ABSTRACT
In spite of the fact that project management methodologies are naturally universalist, diverse contexts reflect different approaches to project management. Due to various organizational cultures and structures it is expected that the attitude and perceptions toward application, and adoption of standards of project management may differ from one project management office (PMO) to another as well as one country context to another. In addition, there is a lack in the literature on the Project Management standards (PMS) and their relation to Project Success (PS) with the mediating role of Project Management Office (PMO), as the project management body of knowledge broker, in Project Based Organizations (PBOs). The objectives of this research are; to examine the influence of PMS, PMBOK 10 knowledge areas, on the success of projects; and to investigate the impact of PMO as a mediator between PMS and PS in construction organizations in Iran. An initial theoretical framework indicating the link between the variables and hypothetical relationships was developed. A survey was developed and distributed among project managers and construction practitioners working in grade 1 construction companies across Iran and a total of 250 usable responses were received and analyzed. The findings show that PMO has a positive impact on PS and it is concluded that PMO plays a mediator role between PMS and PS. Further results revealed that PMO has a positive effect on PMBOK knowledge areas and all proposed relationships were supported except for HR, Scope, Time and Stakeholder.

Keywords: project management, project management standards, PMO, project success
1. Introduction

There is a need to differentiate between a project and project management (Hillson, & Murray-Webster, 2017). A project is comprised of an objective achievement by involving a series of activities and tasks which are achieved by consuming resources while on the other hand project management is the completion of tasks according to the definite start and end dates. The project and project management are distinguished on the basis of their significance and their success (Qazi, Quigley, Dickson, & Kirytopoulos, 2016). Project involves selection of a task which will be an overall benefit to the company and this might be in terms of marketing (Noe, Hollenbeck, Gerhart, & Wright, 2017), technical and financial over a period of time which will tend to move towards the expected total lifespan of completed project. Time period of the expected benefits from a project can be extended up to 100 years in case of a construction project and it solely depends on the prophesy of building life (Aksözen, Hassler, Rivallain, & Kohler, 2017).

The practice of project management (PM) has rapidly evolving over the years since it was formally introduced in 1957 (Kerzner, 2018). The theory of PM derives from different practices over years of managing projects. As such, this evolution goes across the Method, Guides and Standard documents for project management since it was first introduced in 1987 (PMBOK). Subsequently, the arrangement of the structure of the theory and practices of PM are derived from different organizations worldwide. Study of project management in terms of best practices has reinforced the idea that project management offices have a great value in the success of project and project management (Archibald & Archibald, 2016). Project management office has the capacity to maintain and develop set of standards and methods which becomes steward of documented project management expertise inside the organization (Ogbu & Amade, 2017). Standards provided by the project management office should be detailed enough to provide guidance but not up to that extent of details that they might be a cause of creativity inhibition (Harrison et al., 2015). Project management office is actually an organizational entity and it is established for managing a specific project or a series of related projects and all of these are handled by project manager (Darling & Whitty, 2016), which is an organizational unit established for assisting project managers, functional entities throughout the organization for implementation of project management principles and assistance of teams at various management levels on strategic basis (Biesenthal, Gudergan, & Ambrosini, 2019).

As opposed to the functional and matrix corporation, the project-based organization (PBO) has been suggested as a structure perfectly fitted for managing increasing product complexity, quick evolving markets, cross-functional commercial expertise, customer centric innovation and market, and technological uncertainty (Hobday, 2000a). So far, however, there has been little research on the project management standards, the application of standards and methodologies within organizations and their relation to project success, and role of project management office in a PBO. (Ahlemann, et al., 2009). This indicates a gap that practitioners and researchers are trying to fill which has continuously led to expansion of PM standards suited and tailored to specific contexts (Besner & Hobbs, 2008). In spite of the fact that PMSs furnish common portrayals of fundamental processes that are chosen and adopted to meet PBO’s practices and culture, PBOs need to adapt to
numbers of elements and implement new frameworks and models to manage the projects (Aubry, Müller, Hobbs, & Blomquist, 2010; Miia Martinsuo, Nicole Hensman, KARLOS Arto, Jaakko Kujala, & Ali Jaafari, 2006; Pellegrinelli & Garagna, 2009). As authors so diverse as (Lewin, 1951; Luecke, 2003) described, these organizations can adopt many different paradigms and models for change. Such frameworks are, however, too generic (Gareis, 2010) and challenging to implement by project managers, who typically lack the specific skills required to manage the projects (Crawford & Nahmias, 2010). Nevertheless, there is a battle for many enterprises to identify the role of the PMO, to place the PMO for long-term success, and to exploit the PMO to help the success of the organization’s strategic objectives. While no two PMOs are formed the same, it is evident that the function of the PMO is increasing in many organizations and there is a sturdy want to extend the PMO position to be more strategically centered by improved scope of duty and collaboration with business leaders to achieve essential organizational objectives (Aubry, Hobbs, & Thuillier, 2007).

