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The role of the PMO in enforcing and standardizing attendance to the needs of software project teams by project managers

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Abstract

Despite their critical role in project success, software project teams (SPTs) remain the most neglected key stakeholder group by software project managers (SPMs) and researchers in the project management field. The needs and interests of SPTs have not received due attention from SPMs. As an attempt to address the neglect of SPTs by SPMs, the authors of this study developed a model aimed at assisting SPMs to pay necessary attention to the needs of their project teams. Key to the function of the model is the project management office (PMO), which is aimed at enforcing and standardising the collection and addressing of SPT members' views and concerns. The PMO as a custodian of project management practices in an organisation, is responsible for standardising and enforcing project management practices across the enterprise. The purpose of this research study is to explore how the functions of the PMO can be used to operationalise the enforcement, institutionalisation and standardisation of the overall function of the model. Given the practical orientation of this study, pragmatic and interpretive research paradigms were deemed appropriate for application. Using interpretation, various suitable PMO functions as determined from project management literature were used to meet this study's objective. Future studies should include the validation of the practicality of this paper's assertion in a real-life project environment.

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1. Introduction

Software project teams (SPTs) are some, if not the, most neglected stakeholder group by many software project managers (SPMs) and stakeholder management researchers [1]–[3], despite their pivotal contribution in delivering successful projects in the industry. Projects in the software industry are almost completely reliant on human capital [4], [5], and therefore without SPTs, the success of projects in the sector is impossible. Yet, as indicated before, their needs and interests are not considered by many SPMs, and teams' opinion 'count for nothing' as indicated by a SPT member in a research study carried out by Hans [6]. Likewise, SPTs' needs have also not been given necessary consideration from the researchers of project management field, a view which is also consistent with [7]'s assertion that the focus of the researchers in the field has been on project stakeholder groups who they consider to command more financial control.

In order to address the poor management of SPTs, the authors of this paper proposed and developed a model (in another study (see [6] for a full discussion of the model), which will be referred to as the original study from henceforth) aimed at assisting SPMs to pay necessary attention to the needs of SPTs, and thus treat them as key stakeholders. Key to the function of the model (see Fig. 1 in Section 2) is the project management office (PMO), which is aimed at enforcing and standardising the collection and addressing of SPT members' views and concerns [6] by SPMs. One of the key findings of the study carried out by Hans [6] was the inconsistent attendance of SPTs' needs by SPMs – some attended to the project teams' needs while others did not. Furthermore, the same study established that the processes for soliciting views and concerns of SPTs were undocumented, and therefore open to different interpretations by SPMs. The inclusion of the project management office as part of the model was to address this problem and also standardise attendance of the needs of SPTs by SPMs.

A PMO is a custodian of project management practices in an organisation, responsible for standardising and enforcing project management practices across the enterprise [2], [8], [9] and also provides the supporting and controlling role for projects [10]. According to Silvius [11], a PMO plays an important function in the standardisation of project management practices in an organisation. A PMO is an enabler of project management effectiveness through lessons learnt from both project success and project failure perspectives [12]. The absence of a PMO in an organisation is likely to lead to lack of standardisation of project management practices and standards, resulting in non-compliance with these practices, as observed by the study carried out by Hans and Mnkanla [2].

This research study, which is an extension of the original study, is intended for exploring how the PMO may be used to operationalise the enforcement, institutionalisation and standardisation of the implementation of the model's overall function. The model's overall function is to assist SPMs to solicit and address SPTs' views and concerns. The following are this study's research questions (RQs): **RQ 1:** How can the PMO be used to enforce the overall function of the model? **RQ 2:** How can the PMO be used to standardise the overall function of the model?

The rest of this paper is structured as follows. Section 2 briefly discusses the model, while Section 3 provides a discussion on the relevant literature for this study. The research methodology used by the research study is presented in Section 4. The discussion on how the PMO may be used to address the purpose of this study is featured in Section 5. The conclusion, limitations and future studies are all presented in Section 6.

2. Brief discussion of the model

Fig. 1 shows the model whose implementation this study aims to enforce and standardise using the PMO functions. The next discussion outlines the six critical stages of the model that are expected to be adhered to by SPMs. The entry point starts the processes of the model. This would usually be at the beginning of a project. At this stage, all SPT members should be identified, as well as their project needs, thereby leading to Stage 1 of the model.

