KEY STEPS AND PROCEDURES TO SUCCESSFULLY IMPLEMENTED AND EVALUATED THE VALUE OF PROJECT MANAGEMENT OFFICE (PMO)

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Abstract— Recently, many organisations show interest in investing in Project Management Offices (PMOs) to higher levels of project success whilst also embedding strong and consistent project management practices, processes, and procedures into the organisation. Current researchers into the PMO has highlighted its functions as a knowledge brokers between project and top management and between different projects that implemented under the same organisation. Nonetheless, current literature of PMO does not provide sufficient evidence to increase awareness of the Kingdom of Saudi Arabian (KSA) construction firms to implement this office toward improving overall project management effectiveness to successful project outcomes. The research project aims to develop a roadmap for the implementation of PMO within the KSA construction firms. This can be done via various steps and procedures of PMO to define, integrate, and develop PM best practice in order to improve business performance. The methodology employed a qualitative approach. The data used for this study were distributed randomly to the PM department of medium to large construction firms in KSA and a total of 16 semi-structured interviews were conducted face–to-face. The results show that the establishing and evaluating processes can be linked together as a complement to each other and addressed by the PMO values and principles. The personal interviews also describing the PMO functions and its effect suggest that the set up for one organisation cannot be implemented in the same way to another organisation. As a result, this research concludes by proposing a roadmap to address the establishment and evaluation of PMO and to increase the awareness among firms about its importance. By using this roadmap, construction firms will be able to achieve this objective, the correct setup of PMO shall maximise the great results.

Keywords- project management office; project management; project manager.

I. INTRODUCTION

Due to the changes and challenges occurring in the past few years in the world of construction, the use of different sources of technology in materials and devices, as well as the need of companies to meet these challenges through the development process to maintain the efficiency of the organization, researchers and organisations, such as Association of Project Management APM (2006), Project Management Institute PMI (2009), and Tylor (2011), have found that investing in Project Management Offices (PMOs) can lead organisations to higher project success rates and drive strong and consistent project management practices, processes, and procedures. The idea of PMO began to spread in the 1990s (Hurt and Thomas, 2009). The idea was developed in order to help organisations create modern methods of monitoring and following up on projects to ensure that they are delivered on time, while being within or under budget. However, as this concept has evolved over the years in different industries, its maturity levels have changed over time. Construction firms are realising the increasing benefits of using PMO to centrally manage, facilitate, and control the diverse range of projects delivered by the organisation (Valle et al., 2008; Kerzener, 2009; Andrew, 2013). This entails the uniform application of policies, processes, and procedures adopted by PMO. It has a significant role for developing and establishing different PM practices (Sontosus, 2003; Almagrabi, 2012; Rouse, 2014). The adoption of PMOs is not without challenges, the biggest challenge currently facing PMOs is that having a PMO does not in itself necessarily increase project success and therefore it does not offer a simple solution to major and complex problems. The current variation in the roles and responsibilities of PMOs confirm that there is no one size fits all.

This research suggests three maturity levels of PMO to structure and mandate its roles within different organization needs. This can point out the value added by the PMO in each level and the types of services they can deliver and the influence they have on both the project environment and their management office. This can facilitate the task of measuring its impact and can allow the construction firms to select and establish a suitable and unique PMOs' type according to their needs.

II. RESEARCH OBJECTIVES

The research aims to develop a roadmap model for the implementation of PMO practices within KSA construction firms. This can be done by proposing two phases to find out the basic steps and procedures used for establishing PMOs and how to assist its development during the long or mid-terms. In order to fulfil the research aim, the question of the research is: What processes do companies need to establish or develop unique PMOs?

III. PMO

3.1 What Is a PMO?

The PMO has been defined as a group of experts or a department that includes a number of people from different areas within an organisation, tasked with applying best PM practice (PMI, 2012). Hobbs & Aubry (2007) develop this definition, noting that the PMO often act as a regional office, coordinating multiple projects. Alternatively, the PMO can also fulfil the role of acting as a centre of excellence supporting the implementation of best practice and encouraging the sharing of knowledge across the organisation in an attempt to improve performance (Hizamul, 2010; Alsadeq et al, 2011). The PMO can also be defined as specialised set of people who work with a group of projects to run and fill a number of functions and roles to reflect on an organisation's performance. The construction sector's variety of process, policies, and procedures use the PMO to work as coordination centre to bridge the gap between projects that are currently being implemented by senior management (Taylor, 2011; Almagrabi, 2012; Andrew, 2013). PMO is, to a large extent, about improving business performance. It works as an agent for spreading PM standards, practices, and culture throughout the organisation (Dawson, 2012; Thiqah, 2013). It contributes to maintaining a list of best practices and providing effective guidance for instruments and expertise in PM. PMO can increase the organisation's maturity level, project efficiency, and help in quantifying the impact on the project's success (Kendrick, 2009; ESI, 2013).