In addition, in spite of the fact that project management methodologies are naturally universalist, diverse contexts reflect different approaches to project management (Dahlman, et al., 1987; Hanisch & Wald, 2012). Project management is a subject of practice that promotes a normative method to the management of projects. It is written in standards, tools and techniques, based primarily on practitioners’ experience in western economies and depends appreciably on assumptions of economic rationality (Muriithi & Crawford, 2003). This issue emphasizes on scrutinizing the application and diffusion of the project management standards within other regional contexts, in this case Iran. Moreover, overwhelming majority of the studies is ignored to scrutinize the significance of project success through adopted standards in the organization considering the role of PMOs as the project management body of knowledge broker. In addition, only few research studies were conducted discussing about the standards and methodologies within the organization, which presented the research gaps that need to be addressed. (Ahlemann, et al., 2009; Besner & Hobbs, 2008; Dahlman, Ross-Larson, & Westphal, 1987; Hanisch & Wald, 2012).

This research tends to put spotlight on, how PMO mediate the relationship between the applications of the project management standard, in this study PMBOK 10 knowledge areas as the most widely used and practiced standards, and the project success. Therefore, the present study focuses on the application of the project management standard (PMBOK 10 knowledge areas) within Iranian construction context, considering the significant role of the PMOs within PBOs and extent to which the application and diffusion may lead to project success. The objectives of this study are: to examine the influence of PMS factors on success of projects among construction organizations in Iran; and to investigate the impact of PMO as a mediator between PMS and project success in construction organizations in Iran.

2. Conceptual Framework and Research Hypotheses

Emphasizing the importance of the project management standards in the contemporary globalized world, with the coincidence of the emerging PBOs as well as the undeniable role of the PMOs as
the project management body of knowledge brokers, it is proposed that the project management standards, formal documents that describe established norms, methods, processes and practices, are a crucial matter for the developing countries in which the project management and PBOs are of utmost most important part of every industry spheres. Concerning, the proposed theoretical framework (Fig.1) indicates the link between the application of the project management standard (in this study PMBOK 10 Knowledge Areas) and project success, necessitating examining the mediating role of the project management office (PMO) within PBOs in construction organizations in Iran. Success criteria focus on measures that are objective, such as duration and time, quality, and cost (Pinto & Slevin, 1987). However, these objective measures have been criticized, particularly in the context of outlining complex project success (Ogunlana, 2010). Turner and Zolin (2012) have also suggested that success factors, unlike traditional factors (Quality, Time, and Cost), can be measured before project ends which is beneficial in evaluating a project's success considering the long timeline for complex projects. In this study Pinto and Slevin's (1987) study is employed which are the factors that have been introduced by Jugdev and Müller (2005) as the most extensively used and recognized in measuring of success factors. Taking the lead from (Mazur, Pisarski, Chang, & Ashkanasy, 2014) and (Procaccino, Verner, Shelfer, & Gefen, 2005), this study focuses on the three project success factors that are considered as “people related”: (a) effective communication (b) clear project mission, and (c) top management support. These three factors have been suggested as effective factors on project success particularly in construction project success in the most recent study (Pirotti, Keshavarzsaleh, Mohd Rahim, & Zakaria, 2020)

The hypotheses of this study are as follows:

**H1:** It was hypothesized that PMO influences project success through effective communication, project mission and top management support among construction organizations in Iran.

**H2:** It was hypothesized that the application of Project Management Standard (PMBOK 10 knowledge areas) influences the success of project among construction organizations in Iran.

**H3:** It was hypothesized that PMO plays as a mediator between the application of Project Management Standard (PMBOK 10 knowledge areas) and the project success among construction organizations in Iran.

