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Professional Heterogeneity in PMO-Enabled Sustainability: Experience, Managerial Role and Organisational Translation Pathways

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***Abstract*-- Professional heterogeneity is rarely considered in analyses of PMO-enabled sustainability. This exploratory study compares archived multi-group CB-SEM estimates from 550 project professionals in Saudi Arabia, distinguishing high- and low-experience respondents (n = 405 and 145) and managers and non-managers (n = 306 and 244). The five-construct model links governance structures, sustainability planning and training, and knowledge management to PMO capability and sustainable project practices. Among highly experienced respondents, governance and knowledge management predicted PMO capability, while knowledge management and PMO capability predicted sustainable practices. Estimates for less-experienced respondents were less precise. Among managers, supported pathways centred on knowledge management; among non-managers, governance and knowledge management also predicted PMO capability. These within-group patterns suggest that accumulated experience and organisational position can shape perceptions of sustainability implementation. Because the archived comparisons reported here did not include formal measurement-invariance and between-group path-equality tests, differing within-group significance patterns do not establish statistically significant moderation. The findings remain exploratory and require direct cross-group validation.**

***Keywords*— knowledge management, managerial role, multi-group SEM, PMO capability, professional experience, project management office, Saudi Arabia, sustainability practices**

I. Introduction

Organisations increasingly rely on Project Management Offices (PMOs) to connect project delivery with governance, organisational learning, resource coordination and strategic priorities. In sustainability-oriented settings, this translation function is especially important because environmental, social and economic objectives must be converted from high-level commitments into routines that influence portfolios, programmes and individual projects. PMOs can support this conversion by standardising practices, brokering knowledge, allocating resources and coordinating relationships across organisational boundaries [3, 8, 19].

Most empirical research nevertheless models PMO-related mechanisms as if they were perceived in the same way by all respondents. Such an assumption is difficult to sustain in project-based organisations. A professional with extensive experience may recognise latent governance routines and use accumulated knowledge to interpret PMO capability differently from a colleague at an earlier career stage. Similarly, managers and non-managers occupy different positions in organisational decision systems. Managers are more directly exposed to strategic priorities, resource allocation and executive reporting, whereas non-managers often encounter the PMO through operational standards, support services, project controls and cross-project coordination. These differences can shape which organisational mechanisms are visible, credible and consequential to respondents.

Two forms of professional heterogeneity are particularly relevant. The first is temporal expertise, represented by accumulated professional experience. Experience can improve pattern recognition, contextual judgement and the ability to connect formal systems with tacit knowledge acquired through practice [9, 21]. The second is positional authority, represented by managerial role. Upper-echelons reasoning suggests that organisational position influences attention, interpretation and strategic choice because decision makers confront different information, responsibilities and constraints [10, 11]. These two dimensions are related but not interchangeable: an experienced specialist may possess substantial expertise without formal authority, while a manager may hold decision rights that do not necessarily reflect long tenure in the domain.

This distinction is consequential for PMO-enabled sustainability. Governance structures, sustainability planning and training, and knowledge management may not translate into PMO capability or sustainable project practices through identical pathways across professional groups. A manager may view knowledge systems as direct strategic infrastructure, whereas a non-manager may perceive their value through the capabilities and support provided by the PMO.

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Highly experienced respondents may be better able to distinguish the PMO's translation role from the antecedent systems that feed it. Less experienced respondents may provide more variable assessments because their exposure to organisational mechanisms is narrower or more localised.

The present study combines two exploratory subgroup analyses—professional experience and managerial role—within a single paper. This is preferable to treating them as separate publications because the theoretical contribution lies in comparing two professional lenses within one coherent framework. The study uses the same five latent constructs and seven structural paths in both subgroup analyses, permitting a structured assessment of convergent and divergent patterns. It asks how experience and role condition the observed configuration of governance, sustainability planning and training, knowledge management, PMO capability and sustainable project practices.