3.2 Why Is PMO Used?

There is no single answer to this question, but in many cases, PMOs can be used for anything required by the organisation. Hobbs & Aubry (2007) emphasise the following important tasks for PMOs. Firstly, the PMO enables the coordination of multiple projects under the same company. Secondly, it acts as a centre for a wide range of best PM practices. Lastly, it aims to improve business performance by encouraging the sharing of effective knowledge across various projects. However, the main role of PMO by today's construction firms is to be the department that provides the quickest response to project-related issues. Kendrick (2009) and Nehme (2014) summarised two significant factors as to why PMOs are required. The first is to provide project manager (PMs) with a good administrative assistant to allow them more time to focus on critical tasks by eliminating their minor responsibilities. The second is to control and support one or more projects from the inception date to completion.

3.3 How Is PMO Used?

The majority of researchers, including Al-Nahj (2012), Daptiv (2013), Andrew (2013), Jordan (2015) assume that the PMO's core function can be divided into three maturity levels: supportive, controlling, and directive, as illustrated in figure 1. Each function has its own strategy and role in the delivery of the organisation's output:

1. **Supportive:** This level of PMO is mainly working to assist the PMs and various project teams by offering supportive structures, such as guidelines, templates, knowledge, and PM best practices. This can be achieved by bridging the gap between different projects and bringing them together as one project community. Usually this level is only provided to manage one specific project and its job is almost done after the project is completed.
2. **Controlling:** This level of PMO is appropriate when the organisation needs to have discipline and standard formats across their existing project procedures, processes, activities, and methodologies. The utilisation of this model should be available to the organisation for ensuring all standards and methodologies are used across projects. Here, the responsibility is to support different PM practices and to act as one department, but its job does not involve in managing projects.
3. **Directive:** This level of PMO is the most powerful of the three as it has a directive role. For instance, the PMs will be assigned by the PMO leader and their project progress will be reported to PMO in order to make some types of decisions. The majority of construction companies begin with the supportive model, then over time, they move to control and directive models regarding their levels of business needs. As the organisation executes a number of projects, the PMO will be located centrally across all the organisational units and projects. Directive PMO has other sub-PMOs who report to the main PMO; this can be seen if the organisation is implementing more than one project in different regions.

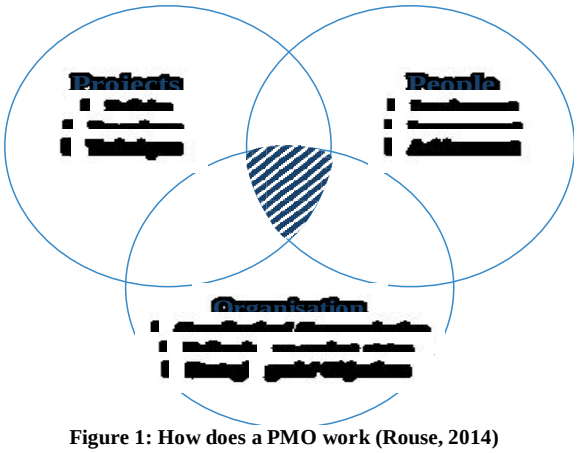

Figure 1: How does a PMO work (Rouse, 2014)

4. Establishment of PMOs

Over the past years, there has been a wide range of approaches towards establishing the PMO (PMI, 2005; Alsadeq, 2011). Nowadays, setting up, or restructuring and running a PMO has become the main objective of both governmental and private sectors. Researchers such as Alsadeq (2011) suggest the importance of establishing PMOs need to be identified because the PMO cannot be worked as the answer to

all project problems or as other companies have one in place.

The most crucial point made so far is the full agreement by all as in (table 1) that the first step of establishing the PMO should be used to identify and define the PMOs tasks. To build a strong foundation for this concept, a full knowledge of its objectives needs to be provided. Researchers (Hizamul, 2010; ASPE, 2012; NHS, 2013) not fully acknowledge the importance of involving both senior management and stakeholders. This will result in increased pressure on PMs to highlight the benefits from the office and to gain the necessary support. PMI, (2012) and CIO (2012) believe that providing on-going training and coaching programs for PMs and staff will increase their interest and prepare the required competencies for the office. This would be appropriate in situations where this concept is prevalent.