There have been only few research studies discussing the project management standards and methodologies within the organization without investigating the role of PMO as the project management body of knowledge broker, which presented the research gaps that needed to be addressed (Ahlemann, et al., 2009; Besner & Hobbs, 2008; Dahlman, Ross-Larson, & Westphal, 1987; Hanisch & Wald, 2012). In addition, despite the universalist nature of project management methodologies, different contexts reflect different approaches toward project management (Dahlman, et al., 1987; Hanisch & Wald, 2012). Having the knowledge and research gap unfolded, a conceptual framework proposed to bridge the gap and hypotheses were developed based on the study objectives. This research study is focused on specific industry i.e., construction industry, the application of project management standard, PMBOK 10 knowledge areas, in PMOs to achieve project success in other regional contexts differs from the origin of the developed standard’s country like Iran that remained opaque and untouched. The current study intended to explore
further aspects of project management office, project management standards, in this study PMBOK as the most widely used and practiced standard, and the role of PMO in implementing the standard to achieve project success in PBOs. The research tended to put spotlight on, how PMO mediate the relationship between the application of project management standard and the project success. Therefore, the present study focused on the application of the project management standard (PMBOK 10 knowledge areas) within Iranian construction context, considering the significant role of the PMOs within PBOs and extent to which the application of knowledge areas may lead to project success which helps in providing information and knowledge to the body of literature and practitioners in construction organizations about project management standard application and project success especially in the studied context.

![Diagram](image)

**Figure 1. Initial Theoretical framework**

In the theoretical framework (Fig.1), within the element of factors of PMS, the model proposed ten constructs: Integration, Scope, Time, Cost, Quality, Risk, HR, Communication, Procurement and Stakeholders, the PMBOK 10 knowledge areas. Within the PS, the model proposed three construct: Communication, Project Mission and Top Management Support. The PMO role element was represented by one construct: PMO.
3. Research Methodology

3.1. Research Instruments

This study employed quantitative methods. Constructs on PMO’s role, project management standard (PMBOK 10 KA), and project success were adapted from existing instruments used in past researches. The distributed questionnaire consisted of four different sections. This study employed one measurement scale to avoid the participants’ responses contamination (Worthington & Whittaker, 2006) in which all items were measured with a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). Five-point scales were considered suitable for the multivariate analysis techniques adopted in this study, including exploratory and confirmatory factor analysis, structural equation modelling, and correlation and regression analysis (Hair, Black, Babin, Anderson, & Tatham, 2006; Neuman, 2006). In order to avoid confusion and making sure that all respondents had a consistent definition of the PMO, the questionnaire’s included a definition of PMO in its initial section. The first section of the questionnaire related to the demographic and general factors. The second section was dedicated to the PMO role factor construct. The third section covered the project management standard constructs, and the fourth section of the questionnaire was covering the project success construct.

3.2. Sampling and Data Collection

As Neuman (2006) described, sampling is a process of systematically selecting added cases for a research project. A researcher uses a set of cases that are more controllable and cost-effective to work with rather than using a pool of all the cases (Zikmund, Babin, Carr, & Griffin, 2010). A sampling element is the unit of analysis, or case, in a population. In this study, the unit of analysis was at the individual level; hence this study collected construction industry practitioners’ perceptions who are registered under Iran Construction Engineering Organization (IRCEO) and working in grade 1 construction companies. In total 650 questionnaire were distributed among construction practitioners in 130 randomly selected grade 1 construction companies in Iran. To avoid potential bias in the data, no more than five valid feedback questionnaires were chosen from each organization (Thiagarajan & Zairi, 1998). An adopted cross-sectional design was taken into account since it is the most common method to collect data as the aim of this quantitative study is to test the hypothetical relationships of the theoretical framework (Patterson, & Williams, 2005).

