

THE FUNCTIONS OF PROJECT MANAGEMENT OFFICE MODELS FOR CONSTRUCTION SMES: A DELPHI STUDY IN SAUDI ARABIA

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The functions of project management offices (PMOs) vary from one organisation to another. Accordingly, a PMO can offer considerable benefits tailored to an organisation's needs by enhancing efficiency, consistency, and strategic alignment. Moreover, the roles of PMOs differ depending on organisational demands, particularly in relation to specific functions. As such, they play a crucial role in ensuring project success by providing structure, governance, and support. In construction small and medium-sized enterprises (SMEs), managerial shortcomings are often a key cause of project delays, especially when acting as subcontractors. This study aims to explore the applicable functions of PMOs for Saudi construction SMEs. A Delphi technique was employed as a qualitative method, focusing on the executive level of construction practitioners. The findings revealed that the most important PMO functions for Saudi construction SMEs are controlling performance data from projects, scenario planning and strategic analysis, identifying project priorities, improving team mentorship, and integrating technologies. This study makes a significant contribution to understanding the key functions of PMOs within the Saudi construction industry and supports the establishment of PMOs to enhance project delivery.

Keywords: functions; PMO; construction; SME; Saudi Arabia

INTRODUCTION

Small and medium-sized enterprises (SMEs) in Saudi Arabia play a key role in the Kingdom's transformative Vision 2030 (Khan and Iqbal, 2020). According to the Saudi Contractors Authority (SCA), the construction industry comprised approximately 39,200 small and 5,070 medium-sized construction enterprises in 2021, employing around 576,100 workers in small enterprises and 524,300 in medium enterprises (SCA, 2024). SMEs are critical to the construction sector, delivering numerous projects under tight schedules and financial constraints, unlike larger construction corporations (Thomas, 2022). However, SMEs in Saudi Arabia face challenges such as limited access to financing, regulatory barriers, and labour shortages. In response, the government established the Small and Medium Enterprises General Authority, Monsha'at, to simplify procedures and expand financing opportunities (Kayani and Alzaid, 2025). Founded in 2016, Monsha'at operates independently to regulate, support, and develop SMEs, with the goal of increasing their contribution to GDP from 20% to 35% by 2030.

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The growing complexity of business projects has heightened the need for centralised project coordination. Effective project governance involves a value system, defined responsibilities, and standardised processes and policies to achieve organisational objectives in the best interests of stakeholders (Muller, 2009). Many organisations still execute projects ad hoc, without formal project management methodologies, often resulting in suboptimal outcomes. To address this, new organisational structures such as the Project Management Office (PMO) have been introduced to enhance project execution and reduce resource inefficiencies (Monteiro *et al.*, 2016). In August 2015, the Saudi government launched the National Programme to Support Project Management, Operation, and Maintenance in Public Entities (Mashroat) to improve public project oversight (Mashroat, 2025). Six years later, the government established the Expenditure and Project Efficiency Authority (EXPRO), consolidating Mashroat and the Spending Efficiency Achievement Centre into a single national PMO body responsible for overseeing all public projects (EXPRO, 2025). EXPRO has since played a vital role in delivering Vision 2030 objectives (Vision, 2025). Despite the growing recognition of PMOs in large-scale projects, their role in SMEs is often underestimated, and PMOs may be viewed as unnecessary (Pansini and Terzieva, 2013). Moreover, their implementation is sometimes criticised for creating costly overheads (Osman *et al.*, 2024).

This research seeks to identify the most valuable PMO functions for SMEs in the Saudi construction industry. SMEs currently considering the adoption or restructuring of a PMO may benefit from a clear understanding of the most applicable PMO functions. Kerzner (2009) emphasized that modern enterprises increasingly integrate PMOs into their organisational structures, describing the PMO as one of the most significant developments in project management in recent decades. To achieve this aim, the study has four objectives: (1) to identify the nature and extent of PMO functions as documented in the literature, (2) to examine the implementation of these functions in construction SMEs in Saudi Arabia, (3) to rank the most influential PMO functions for these SMEs, and (4) to define a suitable PMO model for SME use. The novelty of this study lies in its focused exploration of the evolving role of PMOs in Saudi construction SMEs, highlighting how PMO models can be selected or adapted to suit enterprise needs. Accordingly, the research aims to identify the most important PMO functions for SMEs in the Saudi construction sector, supporting authorities in establishing an appropriate PMO model for this context.