The paper contributes in three ways. First, it introduces professional heterogeneity into the study of PMO-enabled sustainability by separating accumulated expertise from positional authority. Second, it shows that knowledge management is the most stable pathway across professional lenses, while the apparent role of governance and PMO capability varies by group. Third, it demonstrates the importance of bootstrap-based group-specific inference and methodological restraint: differences in coefficients or significance across groups are not treated as proof that the groups differ statistically. The resulting evidence is exploratory but theoretically informative and provides a clear platform for a subsequent measurement-invariance and constrained multi-group analysis.

II. Theoretical Background And Research Questions

A. PMO capability as an organisational translation mechanism

PMOs are not merely administrative units. Their organisational value depends on the capabilities through which they coordinate project actors, mobilise resources, establish standards and maintain relationships between projects and permanent organisational structures. Prior research portrays the PMO as a dynamic and context-dependent arrangement rather than a universally standardised form [4]. This perspective is consistent with the present operationalisation of PMO capability through technical, resource and relational dimensions.

Technical capability enables the PMO to provide methodologies, tools, controls and performance information.

Resource capability concerns access to competent personnel, authority and organisational support. Relational capability reflects the capacity to connect stakeholders, negotiate interfaces and broker collaboration. Together, these dimensions help transform governance rules, plans and organisational knowledge into practices that can be reproduced across projects [14, 17, 23]. The PMO's knowledge-brokering role is especially salient because project-based organisations are vulnerable to fragmented learning and the loss of experience when temporary teams disperse [8, 18, 19].

The study therefore treats PMO capability as an intermediate organisational mechanism. Governance structures, sustainability planning and training, and knowledge management can each influence sustainable project practices directly, but they may also operate through PMO capability. The same mechanism, however, may not be interpreted equally by professionals who occupy different career and organisational positions.

B. Professional experience as temporal expertise

Professional experience accumulates through repeated exposure to problems, decisions, failures and corrective action. Workplace learning research emphasises that much professional knowledge is acquired informally through participation in real work rather than solely through formal instruction [9]. Experience can therefore alter the cognitive structures through which organisational practices are recognised and evaluated.

Experienced professionals are more likely to possess comparative frames derived from multiple projects and organisational episodes. Such frames can help them distinguish between formal sustainability plans and the capabilities required to implement those plans. They may also be more sensitive to knowledge quality, governance consistency and the practical authority of the PMO. By contrast, less experienced professionals may base their responses on more localised interactions, recent training or the visible outputs of individual projects.

This does not imply that experience necessarily strengthens every relationship. Experience can produce scepticism towards symbolic initiatives, while newcomers may respond positively to formal planning or communication. The theoretically relevant expectation is therefore not a uniformly larger coefficient in the high-experience group, but a more differentiated and statistically stable configuration of relationships.

C. Managerial role as a positional lens

Managerial position shapes access to information, decision rights and responsibility for organisational outcomes.

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Upper-echelons theory argues that strategic choices reflect the experiences, values and cognitive bases of decision makers because complex organisational realities are interpreted through bounded managerial frames [10, 11]. Although the present study does not examine top executives exclusively, the same general logic supports the expectation that managerial and non-managerial professionals encounter PMO systems from different vantage points.

Managers are more likely to participate in resource allocation, governance reviews and cross-project prioritisation [16]. They may consequently perceive knowledge management as a direct strategic asset that supports sustainable practices, rather than only as an input translated through PMO capability. Non-managers are more likely to experience organisational systems through practical support, procedures, coordination and implementation. For this group, the PMO may be more visible as the mechanism that converts governance and knowledge into workable routines.

Managerial role should not be conflated with experience. Authority changes what professionals can decide and observe, whereas experience changes the repertoire through which they interpret what they observe. Combining both subgroup analyses in one paper allows these two sources of professional heterogeneity to be compared rather than assumed to represent the same underlying distinction.