After the questionnaire was developed, a pilot survey was conducted in order to ensure that the respondents have no difficulty to understand the questions and to avoid any problems with the wording of the instrument (Cavana, Delahaye, & Sekaran, 2001). The pilot study involves 13 Iranian project managers, according to Nieswiadomy & Bailey (2017), obtaining approximately 10 participants for a pilot study is adequate. The 13 project managers represent construction industries in Iran, and their average experience in project management is +7 years. After the pilot survey, the final survey was developed and refined into an online questionnaire. One reason for using this method was to increase the speed and validity as well as eliminate the cost and time of printing and sending hard copy questionnaires through Iran’s postal service. Secondly, one can easily transfer the online responses to the IBM SPSS database.
3.3. Analysis

Multivariate statistics were used to analyze the data obtained from the questionnaires which considered the best approach for the present study, with many independent and dependent variables, since they provided an analysis of the complicated data set (Tabachnick & Fidell, 2007). Descriptive data analysis was primarily conducted using the SPSS (version 25) program to obtain a feel for the data and to determine if they met the basic assumptions required for conducting multivariate data analyses. The analyses also included an evaluation of the profile of the respondents, and data screening. The Analysis of Variance (ANOVA) was also conducted to ensure that the data was homogeneous across the different groups of respondents, and that it could be used to represent a single data set. Therefore, it is suitable for multivariate statistics for a single dataset based on a single questionnaire (Tabachnick & Fidell, 2007). A measurement scale, after descriptive analysis, was used in the questionnaire in order to seize the each model construct's meaning and was assessed for validity and reliability. Cronbach’s alpha was used to measure scale reliability which indicated the consistency of responses throughout items inside the scale. Moreover, item-total correlations were employed to investigate particularly the level to which an item belonged to its scale.

Due to the limitation usage of measurement scales in the Persian context, it was needed to confirm their reliability for this study. Therefore, the validity of the measurement scale was investigated using factor analysis in addition to examining reliability which was performed by using two sequential techniques: (1) Exploratory Factor Analysis (EFA); and (2) Confirmatory Factor Analysis (CFA). Factor analysis procedures are strong techniques in order to address a variety range of theoretical and managerial inquiries. These procedures define possible relationships in general form and then allow multivariate techniques to estimate relationships (Hair, Black, Babin, Anderson, & Tatham, 2006). Both EFA and CFA were carried out using SPSS.

After the establishment of reliability and validity of the measurement scales, the conceptual model was assessed. The current study employed a powerful technique called Structural Equation Modelling (SEM). There are two steps involved in the SEM process: validating the measurement model; and fitting the structural model (Gerbing, & Anderson, 1988). The former is achieved through confirmatory factor analysis, whilst the latter is achieved through path analysis with latent variables (Garson, 2012). In this study, AMOS (version 24) was employed since it was developed to operate on SPSS as an extension program. By using SEM, the confidence placed in the causal relationships, i.e. internal validity of the model, was established. It was also possible to comprehensively assess these relationships by providing a transition from exploratory to confirmatory analysis. In Addition, correlation analysis was employed, since the variables under study were quantitative, had five values, and were measured on a level that at least approximates interval characteristics (Chen, 2007). For these reasons, the statistical technique of the Pearson product-moment correlation were first used to determine the extent to which they were linearly related (Jaccard, & Becker, 1997). This is followed by multiple regression analysis. According to
Tabachnick and Fidell (2007), this is a strong technique employed in order to find out which specific independent variables predict the variance of dependent variables (Hair, Black, Babin, Anderson, & Tatham, 2006).

4. Results

4.1. Description of the Sample

A total of 250 usable responses were received representing response rate of 38.4%, which according to Sekaran and Bougie (2016) is acceptable. The results showed that 45% of respondents are working as project managers, and many respondents for this study were program managers and project coordinators, representing for 22% and 10% respectively. A total of 50% of the respondents had reported an experience between 5 to 9 within their organizations. A great number of grade 1 construction companies in Iran are public and the results of this survey revealed that 84% of respondents are working in public construction companies. Construction companies are traditionally male dominated and Iran construction companies are no exception which in this study males represent 78% of respondents while female accounting for 22%. Figures 2, and 3 depicts the respondents’ gender, and positions respectively.