METHOD

This research employed a qualitative approach combining both primary and secondary sources. The secondary source comprised a systematic literature review, while the primary data were collected using a modified Delphi method (MDM). A comprehensive set of 29 PMO functions - coded F1 to F29 - was identified through the literature as potentially influencing the development of a PMO model. These functions were then assessed in relation to their relevance and impact on SMEs within the Saudi construction industry. To capture expert insight, the MDM was selected as a suitable research tool capable of eliciting informed judgements. The systematic review focused on publications containing keywords such as 'project management office', 'PMO type', 'PMO model', and 'PMO functions'. Searches were conducted across several academic databases, including the Saudi Digital Library (SDL), Web of Science, Emerald, and Scopus, covering the period from 2005 to 2024. This process initially yielded 32 articles, of which 12 were ultimately deemed directly relevant to the research. These included three books, four Q1 journal articles, and five

conference papers or proceedings from the Project Management Institute (PMI) and collectively informed the literature section. The Delphi method is widely regarded as a valid qualitative approach. It incorporates elements of traditional quantitative techniques such as questionnaire surveys (MacCarthy and Atthirawong, 2003) and involves the use of repeated questionnaires with feedback between rounds to develop consensus on a specific topic (Haven *et al.*, 2020). The technique seeks the views of a panel of experts to assess the degree of consensus and resolve any disagreement (Henchion and McIntyre, 2005). In this study, the MDM was employed to reach expert agreement on the most applicable PMO functions for construction SMEs in Saudi Arabia, using a 75% group consensus threshold.

Typically, MDM is conducted in two rounds, during which experts respond to predefined topics rather than generating them. The aim is not to build new themes but to reach agreement on the topics presented (Sossa *et al.*, 2019). Most studies use two rounds, as more than two may result in increased panel attrition (McMillan *et al.*, 2016). Accordingly, this study adopted a two-round modified Delphi process specifically designed to build consensus among a panel of practitioners from the Saudi construction industry. Consensus was defined as either $\geq 75\%$ agreement among participants on a 10-point scale or a standard deviation (SD) of less than 1.0 (Christie and Barela, 2005). These figures were interpreted qualitatively to represent the degree of consensus. Consensus is commonly evaluated using statistical measures such as the proportion of participants selecting a single response, the interquartile range (IQR), or the SD. To assess the validity of SD as a consensus measure, both SD and IQR were calculated for each simulated Delphi statement (Franc *et al.*, 2023). Table 2 presents the median, SD, and IQR values for all items. The MDM process involved the development, distribution, collection, and analysis of questionnaire data (Padel and Midmore, 2005). The research design comprised three phases: First, identifying relevant PMO functions from the literature; second, constructing a questionnaire to measure the perceived importance of each function for Saudi construction SMEs; and third, distributing the questionnaire in two rounds. The first round gathered expert ratings on the importance of each function, while the second round provided feedback from the first and sought final consensus. A 10-point Likert scale was used, with 1 indicating 'not at all important' and 10 indicating 'extremely important'. The MDM technique requires the explicit selection of experts; therefore, four categories of qualified participants were chosen: CEOs, general managers, directors, and chairmen. Each participant was required to be a member of a recognised board and to have at least 15 years of experience in the construction industry, spanning both public and private sectors. Participants were identified and selected from government agencies (e.g., the Saudi Contractors Authority) and the construction sector (e.g., the Ministry of Commerce's list of top construction companies engaged in SME-related projects). The questionnaire link was then distributed to these individuals. In total, the survey was sent to 87 practitioners. The first round received 31 responses, and the second round received 27. The participants represented the five main regions of Saudi Arabia: Riyadh, Makkah, the Eastern Province, Hail, and Asir. The participants' levels of education were also recorded.