Stage 1: Identify each project team member of the information and communication technology (ICT) project team – During this stage a SPM needs to identify each team member who is a stakeholder at the current phase of the project or sprint or a set period as determined by the PMO together with SPMs or Scrum masters.

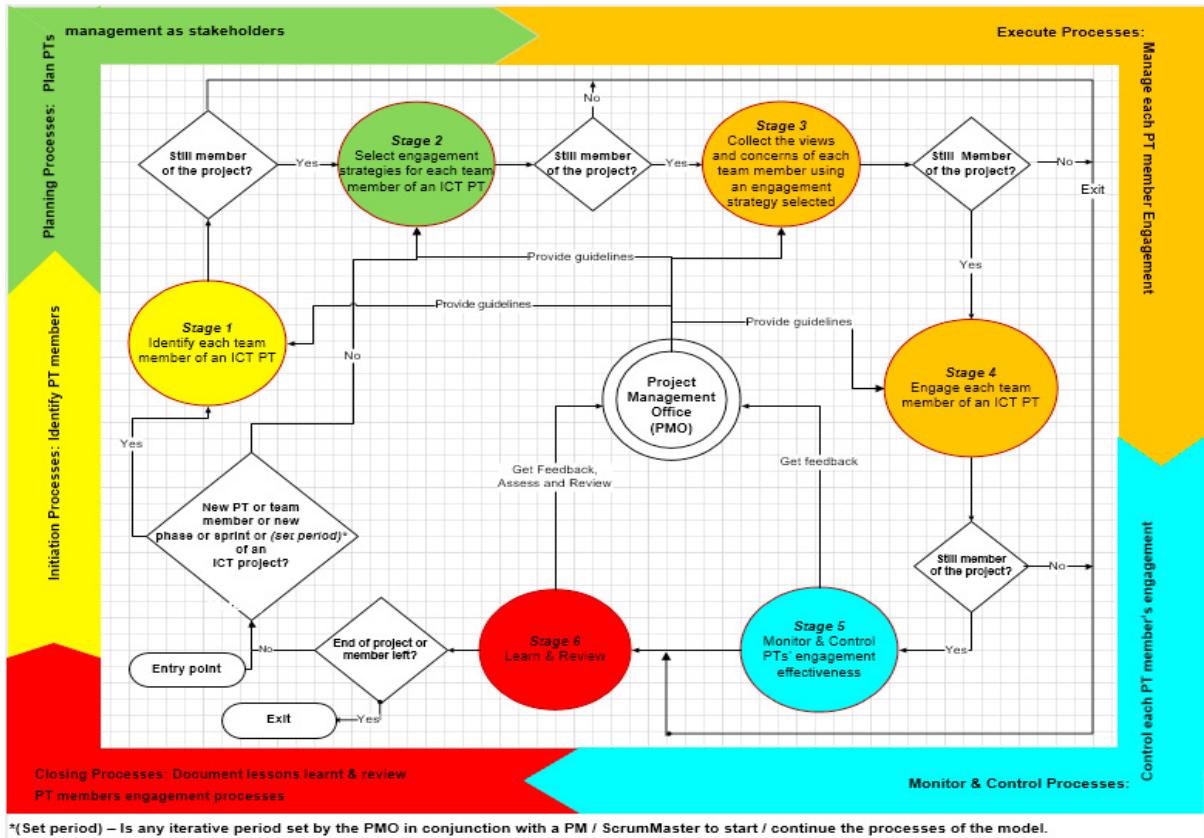


Fig. 1. A model for assisting SPMs to treat SPTs as key stakeholders (Adopted from Hans [6])

Stage 2: Select engagement strategies for each identified team member – Individual SPT members may prefer different engagement strategies because each SPT member is unique. An engagement strategy should be personalised for each SPT member because it may either impede or facilitate good communication between a SPM and a SPT member [13].

Stage 3: Collect the views and concerns of each team member – During this stage, project related opinions and concerns of a SPT member are gathered through appropriate communication strategies selected in Stage 2.

Stage 4: Engage each team member of the project on the collected views and concerns – A SPM engages individual team members using suitable engagement strategies that were selected in Stage 2, with the intention of addressing the needs of each SPT member.

Stage 5: Monitor and control the project manager-project team engagement process – During this stage, a SPM and the PMO of the organisation assess the feedback gathered from SPT members in order to establish the effectiveness of a SPM-SPT engagement process, and where necessary corrective measures be implemented.