![Gender Distribution](image)

Figure 2. Respondents’ Gender Distribution
4.2. Structural Model Results

The model exhibited a good level of fit ($X^2 = 2619.64; df = 1205; X^2/df = 2.234; GFI = 0.901; IFI = 0.917; TLI = 0.895; CFI = 0.912; and RMSEA = 0.070$). Six out of the twenty-one path coefficients were statistically not significant. As it is shown in Table 1, the PMS constructs (Cost, Procurement, Communication, Integration, Scope, Quality, and Risk) had a positive influence on the PS construct as following: COS(0.178, $p < 0.001$), PRO(0.161, $p < 0.001$), COM(0.32, $p < 0.001$), INT(0.292, $p < 0.001$), SCO(0.188, $p < 0.001$), QUL(0.2, $p < 0.001$) and RSK(0.24, $p < 0.001$) while HR, Time and Stakeholder were not significant. The findings shows that there is a positive relationship between PMS and PS except for HR, Time and Stakeholder which supports H2.

Table 1: PMS and PS Relationship

<table>
<thead>
<tr>
<th>Hypothesis(Path)</th>
<th>Standardized Estimate</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>H2_1:PS&lt;---HR</td>
<td>0.165</td>
<td>1.896</td>
</tr>
<tr>
<td>H2_2:PS&lt;---COS</td>
<td>0.178</td>
<td>2.098*</td>
</tr>
<tr>
<td>H2_3:PS&lt;---PRO</td>
<td>0.161</td>
<td>2.036*</td>
</tr>
</tbody>
</table>

Figure 3. Respondents’ Position Distribution
The PMO role construct had a positive influence on the PS construct (0.319, p < 0.001), thus supporting H1 (Table 2).

Table 2: PMO and PS Relationship

<table>
<thead>
<tr>
<th>Hypothesis(Path)</th>
<th>Standardized Estimate</th>
<th>CR</th>
<th>Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>H1:PS&lt;---PMO</td>
<td>0.319</td>
<td>2.639</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Sobel test which is the most common product-of-coefficients test and assesses the presence of mediation by dividing the indirect effect (Fritz, M. S., & MacKinnon, 2007), was calculated in order to detect whether the indirect relationship of PMS and PS through PMO was statistically significant. As the result is shown in Table 3, for COS (β=.192, p<.05), PRO(β=.144, p<.05), COM(β=.212, p<.05), INT(β=.183, p<.05), QUL(β=.149, p<.05) and RSK(β=.172, p<.05) the indirect relationship was statistically significant while Human Resource, Scope, Time, and Stakeholder showed no significant results which supported the hypotheses H3_2, H3_3, H3_4, H3_5, H3_8 and H3_9. The final version of tested theoretical framework developed the final model for this study which is shown in figure 4.

Table 3: Sobel Test Results

<table>
<thead>
<tr>
<th>ABC Factors</th>
<th>Path A</th>
<th>Path B</th>
<th>Path C</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>β</td>
<td>β</td>
<td></td>
</tr>
<tr>
<td>HR</td>
<td>0.121</td>
<td>0.165</td>
<td>0.1</td>
<td>Rejected</td>
</tr>
<tr>
<td>COS</td>
<td>0.185</td>
<td>0.178</td>
<td>0.192</td>
<td>Supported</td>
</tr>
<tr>
<td>PRO</td>
<td>0.127</td>
<td>0.161</td>
<td>0.144</td>
<td>Supported</td>
</tr>
<tr>
<td>COM</td>
<td>0.104</td>
<td>0.32</td>
<td>0.212</td>
<td>Supported</td>
</tr>
</tbody>
</table>
Figure 4. The Final Model
5. Discussion

The initial theoretical framework, as depicted in figure 1, led to the development of the conceptual model based on the comprising three main elements: 1) factors of PMS (PMBOK 10 knowledge areas) on Project Success; 2) PMO impact on Project Success; and 3) PMO mediation role between PMS and Project Success. Within the element of factors of Project Management Standard, the model proposed ten constructs: Integration, Scope, Time, Cost, Quality, Risk, HR, Communications, Procurement and Stakeholders, the PMBOK 10 knowledge areas. Within the Project Success, the model proposed three construct: Communication, Project Mission and Top Management Support. The PMO role element was represented by one construct: Role of PMO. Three major hypotheses associated with the conceptual model were formulated and all fourteen constructs were executed in order to be accurately measured. Consequently, a set of measurement variables was developed to compute the model constructs. This study initially employed a quantitative-based questionnaire as the means for assessing the conceptual model. A robust questionnaire was developed based on a set of measures derived from the operationally defined constructs and was pre-tested in a pilot study. A survey targeting Iranian project managers and construction practitioners working in grade 1 construction companies was conducted. The results of descriptive analysis revealed that the data obtained from 250 questionnaires adequately represented the survey population. The assessment of normality, standard deviations and standard errors of the means confirmed that the data was suitable for multivariate analyses. After the exploratory and confirmatory factor analyses, the study used a SEM analysis, which represented the relationship between constructs, to test the hypothesized relationships.

