

The Effect of Project Management Office Effectiveness on Project Performance in Saudi Arabia's Giga-Project Sector

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Chapter 1: Introduction

1.1 Research Background

Saudi Arabia's Vision 2030 program has put a massive set of demands on the country's project management infrastructure. Giga-projects such as NEOM, Red Sea Global, Qiddiya, and Diriyah Gate combine city-scale physical scope with compressed delivery timelines, and each has built large, fast-growing networks of contractors, subcontractors, and specialist consultants to run overlapping streams of design and construction at once, rather than in the sequential phases typical of conventional developments (Calabrese, 2026). Several of the highest-profile components have already needed rescoping, deferral, or a budget revision as delivery realities collided with the original ambitions (Calabrese, 2026). The coordination structures wrapped around these projects remain unproven in practice. Recent modelling of project control systems across 222 completed Saudi construction projects found that 64% exceeded their planned schedule and 53% exceeded their planned budget (Alotaibi et al., 2025). Those figures describe the broader delivery environment giga-projects sit within, even though the study itself was not limited to giga-project sites.

Governments and private developers lean on one specific organizational structure to manage exactly this kind of complexity: the Project Management Office, or PMO. A PMO is generally defined as a centralized or federated unit tasked with standardizing project governance, consolidating reporting, coordinating resources across a portfolio, and spreading project management practice through an organization, or in the giga-project case, across a wider network of delivery partners (Hobbs & Aubry, 2010). A single project's management team once sufficed for this. Giga-project owners in Saudi Arabia have since had to build PMO structures capable of governing dozens of concurrent contracts, a scale of coordination with few precedents in the regional construction sector. That scale raises a

direct, practical question: are these PMOs actually improving delivery outcomes, or just adding another administrative layer onto an already strained system?

The relationship between PMO presence and project outcomes has been studied for roughly two decades, and a fairly consistent picture has emerged. Hobbs and Aubry (2008) drew on a large, empirically grounded study of PMOs across multiple industries and found that PMOs vary enormously in structure and mandate. Still, the more mature and better-resourced offices were consistently the ones associated with improved standardization, reporting discipline, and portfolio-level resource allocation. Hill (2004) took a different angle, proposing a five-stage competency continuum that describes how a PMO's function set expands as it matures, from basic project oversight and control at the lower stages toward strategic business alignment at the higher ones. On this account, a PMO's effectiveness is simply a variable of how far along that continuum it has developed. Bae, Kim, and Kim (2008) went further and tested this directly: their structural model showed project success factors shaping PMO capability, which in turn affected multiple dimensions of project performance. Sandhu, Al Ameri, Shahzad, and Naseem (2024) surveyed staff across nineteen project-based organizations and reached a similar conclusion, rating methodology development and performance monitoring among a PMO's most valuable contributions. None of this is really contested. The more mature and better-resourced a PMO is, the better its project outcomes tend to look.

Whether that general expectation holds under the specific operating conditions of a giga-project, including in Saudi Arabia, is still an open question. Two recent Saudi-based studies get close without quite landing on it. Alghaseb and Alali (2024) looked at which PMO structural model, enterprise, program, or centre-of-excellence, best fits public construction projects in Hail, Saudi Arabia, and found the Enterprise PMO model to be the dominant fit there, evidence of which model owners tend to choose rather than of whether that choice actually improves schedule, cost, or quality outcomes. Alotaibi et al. (2025) come at it from a different angle, modelling project control system effectiveness across Saudi construction delivery more broadly and finding that organizational, human, and technological inputs

shape control outcomes generally, again without breaking any of that down into the specific PMO functions this study is interested in, or restricting the sample to giga-project-scale developments.

The picture looks much the same at the wider megaproject level. Zani et al. (2024) ran the largest systematic literature review of megaproject organization design to date, screening more than ten thousand articles, and organizational capability kept surfacing as a theme. What the field still lacks, in their reading, is a settled understanding of which design choices, PMO structure among them, actually drive performance at megaproject scale. Their review calls explicitly for more empirical work connecting those design choices to measurable outcomes.