However, some researchers such as the CIO fail to identify the need of chosen suitable PMOs teams and to define efficiently its roles. This might provide some limitations with applying this in practice. An alternative explanation might be that Wilkinson processes have been more beneficial in this case by keeping monthly face-to-face meetings and regular reports. A further major criticism of all agreed that, the importance of PMOs to provide some procedures and processes to evaluate and update its roles. At this stage organisations should use the evaluation process as the final stage of establishing PMOs, which must be accompanied with the presence of the office. Briefly, it can be said that there is nothing wrong if the establishment of the PMO requires a few months or even years, particularly with regards to large construction companies. The most important thing is that stakeholders and/or senior management play a major role in establishing this new approach.

According to Alsadeq (2011) PMO teams needs to respond to all projects issue and orders. On the whole, the establishment of the PMO is challenging because every project or organisation is attending to be a new story. There is no doubt that each company will find a different way to set up the PMO, because firms have their own particular needs. Nevertheless, implementing a PMO will look to establish "quick wins, more flexibility, and business driven" (Alsadeq, 2011:5). CIO (2010) suggests that for a successful establishing of the PMO the following considerations need to be at work:

- The creation of PMO should be treated as a project in itself.
- The PMO type needs to be defined and named correctly.
- The long-term strategy needs to be planned and the short-term successes need to be outlined.

As a result of discussion on this section, the following table 1 outlines six steps in the processes that are needed to implement a new PMO for construction firms:

References	Establishing PMO
(NHS, 2013; CIO,2012; Hizamul, 2010; PMI, 2009)	Identify PMOs Objectives
(Wilkinson, 2013; ASPE, 2012; PMI, 2009)	Obtain the Necessary Support
(ASPE, 2012; CIO,2012; PMI, 2009)	Provide Training & Coaching
(Wilkinson, 2013; NHS, 2013; ASPE, 2012; Hizamul, 2010)	Define PMOs Process, Team, Tools
(ASPE, 2012; PMI, 2009)	Provide Regular Meetings and Reports
(Wilkinson, 2013; ASPE, 2012; CIO,2012; Hizamul, 2010; PMI, 2009)	Evaluate & Update PMOs

Table 1: Procedures and steps of Establishing PMO

5. Evaluation of PMOs

The establishment of the office does not mean that there are no more steps to assess the performance and maintain the development of the PMO and achieve the greatest benefit out of it. The evaluation of PMOs can be provided to support the functions and reasons behind establishing this office. It will be shown that there are various metrics to evaluate PMO performance. However, there are some factors that should be used in achieving the best practice of PM. At the end, it is important to ask how the construction company can get the best of the current PM practices. The in-depth details of those points will be provided in this section.

In today's construction market both the governmental and private sectors understand the advantages for setting up or restructuring and running PMOs (PMI, 2009; Almaghrabi, 2011; Wilkinson, 2013). A survey was conducted by PMI (2010) to illustrate the state of PMOs; it found that almost 84% of recognized companies have some form of PMO. However, according to PMI's survey focusing on the years of 2005 to 2010 and sampling 291 organisations, the percentages of failed PMOs are as illustrated in figure 2:

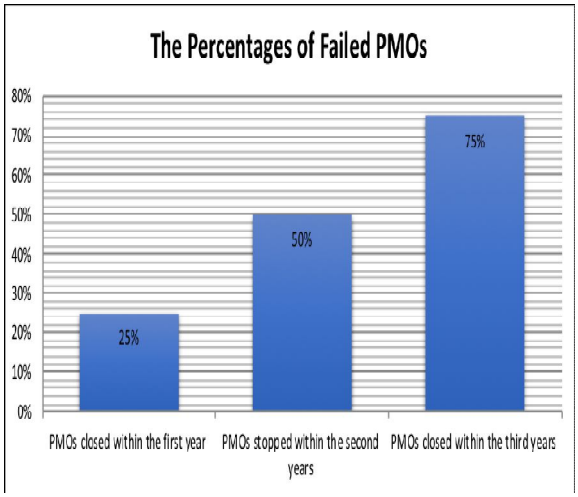

Figure 2: The Percentages of Failed PMOs (PMI, 2010)