D. Integrative research questions

Because the available outputs estimate unconstrained group-specific models and do not include formal equality constraints, the study is organised around research questions rather than confirmatory moderation hypotheses:

RQ1. How do the group-specific structural pathways differ in pattern and precision between professionals with lower and higher experience?

RQ2. How do the group-specific structural pathways differ in pattern and precision between managers and non-managers?

RQ3. Within which professional groups does PMO capability carry the effects of governance structures, sustainability planning and training, and knowledge management to sustainable project practices?

RQ4. What convergent and divergent professional interpretations emerge when temporal expertise and positional authority are considered together?

III. Method

A. Research design and context

The study used a quantitative, cross-sectional survey design and covariance-based structural equation modelling [2, 5, 15]. The analytical sample comprised 550 project, programme, portfolio, PMO, sustainability and senior organisational professionals associated with organisations operating in Riyadh, Saudi Arabia. The broader thesis instrument used a five-point Likert scale and measured five latent constructs through fifteen aggregate dimensions.

The present paper is a secondary comparative analysis of the same dataset. It does not create new variables or alter the previously specified structural model. Instead, it examines whether the pattern of estimated relationships is similar across two pre-existing professional classifications: experience level and managerial role.

B. Constructs and measurement

Table I. Constructs and dimensions used in the subgroup models

Construct	Observed dimensions
Governance Structures (GOV)	Accountability and Oversight Mechanisms (AOM); Sustainability Governance Framework (SGF); Stakeholder Governance Structures (SGS)
Sustainability Planning and Training (SPT)	Awareness and Communication (AWC); Sustainability Training Programmes (STP); Strategic Sustainability Planning (SSP)
Knowledge Management (KM)	Knowledge Acquisition and Utilisation (KAU); Knowledge Sharing and Transfer (KST); Knowledge Application and Creation (KAC)
PMO Capability (PMOCAP)	PMO Relational Capability (PMORL); PMO Resource Capability (PMORC); PMO Technical Capability (PMOTC)
Sustainable Project Practices (SP)	Environmental (ENV); Social (SOC); Economic (ECO) sustainability practices

Note. Labels reproduce the variable abbreviations used in the AMOS outputs. The source questionnaire should be consulted before journal submission to confirm the final wording of all dimension names.

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C. Professional subgroup definitions

The exact experience threshold and role-classification rule were not recoverable from the available analysis records and should be verified against the original coding documentation before the analysis is treated as final.

Table II. Professional subgroup structure and source-output status

Comparison	Group	n	Status in archived output
Professional experience	High experience	405	Consistent across CFA and SEM outputs
Professional experience	Low experience	145	Consistent across CFA and SEM outputs
Managerial role	Managers	306	Correctly specified in SEM output
Managerial role	Non-managers	244	Correctly specified in SEM output
Managerial role	Standalone CFA file	—	Excluded: the second group was reported as n = 550 rather than n = 244

D. Structural model

The same recursive structural model was estimated in every group. GOV, SPT and KM were specified as correlated exogenous constructs predicting PMOCAP and SP. PMOCAP also predicted SP. This produced seven direct paths and three specific indirect effects through PMOCAP. The structural specification was theory-led and was not altered separately for individual groups.

E. Estimation and inferential strategy

Maximum likelihood estimation was used in AMOS. Because the source outputs indicated departures from multivariate normality, 5,000 bootstrap samples were requested. The present paper gives priority to standardised path coefficients and 95% percentile bootstrap confidence intervals. A path or indirect effect is treated as supported within a group when its percentile interval does not include zero and the corresponding bootstrap p value is below .05.

The experience and role models are unconstrained multi-group models. They establish that the same general model can be estimated in each group and provide group-specific coefficients, but they do not establish measurement invariance or statistically test whether corresponding coefficients differ across groups. Consequently, the results are described as pattern contrasts, not moderation effects. A coefficient that is significant in one group and non-significant in another is not interpreted as a statistically significant difference between the two coefficients.