Stage 6: Learn and Review – In the case of this step, the PMO would use the valuable information provided as feedback by the output of Stage 5, SPMs and SPTs, as input to the review process of project management standards, processes and guidelines regarding the effectiveness of engagement between SPMs and SPTs.

3. Literature review

Software project teams are some of the key stakeholders who have a critical impact on project success or failure [14], [15]. SPTs, as with other project stakeholders have needs, which they expect to be met by projects that they are involved in [15]. Therefore, their contribution to projects are not without conditions – they expect their needs to be fulfilled at one point or another during project execution. The SPTs' needs include acknowledgement, training and

developmental needs, opportunities to advance their careers, a supportive work environment and inclusion in decision-making processes by SPMs [16], [17]. SPMs are supposed to attend to the needs of SPTs and thus fulfil them in the process [18]. Unfortunately this has not happened as alleged by Hans and Mnkanla [3], but instead has caused various problems, which include project failure [19], low team morale [20] and financial loss to organisations [21], amongst other things.

Existing project stakeholder management tools, frameworks and models could not assist SPMs to address the needs and interests of SPTs due to their limitations [8], [22]. Amongst the frameworks and tools that could not provide adequate solution for SPMs, are two dominant frameworks, namely, Stakeholder Circle framework [23], which is based on the work of Mitchel *et al.* [24], and the Social Network Analysis [25], which considers stakeholder networks of a project. Furthermore, Stakeholder Circle framework classifies project team members as stakeholders who have '*limited individual influence*' on a project [26] and this assertion is not entirely accurate because SPT members do have enormous labour power, which enables them to have influence as argued by Hans and Mnkanla [8]. In an attempt to address these limitations, Missonier and Loufrani-Fedida [22] designed a new stakeholder analysis tool, which is based on Actor-Network Theory. However, Davis [27] has levelled some criticism on [22]'s model, stating that the model's design did not cater for all project contexts, as the model was only evaluated in failed project context. It was on the basis of the above-stated drawbacks of the stakeholder management tools that the authors of this research study designed a model (shown in Fig. 1) intended to assist SPMs to pay necessary attention to SPTs' needs and thus treat them as key stakeholders. The PMO is positioned at the heart of the activities of the model to ensure that the management of SPTs as key stakeholders by project managers is administered from the top office of project management; and not left to the SPMs to decide, who may or may not be keen implement.

A project management office is an organizational entity tasked with the standardisation of the project-related governance processes and assists with the sharing of resources, methodologies and tools [28]. The establishment of a PMO is one of the key ingredients of project management performance and maturity for organisations that are serious about realising and maximising their project investments [29], [30]. According to Silvius [11] there is no consensus on the role of the PMO, however, the PMI [28], indicates that a PMO may take three roles, namely, supportive, controlling and directive. A supportive PMO is mainly for providing consultative role by supplying templates, project management practices, training and necessary information. A controlling PMO enforces compliance to company approved project management practices, standards and policies, over and above the supportive role the office provides. On the other hand, a directive PMO directly controls the running of projects.

If an organisation intends to follow a consistent and standardised way of running projects (a project culture), then a PMO is a vehicle to drive that message across and an agent for implementing the project management culture [30]–[32]. It is a centre that drives excellence in project management in an organisation.

Aubry, Müller, Hobbs and Blomquist [31] claim that a PMO may have several unique functions. Silvius [11] also admits that a PMO may have a number of responsibilities, which include the ones listed in Table 1.

Table 1. PMO responsibility (Adapted from Silvius [11])

Responsibility	Possible task
Project management methodology, standards and tooling	Develop or select a methodology for project management processes and methods. Implement and operate an enterprise project information system.
Project Portfolio Management	Identify and develop new projects. Monitoring and controlling project performance. Report project status to upper management and provide advice.
Project and Program Management	Manage one or more projects or programs
Benefits Realization Management	Benefits Management Conduct post-project reviews
Human Resource Management	Human resource and staffing assistance. Recruit, select, evaluate, and determine salaries for project managers.

	Provide mentoring for project managers
Training	Provide trainings and/or certifications for project managers.
	Provide trainings and/or certifications for other project personnel.
Project support and archiving	Manage archives of project documentation.
	Project administrative support.
	Provide a set of tools without an effort to standardize.
Consulting	Project management consulting.
	Provide mentoring for project managers.
	Organization change agency.
	Promote project management within the organization

If the project management procedural practices are to be successfully standardised enterprise-wide, then enforcement thereof should be from top management through a PMO [33], rather than left to project managers to decide whether to implement or not [34].