PMOs cannot be the answer to all an organisation's problems or take the place of the work of other departments or sister companies that are already in place (Alsadeg, 2011; Mastering PM, 2012; Daptiv, 2013) The following section outlines certain considerations that need accounting for before the establishment of the PMO. It is significantly important to provide a number of steps and tools to evaluate PMO performance as well maintain its development (PMI, 2009; Hizamul, 2010; Almaghrabi, 2011; CIO, 2012; ASPE, 2012; Wilkinson, 2013). Organisations are advised to have a look at its achievement and noticing the great benefits out of it. The process of keeping this new orientation more accountable and showing its value can be achieved through certain methods to ensure that it is directly connecting to its objectives and strategies? According to Eckerson (2006:11), "you cannot manage what you cannot measure". Some practitioners of PMOs feel that while its establishment seems to be easy in theory, it is difficult in practice and not an easy task because it has to deal with multiple tasks and procedures, many of them in different locations (PMI, 2009; Hizamul, 2010). However, there are some metrics to evaluate PMO performance, which can be discussed in more detail in the following points:

1. The success percentages of a company's projects delivered over a particular time should be tested and evaluated (Hizamul, 2010; Mastering PM, 2012; Daptiv, 2013; KPI, 2014). The organisation needs to evaluate the success rates of project delivery by evaluating how far the organisation meets their objectives, the percentage of reduced utilisation, and the percentage of project success. A good way to adopt these factors can be illustrated by evaluating the estimated time Vs. the actual time. Therefore, the percentage of projects that are delivered on time and under the estimated budget is one important metric to test PMOs performance.
2. The better PM process that were used by PMO should be indicated within the project results (Hizamul, 2010; Mastering PM, 2012; Daptiv, 2013). The availability of PM practices should be linked to the organisational needs. There is no point in showing how many PM practices are used if these are not making an impact on the implementation of projects. For example, some companies might be seen that the quality management should be in place, while another one may feel this will rise more responsibility in the process of hiring unneeded staff and spend unfair money. The consideration of whether PM practices on site are implemented and whether they work across various projects will be a good tool to assist the performance of PMOs (Hizamul, 2010).
3. Gurta (2010), CIO (2012) and KPI (2014) provide a useful checklist for assessing the quick gains of the PMO. The optimal use of regular reports illustrating PMO responsibility will support the senior management to examine its existence (Mastering PM, 2012). However, this can be challenged on the basis that reporters not suitable to explain the wide map of PMOs performance. It is important to use the checklist form and to produce reports on a regular basis to allow the office to interact at the right time. Senior management should go back to the PMO's teams in case that the checklist forms not fully explained where is the PMO set now.
4. The evaluation of staff attitudes and knowledge gained can be used widely as a metric to evaluate PMO performance (Millhollum, 2009; CIO, 2012; Mastering PM, 2012; KPI, 2014). The evaluation of staff attitudes can be measured by using a short survey and through training programs. There are some tools that can be provided as an indication for reflecting its success. For instance; the feedback by PMs and project teams can easily ascertain whether a new approach will assist them or not. Some types of PMOs can be called centres of excellence (Wilkinson, 2013; PMI, 2009), this type should be the source of guidance to all PMs and project teams if they faced some difficulties or feeling they needs to improve their project knowledge.
5. Defining PMO missions, objectives, and strategies can establish a strong foundation for the office (NHS, 2008; Hizamul, 2010; CIO, 2012; ASPE, 2012). The entire organisation should be ready to adopt this new department because its functionality can affect all projects. The identification of which problems need to be solved or supported can be one of the biggest challenges. Identifying the PMO's vision, mission and objectives can be one of the most important processes for evaluating this office.
6. It is vital to involve the top management and/or stakeholders in the development of the PMO (PMI, 2009; Almaghrabi, 2011; Wilkinson, 2013). A particular weakness in implementing this concept can be seen as the failure to fully acknowledge the needs of senior management and/or the stakeholders. This will decrease its power by failing to gain the necessary support. However, this research maintains that senior management and the stakeholders should be involved from the early stages and at each step of the process.

However, the evaluation of PMOs must go through different stages in order to see how the office can deal with the various procedures of the project. However, the understanding of the right process of evaluating the PMOs is a key part in getting more accurate results. For instance, the improvement of PMs and PMO staff can test the PMO status. Factors such as evaluating success rates and how best the office can strongly deal with PM practices can give a good indication that the office has started to show positive features.

The results of this section of identifying factors and metrics to evaluate PMO performance can be summarised in table 2.