For the experience comparison, the accompanying CFA and SEM outputs consistently used n = 405 and n = 145. For managerial role, the SEM output correctly used n = 306 and n = 244 and included the measurement component. The standalone role CFA file was not used because it reported the second-group sample size as 550, which would double-count cases and invalidate the nominal two-group analysis. This source audit is reported to preserve analytical traceability.

IV. Results

A. Model fit and measurement patterns

Table III. Fit of the unconstrained professional subgroup models

Comparison	χ^2	df	χ^2/df	GFI	AGFI	CFI	TLI	RMSEA	90% CI
Experience groups	242.202	160	1.514	.946	.919	.991	.988	.031	[.022, .038]
Managerial-role groups	243.707	160	1.523	.945	.918	.993	.991	.031	[.023, .038]

Note. Both outputs used the same five-construct, fifteen-indicator measurement structure. These are unconstrained multi-group models; good fit does not by itself establish measurement invariance.

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Both subgroup models displayed close approximate fit. In the experience comparison, standardised loadings were approximately .887–.925 in the high-experience group and .798–.908 in the low-experience group. In the correctly specified role SEM output, loadings were approximately .941–.963 for managers and .840–.938 for non-managers. These values indicate that the dimensions were strongly related to their assigned constructs within each group [13].

The latent antecedents were highly correlated. In the experience analysis, correlations among GOV, SPT and KM ranged from .868 to .919 in the high-experience group and from .903 to .933 in the low-experience group. In the role analysis, the corresponding correlations were approximately .960–.962 among managers and .829–.908 among non-managers. The coefficients should therefore be interpreted as unique conditional effects after substantial shared variance among the organisational antecedents has been controlled. The high correlations also reinforce the need for formal discriminant-validity and measurement-invariance testing before journal submission [12].

B. Professional experience

Table IV. Group-specific direct paths by professional experience

Path	High β	95% CI	p	Low β	95% CI	p
GOV → PMOCAP	.473	[.233, .688]	.003	.146	[-.949, .920]	.754
SPT → PMOCAP	-.104	[-.407, .201]	.468	.463	[-.100, 1.580]	.085
KM → PMOCAP	.570	[.352, .833]	< .001	.291	[-.720, 1.276]	.413
GOV → SP	-.196	[-.576, .064]	.133	.311	[-.748, 1.320]	.336
SPT → SP	.170	[-.143, .568]	.298	-.422	[-1.987, .772]	.368
KM → SP	.612	[.335, .974]	< .001	.655	[-.856, 2.400]	.269
PMOCAP → SP	.275	[.005, .594]	.047	.307	[-.127, 1.027]	.102

Note. High experience n = 405; low experience n = 145. β values are standardised coefficients. Confidence intervals and p values are from 5,000 percentile bootstrap samples. The table does not test equality of coefficients across groups.

The high-experience group exhibited a coherent and comparatively precise pathway configuration. Knowledge management predicted PMO capability (β = .570, p < .001) and sustainable project practices (β = .612, p < .001). Governance structures also predicted PMO capability (β = .473, p = .003). PMO capability retained a positive association with sustainable project practices (β = .275, p = .047). The direct governance and sustainability-planning paths to SP were not supported, and SPT did not predict PMO capability.

The low-experience estimates were substantially less precise. None of the seven percentile-bootstrap intervals excluded zero. The point estimates suggested a positive SPT-to-PMOCAP path and a negative SPT-to-SP path, but both intervals were wide.

The KM-to-SP coefficient was numerically similar to the high-experience coefficient, yet its interval ranged from a negative value to well above one. The result is better interpreted as limited precision in the smaller group than as evidence that knowledge management is unimportant to less experienced professionals.

The contrast indicates that accumulated experience may be associated with a more differentiated interpretation of organisational translation. Experienced professionals separated the roles of governance, knowledge and PMO capability: governance and knowledge fed capability, while knowledge and capability related to sustainability practices. The less experienced group did not yield stable evidence for an equivalent configuration.