LITERATURE REVIEW

PMOs have evolved from performing clearly defined functions to undertaking more complex and varied roles, adapting to changing organisational and industry demands (Aubry *et al.*, 2008). PMOs vary significantly across organisations depending on their objectives, structures, and sectors. This variability has led to confusion in the

standardisation of project management practices and the formalisation of PMO roles. PMOs serve a range of functions, from supporting project managers to offering strategic oversight; however, organisations tend to customise PMOs to suit their specific contexts and needs (Hobbs and Aubry, 2007). According to Pinto (2016), PMOs can be classified by three mutually exclusive scopes (departmental, enterprise, and project-programme) and seven potential approaches: Strategic, strategic-tactical, strategic-operational, tactical, tactical-operational, operational, and strategic-tactical-operational. The appropriate PMO type for a given organisation results from a combination of its scope and one of these seven discrete approaches. Oliveira *et al.* (2017) noted that a range of PMO models and functions has been proposed by various authors. Nonetheless, organisations face challenges in determining which functions to apply within specific industries, and discrepancies between theory and practice further complicate implementation. The current research therefore focuses on 29 PMO functions, representing nine distinct PMO models, as a normative and prescriptive view of the potential roles and functions of PMOs. A Project Support Office (PSO) is a specialised unit within an organisation that provides consultancy for project management activities at administrative, technical, and strategic levels, ensuring consistency, efficiency, and compliance with project management methodologies. The PSO typically encompasses three key functions: Planning and scheduling project activities, providing project management tools, and improving document management (Fitzgerald, 2008). The Project Management Office for Centres of Excellence (PMoCE) is a critical structure that supports effective project execution within Centres of Excellence (CoEs). PMoCE emphasizes investment in people through knowledge sharing and provides governance, strategic alignment, and best practices. It ensures effective planning, execution, and monitoring in line with the organisation's mission and objectives. The PMoCE typically comprises three main functions: Enhancing team mentorship, upgrading team skills, and promoting knowledge sharing among project managers (Hubbard *et al.*, 2015). The Programme Management Office (PgMO) operates at a higher organisational level, managing multiple interrelated projects within a programme. It plays a crucial role in optimising resources, mitigating risks, and enhancing overall efficiency. The PgMO typically includes three core functions: Recruiting and developing project managers, promoting project selection, and aligning projects with strategic objectives (Project Management Institute [PMI], 2013). The Supporter PMO serves an administrative function at the organisational level to ensure operational efficiency. It may take various forms, including project support offices, executive sponsors, mentors, and external stakeholders. Supporter PMOs influence decision-making, risk management, and project effectiveness by bridging gaps in resources, expertise, and collaboration. Their typical functions include providing project status updates, identifying risks and issues, and maintaining project archives (Unger *et al.*, 2012).

An Enterprise PMO is a governance entity within an organisation that enables real-time project data to support project, programme, and portfolio management activities, ensuring alignment with strategic objectives, optimising resource utilisation, and delivering business value. Its main functions include planning scenarios and strategic analysis, establishing a governance framework, and reporting and controlling initiatives (Crawford, 2010). Similarly, a Project Office is a centralised unit that provides data to higher authorities to support consolidated project management. It ensures alignment with business objectives, standardises methodologies, and enhances resource efficiency. Evolving from an administrative role to a strategic function, it influences decision-making in complex environments and typically performs functions

such as managing individual projects, developing operational plans and budgets, authorising adjustments, and controlling progress reports and documentation (Garfein, 2005). The Basic PMO oversees multiple projects and supports consistent execution by introducing standardised templates, reporting mechanisms, and project lifecycle models. Its key functions include establishing project management standards, developing processes for project selection, and controlling project performance data (Hill, 2008). A Business Unit PMO is a specialised structure within a larger enterprise that manages multiple projects within a specific business unit or division. It connects the central PMO and individual projects to ensure alignment with unit-specific goals, resources, and operational strategies. Its typical functions are managing multiple projects, integrating technologies, managing project resources, and identifying project priorities (Hubbard *et al.*, 2015).