In general, the developed model was confirmed, and the analysis enhanced the understanding of the current status of project management standard application and project managers’ and construction industry practitioners’ perception of the factors contributing to the project success within PMOs in construction project based organizations in Iran. However, the findings also shows that some of the relationships were not significant. Based on the results and analysis of this study we can conclude that PMO plays a mediator role between PMS and PS. Further results revealed that PMO had a positive effect on PMS except for HR, Scope, Time and Stakeholders in construction industry in Iran. It is necessary to say that common project management standards can always be applied to all different projects and industries but it is the duty of the PMO to determine what standard/process with which level of management is needed for the project.

In spite of the fact that PMSs furnish common portrayals of fundamental processes that are chosen and adopted to meet PBO’s practices and culture, PBOs need to adapt to numbers of elements and implement new methods to manage the projects. Yet, for many businesses a combat exists to outline the PMO role, to role the PMO for long-term success, and to leverage the PMO to help success of the organization’s strategic objectives.
Construction projects in grade 1 companies in Iran are mainly defined and budgeted by the government and as we can see from the survey that a large percentage (84%) of respondents were from public sector. It can be concluded that since the political considerations are the main determinative of the duration and budget of these projects and government bodies are the main stakeholders, this explains why some factors receive insufficient attention by project managers and construction industry practitioners. Generally Project managers encourage the active participation of stakeholders in order to increases understanding of project risk and challenges, and to meet the stakeholders’ expectations in controlling the cost, time and quality of the projects. Given the specific nature of construction industry in Iran and political influences in government projects where government bodies are the main stakeholders and have direct decision making influence over defining the projects, human resources, duration and financial performance of the projects, it can be explained why stakeholder management, Time, Human Resource and Scope management is not perceived by project managers and construction practitioners as crucial as other factors (Knowledge Areas) contributing to project success in adopting and applying project management tool and techniques and project management standard. Since the main characteristic of grade 1 construction companies in Iran is the government ownership, it necessitates a change in government and regulatory bodies in top management level towards supporting the decision making in higher level in PMOs within construction organization in Iran in order to facilitate achieving more mature PMOs in construction industry in Iran.

This study contributes to both the body of knowledge in project management and practice. From a theoretical level the developed and tested conceptual framework contributes to the knowledge in the field of project management, and it is anticipated that by including PMO, as project management body of knowledge broker and mediator in the current study, it provides a framework through which current project management standard applications and practices in construction industry in Iran is viewed and relationships between the variables assessed and interpreted.

From practical aspect, the results of this study will help to explain those factors that are perceived by project managers and construction practitioners to contribute to project success and those that requires to be paid more attention and to be taken into consideration for complete and whole project management standard (PMBOK 10 KA) application in construction projects in Iran. Although the findings of this research are particular to the studied geographic area and specific industry, but it can be significant to project based organizations in different industries and regions.

6. Conclusion and Recommendations

The main goal of this research was to close the gap in the knowledge of project management Standard application and its contribution to project success considering the mediating role of PMO
in construction industry by testing the developed model and relationship between the variables. The developed model can be considered as a decision support for authorities and regulatory bodies that how currently project management standard knowledge areas are seen by practitioners in achieving project success within PMOs and the results of this study would be crucial to enrich the body of knowledge in this area.

Further studies can be conducted in other industries and regions where the applied and adopted project management standards are not of the origin of that country and that the attitude and perceptions toward application, and adoption of standards of project management might differ from one PMO to another. This study investigated the PMBOK 10 knowledge areas, as the most widely practiced and accepted standard, and its relationship to project success within PMOs. Further studies can explore other project management standards, tools and techniques that are applied by project managers in achieving high project performance and project success.

In addition, PMO maturity level was not the scope of this study and therefore further research and studies in the same area can be conducted considering PMO maturity level and to examine to what extend the PMO maturity contributes to the project management standard application and project success in organizational level.

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