4. Research methodology

Based on the aim of this study, which is to determine how the PMO can be used to operationalise the enforcement, institutionalisation and standardisation of the implementation of the model, the research approach followed in the paper is a pragmatic interpretive methodology. Due to the study's practical orientation, pragmatic interpretive approach is deemed to be suitable [11]. The pragmatic and interpretive approaches are both oriented towards understanding the phenomena [35], where in this study's context they are used to understand the application of the PMO in enforcing, institutionalising and standardising of the model's function in organisation. Pragmatism was used to derive the necessary knowledge on how the PMO can be used to operationalise the enforcement, institutionalisation and standardisation of the implementation of the model. On the other hand, interpretivism was logically applied on the various appropriate functions of the PMO as determined from project management literature to show how the PMO functions may be used to meet this study's objective.

5. The use of the PMO to enforce, standardize and institutionalise the implementation of the model

This section presents a discussion on how the PMO can be used to enforce, standardize and institutionalise the implementation of the model.

5.1. Enforcement

Some of the findings by the original study revealed the following:

- (a) Lack of processes to collect the views and concerns of SPTs by project managers.
- (b) In some cases where such process existed, these were SPM-dependent. That is, there was lack of compliance with the processes by certain SPMs. Non-compliance with the processes could have emanated from two factors, namely, undocumented processes and non-standardised processes [2].

The development of the model was aimed at providing a tool for SPMs to collect SPTs' views and opinions. The next Subsections (5.1.1, 5.1.2 and 5.1.3) discuss how the PMO's '*Project management methodology, standards and tooling*', '*Project portfolio management*' and '*Benefits realization management*' groups of functions may be used to establish and enforce methods and processes respectively. The methods and processes are meant to use the developed model, for solicitation of views of SPTs.

5.1.1 Project management methodology, standards and tooling

The development and implementation of standard methodologies and processes is one of the group of functions under this functional role of the PMO [36]. Software project managers cannot be held responsible for no solicitation of project teams' views if there are no official processes in place that require and support them to do so. Silvius [11] claims that the development of project management methods, processes and standards is seen as a pre-requisites for other PMO functions and tasks. The PMO, as a custodian of project management processes is the right office to develop, implement (thereby making the processes official and mandatory for every SPM), promote and document the processes to be followed by SPMs for gathering SPTs views. When the PMO officialises the methods and processes for collecting SPTs views, the model's entry point should also be decided in conjunction with SPMs. A decision also needs to be made as to when during the project life cycle are the different stages of the model to be carried out by SPMs. Moreover, the PMO should also develop templates to be used by SPMs and SPT members for providing feedback to the PMO about the engagement processes. The output of this exercise should be documented processes and guidelines for SPMs and SPTs that will assist them in the implementation of the model.

5.1.2 Project portfolio management

Demarco [37], emphasises that one can't control what one can't measure. It is therefore imperative that once the SPM-SPTs engagement processes have been developed and implemented, then the effectiveness of the process, adherence to the processes and general satisfaction of all concerned be determined. Monitoring and controlling function of the PMO is considered the most important function [36]. This role is to observe and establish the efficacy of the chosen engagement techniques in order to enhance or change them if they yield an unintended outcome. The monitoring, controlling and measuring of SPM-SPTs engagement processes will send a clear message to all concerned that the organisation is serious about the processes and attaches value to their observance. A project management office with its mandatory and commanding leadership powers should verify that all internal stakeholders observe institutionalised project management practices, SPM-SPTs engagement processes in this context. The effectiveness of engagement activities (dialogue) between a SPM and individual SPT member should be established, as suggested by Feather [38]. In order to ensure that SPM behaviours are in accordance with the organisation's project management practices, which the model seeks to promote, SPM's performance management must be linked to his/her management of SPTs as key stakeholders, thereby promoting expected behavioural outcome [38]. This is also supported by Sloan [39], who suggests that company reward systems should reflect that SPMs are required to show commitment to stakeholder engagement. Kerr [40] explains that if a project manager performance measurement is linked to his/her efforts of meeting the needs of SPTs, then they will be encouraged in addressing the needs of their teams as they do with the needs of other project stakeholders.