The Controller PMO is responsible for a large, complex project and plays a critical role in industries where cost efficiency and budget control are essential. It ensures fiscal discipline by supporting decision-making through data, applying information management standards, and recommending corrective measures when necessary (Unger *et al.*, 2012). Taken together, the PMO functions identified across the literature are as follows: 1) planning and scheduling project activities, 2) providing project management tools, 3) enhancing document management, 4) improving team mentorship, 5) upgrading team skills, 6) sharing knowledge between project managers, 7) recruiting and developing project managers, 8) promoting project selection, 9) aligning with strategic objectives, 10) providing project status updates, 11) identifying risks, 12) maintaining project archives, 13) planning scenarios and conducting strategic analysis, 14) establishing governance frameworks, 15) reporting and controlling initiatives, 16) managing individual projects, 17) developing operational plans and budgets, 18) authorising adjustments, 19) controlling progress reports and documentation, 20) establishing project management standards, 21) developing project selection processes, 22) controlling performance data from projects, 23) managing multiple projects, 24) integrating technologies, 25) managing project-specific resources, 26) identifying project priorities, 27) supporting decision-making through data, 28) applying information management standards, and 29) suggesting corrective methods.

FINDINGS

The study examined the importance of 29 PMO functions, represented by nine PMO models, in the context of construction SMEs in Saudi Arabia. The findings showed that five functions achieved strong consensus, ten achieved moderate consensus with potential for implementation, eight received very low consensus in terms of median values but were marked by uncertainty due to high SDs, and six functions failed to achieve consensus. Section A presented the demographic characteristics of the participants. In line with the MDM requirement for expert participants, all respondents had over 15 years of experience in the construction industry and represented either the public or private sector. There were 31 participants in round one and 27 in round two. The five main regions of Saudi Arabia—Riyadh, Makkah, Eastern Province, Hail, and Asir—accounted for 84% of participants, who were also largely in senior managerial roles and highly educated. In round one, 45.2% of participants were from the public sector and 54.8% from the private sector, while in round two the proportions were 44.4% and 55.6%, respectively. Regarding experience, 61.3% of round one respondents had between 15 and 19 years of experience and 38.7% had more than 20 years, compared with 66.7% and 33.3%

respectively in round two. Regional representation in round one was Riyadh (29%), Makkah (22%), Eastern Province (26%), Hail (10%), and Asir (13%); and in round two, Riyadh (26%), Makkah (22%), Eastern Province (26%), Hail (11%), and Asir (15%). The roles of respondents in round one was CEO (13%), general manager (32%), director (26%), and head of department (29%), while in round two they were CEO (11%), general manager (33%), director (26%), and head of department (30%). In round one, 55% held a postgraduate degree and 45% a bachelor's degree; in round two, 33% held a postgraduate degree and 67% a bachelor's degree.

Section B evaluated the importance of 29 functions of PMO. Five functions achieved strong consensus in both rounds, with a median ($\tilde{x} \geq 70\%$), low SD, and IQR less than 1 in round one, and showed further improvement in round two. These top five functions were: (1) control performance data from projects ($x = 9.00$, $SD = 0.68$, $IQR = 1.0$ in round one; $x = 10.00$, $SD = 0.57$, $IQR = 1.0$ in round two), (2) plan scenarios and strategic analysis ($x = 9.0$, $SD = 0.85$, $IQR = 1.0$ in round one; $x = 9.0$, $SD = 0.66$, $IQR = 1.0$ in round two), (3) identify project priorities ($x = 8.0$, $SD = 0.87$, $IQR = 1.0$ in round one; $x = 9.0$, $SD = 0.74$, $IQR = 1.0$ in round two), (4) improve team mentorship ($x = 8.0$, $SD = 0.96$, $IQR = 1.0$ in round one; $x = 9.0$, $SD = 0.79$, $IQR = 1.0$ in round two), and (5) integrate technologies ($x = 7.0$, $SD = 1.01$, $IQR = 2.0$ in round one; $x = 8.0$, $SD = 0.63$, $IQR = 1.0$ in round two). Ten other PMO functions reached consensus in round one through median ($\tilde{x} \geq 70\%$) despite semi-high SDs (ranging from 1.28 to 1.64) and mostly IQRs between 1.5 and 2.5. These functions improved in round two, with more moderate SDs (ranging from 0.91 to 1.63) and better IQRs (between 1.0 and 2.0). These were: Plan and schedule project activities, provide project management tools, enhance document management, maintain project archives, provide management for a solitary project, develop operational plans and budgets, control progress reports and documentation, manage resources within projects, apply information management, and suggest corrective methods. The function 'maintain project archives' achieved consensus in round one ($x = 8.00$, $SD = 1.30$, $IQR = 1.5$) and showed improved IQR in round two ($x = 8.00$, $SD = 1.29$, $IQR = 1.0$).