This gap matters because the giga-project environment differs from the conventional single-project or single-organization setting where most PMO effectiveness research has taken place. A giga-project PMO works differently. It coordinates an unusually large and rapidly scaling network of contractors and subcontractors, often from different countries and regulatory backgrounds, all delivering interdependent packages of work under compressed timelines. Governance, resource oversight, knowledge management, monitoring: these are the functions that make a PMO “effective” in a conventional corporate setting. Whether they translate cleanly to a coordination problem this size, specifically within Saudi Arabia's giga-project sector, is a different question, one none of the studies above fully answers on its own.

This gap matters to a specific group of people. Giga-project owners, boards, and program-management consultancies in Saudi Arabia are deciding, right now, how much to invest in PMO structures, what functions to prioritize, and how to justify that investment to stakeholders and financiers, mostly without local empirical evidence linking specific PMO functions to delivery outcomes. Project management professionals working inside these PMOs face the same blind spot: they lack a clear, evidence-based picture of which of their functions actually move schedule, cost, and quality performance, as opposed to which just

look important on paper. This is not just a theoretical concern. These programs are already absorbing the schedule and budget pressure documented by Calabrese (2026) and Alotaibi et al. (2025), and getting the allocation of PMO effort right affects whether these giga-projects stay within the budgets now being renegotiated.

This study's purpose, then, is to examine the relationship between Project Management Office effectiveness and project performance within Saudi Arabia's giga-project sector. It breaks PMO effectiveness down into its separate functional dimensions, so the relationship can be examined with more precision than a single composite PMO variable, or a single composite control-systems variable of the kind Alotaibi et al. (2025) used, would allow. It is not trying to introduce a new theoretical model. Instead, it applies an established lens, organizational capability and Resource-Based View reasoning, to a context where that lens has rarely been tested at this level of functional detail. In doing so, it lays the empirical and methodological groundwork for a future survey-based investigation of that relationship among project management professionals working within or alongside giga-project PMO structures.

1.2 Research Problem

PMO effectiveness is generally understood to relate to project performance, but almost all of that evidence comes from conventional project and corporate program settings. Even the closest Saudi-based studies address PMO model choice or general control-system effectiveness, not PMO functional effectiveness at giga-project scale specifically. One gap is theoretical, then, and one is practical.

1.2.1 Theoretical Gaps

Bae et al. (2008) and Sandhu et al. (2024) have already established a general link between Project Management Office effectiveness and project performance in conventional corporate and program-level settings. What is much less understood is how the specific PMO functional dimensions, governance and standardization, resource and portfolio

oversight, knowledge management, and monitoring and reporting, drive project performance once the setting shifts to something organizationally distinct: megaproject and giga-project delivery (Zani et al., 2024).

1.2.2 Practical Gaps

Few empirical studies have looked at Project Management Office effectiveness and its relationship to project performance specifically within Saudi Arabia's giga-project sector. PMO structures across this sector were built quickly to coordinate large, fast-scaling contractor networks, but how well they actually perform against the schedule, cost, and quality outcomes they exist to protect is largely undocumented.

Together, these two gaps point to the same underlying question.

How does Project Management Office Effectiveness influence Project Performance in Saudi Arabia's giga-project sector?

1.3 Research Objectives

The research question in Section 1.2.2 is broad on purpose, so turning it into something measurable means using the same four functional dimensions that were used to frame the theoretical gap in Section 1.2.1, based on Hobbs and Aubry's (2010) definition of PMO functions.

Objective 1: Evaluate how PMO governance and standardization practices relate to project performance in Saudi Arabia's giga-project sector. This includes the policies, methodologies, and standardized reporting formats a PMO uses to hold together a fragmented, fast-growing network of contractors and subcontractors.

Objective 2: Resource and portfolio oversight is another critical factor in this study, covering how a PMO allocates budget, personnel, and other limited resources across work packages happening at the same time, and how it manages the portfolio-level trade-offs a single project team would never really have to face.

Objective 3: Because the delivery network is expanding faster than any single team's institutional memory can keep up with, knowledge management becomes essential: how a PMO captures and shares lessons learned and technical know-how across that network, and how this relates to project performance.

Objective 4: Schedule, cost, and quality metrics are the focus here, along with how consistently that information reaches the people positioned to act on it, all as part of asking whether monitoring and reporting discipline relates to project performance. Together, these four objectives turn the research question into something a survey instrument can measure.