5.1.3 Benefits realization management

Project review process enables the PMO to ascertain that all internal stakeholders observe institutionalised project management practices. Project review process as part of the set of processes of benefits realisation management ensure that valuable initiatives such as SPM-SPTs engagement practices are executed as planned. Using the valuable input from software project teams and project managers, the PMO should review the efficacy of project management engagement practices suggested by the model, engagement standards and guidelines for project managers and their teams that are expected to be followed in the organisation. The assessment and appraisal process of SPM-SPTs engagement practices will assist the PMO in detecting discrepancies and variations, if any, in the implementation of the practices by each SPM for addressing concerns and needs of project teams. Furthermore, the feedback will help SPMs to identify gaps in the processes to assist them to pay due attention to project team interests. The project review process should not only be carried out at the close of a project, but during other phases of the project as well. The review outcomes, which occur during project execution, are related to project performance measurements taken during the project life [41]; on the other hand, the review outcomes that are determined at the end of the project are related to project success measurements. The review and appraisal process of practices will assist an institution to transforming into a learning organisation that eagerly improves on its project

management capabilities, as also advocated by Lee *et al.* [21]. It will also serve as important empirical input to the retention strategies of an organisation.

5.2. Standardisation

The discussion presented in Subsection 5.1.1 is applicable and relevant here for the standardisation of project management tools and practices, which include the model given in Section 2 aimed at solicitation of SPTs' views and concerns. The next subsection discusses how the '*Human resource management*', '*Training*' and '*Consulting*' group of functions may be used to standardise the solicitation of SPT members' views and concerns, which the model seeks to promote.

5.2.1 Human resource management / Training / Consulting

If project management is to be a tool for enabling efficiency in the delivery of projects, as alluded to by Cicmil *et al.* [42], then standardisation of project management practices, human resource management included, should be foundational. The standardised human resource management practices should form part of an integrated toolbox of a streamlined project delivery process as well as part of mentoring programmes for upcoming SPMs in a successful organisation. As successful organisations mentor and grow their own project leaders [43], the training programmes should contain common leadership and management qualities, which an organisation expects from its future and current project managers, thereby standardising project management leadership and human resource management practices, to ensure consistency and uniformity in the management of its most valuable resources. The standardisation of human resource management practices such as solicitation of their views and concerns will ensure that no SPM is exempted from following institutionalised project management practices.

The discussion presented in this section, Section 5, is aimed at nurturing appropriate and consistent company-wide project culture, which reflects organisational culture. Therefore, the implementation of the model through the project management office seeks to engender standardisation and enforce this process across project environments in an organisation, and such standardisation would contribute positively to project success. The development and implementation of project management methodologies and processes, the development of project management competencies of SPMs and the monitoring and controlling of the standardised processes are logical set of PMO functions that reinforce each other [36].

6. Conclusion, limitations and future studies

The aim of the study was to explore the use of PMO in operationalising the enforcement, institutionalisation and standardisation of the implementation of the model presented in Section 2. In an effort to achieve the set objective, two research questions were answered. The following discussion is about the answers to the two research questions. Section 5 provided answers to the two research questions of this study. The following discussion summarises the answers to these questions.

RQ 1: *How can the PMO be used to enforce the overall function of the model?*
 The discussions in Subsections 5.1.1, 5.1.2 and 5.1.3 provided an answer to this research question by demonstrating that the PMO functions under the three groups, namely, '*Project management methodology, standards and tooling*', '*Project portfolio management*' and '*Benefits realization management*' may be used to enforce overall function of the model. For example, the discussion showed that '*Project portfolio management*' may be used to institutionalise (by documenting and promoting) the solicitation of SPTs views, while '*Benefits realization management*' may be utilised for the enforcement (through performance management of SPMs) of the solicitation process of SPTs' views and concerns by SPMs.

RQ 2: *How can the PMO be used to standardise the overall function of the model?*
 Subsection 5.2.1 presented an argument on how '*Human resource management / Training / Consulting*' group of functions of the PMO could be applied to achieve standardisation of the model's overall function. The discussion indicated that in order for an organisation to achieve consistent and uniform human resource management practices

(for example, addressing of individual team member's needs), standardisation of gathering of their views and concerns across the organisation is an imperative.

Given that the study made use of interpretivism, its results may be impacted by the researchers' viewpoints [44]. However, the interpretation used by the researchers in this study is based on the definitions and the description of the functions of the PMO as provided by the literature. We propose that future studies should validate the practicality of this paper's assertion on the use of the PMO to enforce the model's overall function.

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