The eighth question asks about the type of PMO currently in the company with three choices being directive, controlling, and supporting. With the answers received, they were referenced along the lines of support heading in the directions of a directive type of PMO or in a transitional phase between the two.

Discussion of the ninth question was in reference to the current templates in the PMO which involved understanding how well known the templates are and the rate of usage. From the interview there is a large library of templates under share point with contacts, work instructions, and history but it does not seem to be known throughout the PMO.

The tenth question gives an array of tools and addresses the usage and/or existence. Of these tools, the first is the project charter which is identified as high importance that is matured and is well known in most of the interviews however it is shown to need more advertisement throughout the PMO. The next tool is the project management plan which is shown to control change management and is matured under the model. Following is cost management tool which is immature as the PMO is supported through projects and does not have steady flow of income to support transient services. Costs are tracked in finance workbooks and excel spread sheets, but senior management seems to see it as an immature model. The triple constraint tool scope, cost, and schedule seems to be the

template for project management plan and is done through Houston which is deemed very young. Scheduling is done through IPWC for detailed project tasks and through Clarity for milestone management. Clarity is required for management visibility on larger projects but provides little to no value to the PMO staff. The scope management tool is shown to be improving and is used in Microsoft project which is updated weekly. Understanding the resource staffing which is deemed to not be heavily used is a standard to use the Microsoft excel program. The WBS is defined as being heavily used with great importance to the project. From what is gathered about the responsibility matrix is that it needs great improvement in which now is done as a RACI inside of Microsoft excel. The stakeholder list is almost non-existent, appears to be avoided, and is resorted to control and directing instead of involving them.

The eleventh question involves how stakeholders are handled on projects. A consensus appeared to reflect that it is more of a hands-off approach in which the stakeholders are not informed day to day but week to week and gives a red, yellow, green light status report. The stakeholders are not involved unless there is a problem. Understanding more about the type of organization that is operating based on was the twelfth question. It was observed that the answers lead to the organization being a matrix type organization with a struggle on obtaining resources. The thirteenth question involves asking how the functional managers see the PMO. In general, the response is that it is not viewed with importance. It gives the presence of “not my area, not my problem”.

Other questions were asked what was expected of a role of a PM in a PMO and the levels of a PM. The level of a junior PM was expected to create a plan with no guidance, create budget with some guidance, create WBS, Sequence and track tasks, good communication and sensitivity, handle C class projects, have not yet got a PMP, create scope for sign off, lead project team meetings and document results with a one year apprenticeship. An intermediate PM should understand the politics, should be ready to take the PMP, budget is always updated, can take on B class projects. Senior project management is certified PMP, has external knowledge and experience, can manage class A projects, can improve current methodology, and has superior communication skills.

Other trends within the questions is the disagreement with the contractor investment policy, which contractors are not full time employees and training is not offered or

invested into them. This causes a morale issue for the PMO as stated by senior full time employees.

3.2. Current State Analysis

In addition to the interviews the team was also provided with access to the PMO process, templates and project repository. An analysis of the documents provided showed a PMO that was surprisingly mature in its development, particularly given the short amount of time since the office was chartered. Most documents and templates were derived from Houston and PMI with customization for IT Infrastructure specific projects and for internal Daimler processes. Some documents could have benefited from further development, but there seemed to be a strong commitment within the organization for developing and making available common processes and templates.

4. GAP Analysis

4.1. Problem Description

This Company like many other PMO's is missing or not conducting business as it relates to the processes and policies for which the inception of the PMO was generated. While reviewing the current structure of the PMO, the team realized the need to make other constructive alterations and suggestions to aid the PMO in the efforts which it was created. It was noted that the company has done a great job with identifying and utilizing business cases to initiate projects which is complemented by a project sponsor. Once a project has been identified, a project manager is then assigned to the project and the project charter is created with the mission, goals, and high level scope of the project. The company has a template for a project management manual and they have created and utilize a stakeholder register of sorts. Initially, the PMO was created some of the tools that are commonplace by current business practices.

However, there are several shortfalls for which have been identified, such as but not limited to creating a work breakdown structure outside of creating tasks in

Microsoft project, earned value and a strong cost tracking mechanism, resource loading and utilizing the scheduling software in a manner that is advantageous to the project, incorporating a responsibility assignment matrix (RAM) or responsibility, assigned, consult, inform (RACI) diagram, stakeholder register, procurement management plan, risk breakdown structure (RBS), risk response form, and tracking lessons learned or postmortem evaluations to take forward. Perform integrated change control (PICC) or having a change control board is something else the team is lacking. Based on this list of items and other deficiencies discussed during the interviews that transpired, the modifications and improvements for which we have studied will be detailed in the plan below for maturing the current PMO to attain the next level for which the upper level management is working to obtain.

4.2. Findings

Savings due to a PMO being implemented show opportunity costs and productivity loss to show what the PMO would cost to put in place versus the losses in inefficiency. The Opportunity costs, which are reflected in the appendices to be realized, will nearly be $400,000. It is anticipated that there will be an approximate $200,000 a year expense for maintaining and operating the PMO. However, the productivity that will be gained will significantly outweigh the additional costs. A rough calculation shows that by having the PMO in place, there will be an efficiency of close to $30,000 per month saved which when considered throughout the year, is $360,000. This is a six figure savings realized by having the PMO in place. It is expected the savings in change orders and other misnomers, will exceed $500,000 in the coming years.

4.3. PMO Success and Implementation

Now that we have defined the PMO, the value it brings and have made projections on how fruitful and advantageous it is, making the modifications that have been studied and described throughout this paper will ensue.

5. Conclusion/Recommendation

In conclusion, our research and design of the PMO has delivered a useful entity that the Company can utilize to be more effective and efficient than the previous version of the PMO. Identifying the level of maturity to date and understanding the type of PMO the company intends to become is the key to the success of the project. Recognizing that the business group is currently at level 3 with aspirations of attaining a level 5 maturity is distinguishing the scope of work that is looming and need to be achieved. With implementing the tools and techniques highlighted throughout this brief, the PMO can measure the outputs of the organization and understand how to control and manipulate the process to fall in conformance with the predicted outcome.

Once onboard, the team will be able to work toward improvements collectively and begin to experiment with new ways to streamline and make the PMO and process more proficient. In an industry that is predicated on innovation and brining new technologies to the forefront, attaining a high level of maturity and introducing the tools and mechanisms necessary for success should be second nature for this PMO. The culture at this point will be the most difficult hurdle, as rejuvenating the process and modifications of the tools is essentially the easy part. Creating a paradigm shift and holding project managers responsible as well as other functional stakeholders will be the goal of the PMO. This company has the confidence and management to make this a reality.

6. Acknowledgements

Our team would like to sincerely thank Jeff Busch for his continued provisions and guidance throughout the creation and iterations that were necessary to develop the models that have been generated throughout the term. The feedback was greatly appreciated and has not only led to an improvement in the current process for the Company but it has provided the team with instruments to be utilized in future pursuits academically and in our respective careers.

Also, we would like to thank the members of the organizational PMO analyzed for their time, involvement, and the access to the system; so that we could generate the tool that we have created for the various models. Without this opportunity, we would not have had the chance to take we have learned into practice, for which we are grateful. It is our hope and desire that the model is implemented and used to make the process more streamlined and efficient.

7. References

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