1.4 Research Significance

Establishing whether, and how, PMO effectiveness relates to project performance in this setting matters on two fronts: for the theoretical literature on project organizations, and for the practical decisions giga-project leadership in Saudi Arabia is making right now.

1.4.1 At the Theoretical Level

This study is grounded in organizational capability theory and the Resource-Based View (Barney, 1991; Teece et al., 1997). Together, these frame a PMO not merely as an administrative unit but as an organizational capability: a bundle of governance routines, coordination knowledge, and monitoring processes that can be valuable, difficult to imitate, and therefore a source of superior project outcomes when well developed. Teece et al.'s (1997) subsequent dynamic-capabilities extension adds a useful refinement for the giga-project setting specifically. It emphasizes a firm's capacity to reconfigure its capabilities as conditions change, a capacity giga-project PMOs rely on directly: they must scale and adapt their governance and coordination routines as the network of contractors around them grows.

Applying this framework to giga-project PMOs addresses the theoretical gap identified in Section 1.2.1: it tests whether a capability-based explanation of PMO effectiveness, developed and validated mainly in single-project and conventional program contexts, extends to a setting defined by an unusually large and rapidly scaling contractor base. It responds directly to Zani et al.'s (2024) call for empirical work linking organizational design choices to measurable performance outcomes in megaproject research. Examining the PMO-performance relationship at the level of individual functional dimensions, rather than as a single composite variable, also pushes capability theory further than most PMO research does, and it could help refine how organizational capability frameworks get used for megaproject-scale organizations more broadly.

1.4.2 At the Practical/Empirical Level

At the practical level, findings from the eventual empirical study could directly inform decision-making for giga-project leadership, who are already weighing how much to invest in PMO structures and which functions to prioritize, under the budget and schedule pressure documented by Calabrese (2026) and Alotaibi et al. (2025). Suppose specific PMO functions, monitoring and reporting versus knowledge management, say, turn out to relate more strongly to schedule and cost performance than others. That would give giga-project owners something concrete to act on: where to point limited PMO resources to best protect delivery outcomes. It would also complement Alghaseb and Alali's (2024) work on which PMO structural model Saudi construction projects tend to adopt, adding evidence on which functions within that model matter most.

More broadly, the study's findings could give project management professionals working within these PMOs an evidence base for improving coordination across the large, multi-national supplier base that characterizes giga-project delivery, a coordination challenge specific to megaproject scale and not well addressed by PMO guidance built for conventional single-organization projects. With NEOM, Red Sea Global, Qiddiya, and Diriyah Gate all in delivery at once, Saudi Arabia hosts a dense concentration of active giga-project PMOs. This local evidence base, then, is of direct relevance not just to giga-project owners but to policymakers and program-management consultancies operating across the wider Gulf giga-project pipeline.

1.5 Scope and Delimitations

This study is bounded to the giga-project environments Saudi Arabia is developing under Vision 2030, principally NEOM, Red Sea Global, Qiddiya, and Diriyah Gate. It does not extend to conventional single-organization construction projects, nor to megaprojects outside the Kingdom, even where those projects share some of the scale characteristics discussed in Section 1.1.

The analytical focus is further delimited to the organizational perspectives and operational realities of project management professionals working within, or directly alongside, giga-project PMO structures. Perspectives from end users, financiers, or government regulators fall outside this scope. That is not because those perspectives are unimportant, but because the research question concerns how PMO functions are experienced and enacted by the practitioners who operate them day to day.

Where this proposal draws on evidence involving Saudi construction projects more broadly, such as the 222-project sample used by Alotaibi et al. (2025), that evidence is treated as context for the giga-project delivery environment rather than as a direct measurement of it.

1.6 Structure of the Study

Chapter 2 goes deeper into the PMO effectiveness and megaproject organization-design literature, situating the organizational capability and Resource-Based View framework from Section 1.4.1 within that wider body of work and building the conceptual model the four objectives rest on. From there, Chapter 3 turns to methodology: the survey instrument, target population, and the analytical approach a functionally disaggregated measure of PMO effectiveness requires.

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