Eight functions of PMO achieved weak consensus in round one, with a median ($\tilde{x} \geq 70\%$), very high SD (ranging from 1.42 to 1.73), and mostly high IQRs (ranging from 2.0 to 3.5). These functions improved in round two, maintaining consensus median ($\tilde{x} \geq 70\%$) with more moderate SDs (ranging from 1.19 to 1.62) and a consistent IQR of 2.0. These eight functions are: (1) upgrade team skills, (2) share knowledge between project managers, (3) recruit and develop project managers, (4) promote project selection, (5) provide project standing, (6) identify risk issues, (7) establish PM standards, and (8) develop processes for project selection. Six PMO functions did not achieve consensus in either round. In round one, they had a median below the threshold ($\tilde{x} < 70\%$), very high SDs (ranging from 1.52 to 1.91), and mostly high IQRs (ranging from 3.0 to 4.0). In round two, these functions showed only slight improvement, with median still below 70%, moderate SDs (ranging from 1.32 to 1.51), and high IQRs (ranging from 2.0 to 3.0). These functions are: (1) align with the strategies, (2) establish a governance framework, (3) report and control initiatives, (4) authorise adjustments, (5) manage multiple projects, and (6) support decision-making through data. Although these six functions failed to reach consensus, some are indirectly reflected in higher-ranked PMO functions. The low score for 'align with the strategies' reflects the lack of clear strategic direction in SMEs. Similarly, 'establish governance framework' highlights the absence of a governance structure,

while ‘report and control initiatives’ points to weak implementation of initiative management in SMEs. The result for ‘authorise adjustments’ suggests that SMEs typically adjust naturally during project work, without requiring formal authorisation. ‘Manage multiple projects’ failed due to the scale and diversity of projects exceeding typical SME capacity. Lastly, ‘support decision-making through data’ scored poorly because of the general lack of available data to inform decisions.

Table 2: Findings details - Median - SD - IQR

	Round 1 (29)			Round 2(27)			Round 1 (29)			Round 2(27)			
	Mdn	SD	IQR	Mdn	SD	IQR	Mdn	SD	IQR	Mdn	SD	IQR	
F1	8.00	1.64	2.0	8.00	1.48	2.0	F16	8.00	1.60	2.5	8.00	1.26	1.0
F2	7.00	1.28	2.0	7.00	0.91	1.0	F17	7.00	1.45	2.0	7.00	1.10	2.0
F3	8.00	1.60	2.5	8.00	1.42	2.0	F18	6.00	1.91	4.0	6.00	1.44	3.0
F4	8.00	0.96	1.0	9.00	0.79	1.0	F19	7.00	1.68	2.5	7.00	0.92	1.0
F5	7.00	1.73	3.0	7.00	1.53	2.0	F20	7.00	1.62	2.0	7.00	1.62	2.0
F6	7.00	1.59	3.0	8.00	1.37	2.0	F21	7.00	1.42	2.0	7.00	1.45	2.0
F7	7.00	1.56	2.5	7.00	1.31	2.0	F22	9.00	0.68	1.0	10.00	0.57	1.0
F8	7.00	1.54	3.0	8.00	1.39	2.0	F23	6.00	1.52	3.0	6.00	1.39	3.0
F9	6.00	1.63	3.5	6.00	1.51	2.0	F24	7.00	1.01	2.0	8.00	0.63	1.0
F10	7.00	1.57	3.0	8.00	1.19	2.0	F25	8.00	1.37	2.0	8.00	1.08	2.0
F11	7.00	1.58	2.5	7.00	1.47	2.0	F26	8.00	0.87	1.0	9.00	0.74	1.0
F12	8.00	1.30	1.5	8.00	1.29	1.0	F27	6.00	1.67	3.0	6.00	1.32	2.0
F13	9.00	0.85	1.0	9.00	0.66	1.0	F28	8.00	1.38	2.0	8.00	1.41	2.0
F14	6.00	1.73	3.0	6.00	1.45	3.0	F29	8.00	1.59	2.0	8.00	1.63	2.0
F15	6.00	1.55	3.0	6.00	1.31	3.0	X						