References	Metrics to Evaluate PMOs Performance
(KPI, 2014; Daptiv, 2013; Mastering PM, 2012; Hizamul, 2010)	The success percentages of a company's projects that are delivered over time.

(Daptiv, 2013; Mastering PM, 2012 and Hizamul, 2010)	The availability of PM practices on site are implemented and work across various projects.
KPI (2014) and CIO (2012) and Gurta (2010)	Providing a check list form and regular reporting.
(KPI, 2014; CIO, 2012; Mastering PM, 2012; Millhollum, 2009)	The evaluation of staff attitudes, improvement and knowledge gained.
(PMI, 2009; Wilkinson, 2013; Almaghrabi, 2011)	Provide Regular Meetings and Reports.

Table 2: Metrics to Evaluate PMOs Performance

IV. RESEARCH METHOD

The methodology employed a qualitative approach. The data used for this study were distributed randomly to the PM department of medium to large construction firms in KSA and a total of 16 semi-structured interviews were conducted face–to-face. The interview method was proposed to deal with the research question, what processes do companies need to establish or develop unique PMOs? Qualitative methods are used as a means of gaining a deeper understanding of the meaning attached to PM and PMO practices by understanding relevant concepts, functions, and impact on organisational performance. The interviewees were asked to provide in-depth details and answers to the previous question. Using the whole population for every research study would be superlative. To include every subject of the population is not possible due to the population size and time constraints. However, convenience sampling was used in the Interviews to represent and reflect on the whole population. This research selected the interviewees based on two criteria: Firstly, people who worked in the PMO administration or who dealt directly with the office as PMs for no less than five years and therefore had relevant information and experience for the research. Second, people who are able, accessible, and willing to give the level of information that is needed. A total of 16 semi-structured face–to-face interviews were held. The interviews were conducted pertaining to the location of PMO. Therefore, the interviews were divided into two groups; the first group included people who were working in head offices away from projects and in this case eight-different construction firms were selected to identify the common approaches and play them against each other to maximise the accuracy of the results. The second group included people who were working in the execution of projects away from head office, and the same procedures were applied to them. The analysis process resulting from the interviews used the qualitative approach of thematic analysis.

V. RESULTS

By asking the respondents what the most proposed steps and procedures should be in place to achieve the success of the PMO journey. Phase one, the establishment processes were classified into six steps. The findings of the interview analysis were identified similar number of factors but with a slight difference in their adoption and the order of which should happening first. The interview analysis also giving more details about the important commitment and support by top management before going into implementation phase. The specification of PMO functions and roles should be linked with firms' size and maturities. However, the evaluation processes of PMO the debate is likely to be somewhat different. There are two more factors that suggested based on the interview analysis namely; the achievement of unified management policies, practices, and regulations. As well as the formal evaluations of project managers and PMO staff. This research assumes their importance and apply them as a main contribution of this study. Otherwise, the other factors remain the same but with important details obtained from the primary analysis. Table 3 illustrated the similarities and differences between the secondary and primary data, and the main findings of the research; as follows:

Methods	Literature Review		Interviews Findings		Research (Findings/Contributions)	
	Establishment	Evaluation	Establishment	Evaluation	Establishment	Evaluation
First	Identify PMOs Objectives	The success percentages of a company's projects that are delivered over time.	Ensure commitment and senior management support and involvement from project managers.	The evaluation of project management practices and their effectiveness.	Obtain the necessary support from senior management with an effective contribution by project managers in disseminating the culture of PMO.	Effective presence of project management practices and their development and use to achieve the organization's aspirations.
Second	Obtain the Necessary Support	The availability of PM practices on site are implemented and work across various projects.	Select the appropriate PMO types by defining its vision and mission.	The development of organizational maturity level based on the knowledge gained.	Identify PMOs mission, vision, and strategies to select the appropriate types of PMO.	Development of the maturity of the organisation and its employees based on the acquired knowledge.
Third	Provide Training & Coaching	Providing a check list form and regular reporting.	Specify the PMO functions, structure, tools, and number of staff.	The success rate of project completion with and without PMO existence.	Rehabilitation and training of the PMO team and project managers and specify its relation with other parties.	Evaluate the contribution of PMO in increasing project delivery success rates.
Fourth	Define PMOs Process, Team, Tools	The evaluation of staff attitudes, improvement and knowledge gained.	Build the PMO methodology, processes, policies, and its relation with other parties.	Customer and stakeholders feedback evaluations.	Define the PMO methodologies, processes, policies, and tools.	The availability of check list forms and regular meetings to evaluate business performance and review the customer feedback.
Fifth	Provide Regular Meetings and Reports	Provide Regular Meetings and Reports.	Track the PMO success factors and determine metrics to evaluate its performance.	The reduction of cost, time, and scope of works.	Track the PMO performance and how to increase its maturity level	Achieving a reduction in project elements based on reports reaching members of the PMO.
Sixth	Evaluate & Update PMOs	-	Identify the organisation's maturity levels, strategic goals, and business objectives.	The achievement of unified management policies, practices, and regulations.	Identify the organisation's maturity levels, strategic goals, and business objectives.	The achievement of unified management policies, practices, and regulations.
eventh	-	-		Formal evaluations of project managers and PMO staff.		Formal evaluations of project managers and PMO staff.

Table 3: Factors that found based on the literature reviews and the outcome of analysis

DISCUSSION

The results of the interview show that the participation between senior management and project managers is no longer a problem, due to the importance of the project managers to be highly efficient in order to respond quickly to the challenges and decisions. This aspect has been overlooked in the proposed model, and many believe that it is difficult for a PMO to be directly responsible for developing the performance of individuals and the organization if it is limited to support levels. Figure 3 shows the possibility of comparing the establishment factors and evalution with the success factors and values that the PMO is trying to create, but the importance of appropriate selection of the level and functions of PMO must also take into account the company's capabilities and direction. The results of personal interviews as shown in figure (3) show that there is a significant difference in the functions and influence of PMO from level to level. Furthermore, there is a disparate difference in PMO roles and responsibilities between the company's central management and project implementation management. This difference gives a good impression that PMO's future can be focused on being the missing link between management and individual projects to achieve the company's overall goals. This suggests that the lack of applying best practice of PM in the KSA could be reduced by the existence of PMOs, as they can play many roles in the management of construction projects and in maximising best PM practice. This lead to the research proposing the following roadmap model (Figure 3) to address the research question. These different steps and procedures shall contribute to the successes of construction projects and to the improvement of the overall business performance; as illustrated in figure 3:

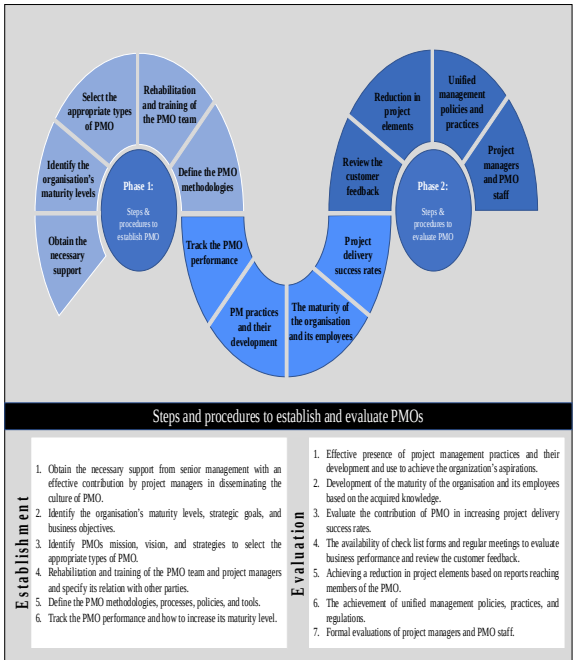

Figure 3: Proposed Roadmap for the Implementation of PMO

CONCLUSIONS

In brief, it can be argued that PMO offers the best means of bridging the gap between defining the PM practices and implementing them within the organisation. PMO is one of the most important phenomena that has spread widely to provide basic organisational means to construction firms. However, the uncertainty of its importance is still being debated by some researchers in this field and within organisations in the KSA construction market. Therefore, this research is provided to develop the concept of PMOs in terms of increasing the success factors that mainly contribute to it. Alternatively, PMO suggests the value of reforming management issues and supporting increased coordination and communication among all parties and/or projects. These are clear indications that the investment in this area will have a positive impact on the business' performance. There are a wide range of PMO set up and evaluates processes according to organizational views and researchers and expertise in this field. However, the selection of PMO implementation steps and procedures in this paper are formulated to suits the construction firms and should evaluate the organisation's size and their number of projects before the adoption of the proposed roadmap. Increasing maturity levels of PMO usually moves forward from an operation and tactical PMO over time towards a more directive and strategic PMO as well as its implementation phases.

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