DISCUSSION

Many attempts to establish PMOs have failed due to insufficient prioritisation of organisational requirements when implementing PMO functions (Perry, 2009), even though most large organisations already maintain a PMO. In the context of Saudi Arabia’s construction industry, SMEs represent a significant segment, with over 978,000 SMEs registered, 20.7% of which operate in the construction and building sector (Monsha’at, 2025). These enterprises often face disorganised project delivery due to the nature of specialised task execution (Elhassan, 2019). The structure of a PMO model is shaped by a defined set of functions and should correspond to the size and needs of the organisation. According to Pinto (2016), a PMO may be categorised within one of three mutually exclusive scopes, departmental, enterprise, or project-programme, and aligned with one of seven approaches: Strategic, strategic-tactical, strategic-operational, tactical, tactical-operational, operational, or strategic-tactical-operational. These approaches, along with scope, form a conceptual framework for a suitable PMO model. The findings of this study clearly indicate that SMEs in the Saudi construction industry require a tailored set of functions, with the top-ranked being control of performance data from projects, followed by scenario planning and strategic analysis, identification of project priorities, improved team mentorship, and the integration of technologies. However, unlike large corporations, SMEs often lack the financial resources and capacity to establish comprehensive PMOs. The prioritised functions in this study reflect a need for a customised model that draws from several existing types, including the Basic PMO, Enterprise PMO, Business Unit PMO, and PMoCE. This aligns with the Project Management Institute’s (2021) assertion that project management involves the application of best practices in knowledge, competencies, processes, tools, and techniques—an inherently complex and resource-intensive undertaking. The scale of SMEs also points to a lack of internal PMO expertise, consistent with Osman *et al.* (2024), who identified the absence of qualified PMO personnel and the high cost of implementation as major barriers. Furthermore, PMOs are often perceived as unnecessary within SMEs, and their role tends to be undervalued (Pansini and Terzieva, 2013). Some publications in different contexts have addressed the challenges facing SMEs, including financing SMEs in construction (Amupolo, 2013), a comparative study of problems facing small

building contractors (Mafimidivo and Iyagba, 2015), and a study on sustainable challenges and opportunities experienced by funded SMEs (Sheehama and Shihomeka, 2017). However, the findings here reveal inconsistency with those studies, as the top five ranked functions and others represent diverse PMO models rather than a defined PMO. The ten PMO functions that achieved medium consensus and the eight that achieved low consensus are a mix from all nine PMO models. These findings align with Pinto (2016), who stated that the type of PMO for an organisation is a mixture of its scope and one of seven discrete approaches. However, six functions related to strategy, initiatives, governance, and data management failed to achieve consensus. This may reflect the size of SMEs and a lack of high-level management perception, as SAMA (2025) defines small enterprises as generating revenue of SAR 3 to 40 million with 6 to 49 full-time employees, and medium enterprises as generating SAR 40 to 200 million with 50 to 249 full-time employees.

CONCLUSIONS

SMEs are a critical part of the construction industry, particularly in relation to subcontracting. SMEs in the Saudi construction sector are in urgent need of applying PMO concepts, as they share key operational characteristics with large construction firms that have already implemented PMOs. This research identified the most important PMO functions applicable to Saudi construction SMEs. A total of 29 functions were evaluated. The top-ranked functions were Control performance data from projects, plan scenarios and strategic analysis, identify project priorities, improve team mentorship, and integrate technologies. These findings offer valuable insights for practitioners and administrative bodies, clarifying the current landscape and providing practical implications for PMO application. In contrast, six PMO functions failed to achieve consensus: (1) align with strategies, (2) establish governance frameworks, (3) report and control initiatives, (4) authorise adjustments, (5) manage multiple projects, and (6) support decision-making through data. The remaining 18 functions reached consensus at low to medium levels. While this study highlights key PMO functions required by Saudi construction SMEs, further research is needed to generalise the findings through a quantitative approach. Such work could improve understanding of SME needs in the Saudi construction sector and support the development of effective PMO implementation.

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