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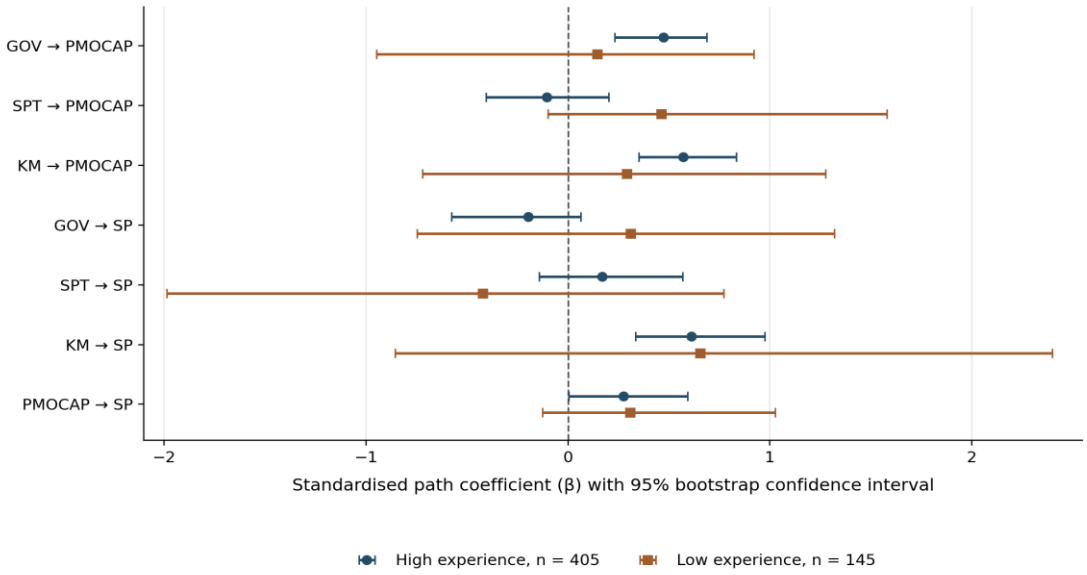


Figure 1. Standardised structural estimates and 95% percentile bootstrap confidence intervals by professional experience.

C. Managerial role

Table V. Group-specific direct paths by managerial role

Path	Manager β	95% CI	p	Non-manager β	95% CI	p
GOV → PMOCAP	.308	[-.154, .596]	.154	.443	[.118, .716]	.017
SPT → PMOCAP	-.004	[-.352, .476]	.998	.012	[-.337, .382]	.915
KM → PMOCAP	.668	[.328, 1.097]	< .001	.480	[.232, .733]	.001
GOV → SP	.022	[-.464, .364]	.962	-.228	[-.744, .081]	.139
SPT → SP	-.111	[-.542, .381]	.580	.229	[-.162, .824]	.236
KM → SP	.734	[.317, 1.324]	.002	.545	[.201, .969]	.006
PMOCAP → SP	.295	[-.044, .687]	.087	.325	[.093, .604]	.011

Note. Managers n = 306; non-managers n = 244. β values are standardised coefficients. Confidence intervals and p values are from 5,000 percentile bootstrap samples. The table does not test equality of coefficients across groups.

Among managers, bootstrap-supported evidence concentrated on knowledge management. KM predicted PMO capability (β = .668, p < .001) and SP (β = .734, p = .002). The PMOCAP-to-SP coefficient was positive (β = .295) but its percentile interval included zero (p = .087). Governance predicted PMO capability under conventional maximum-likelihood inference, but the bootstrap interval included zero; the more conservative bootstrap result is therefore retained in this paper. Neither SPT path was supported.

Non-managers displayed a broader configuration. GOV (β = .443, p = .017) and KM (β = .480, p = .001) predicted PMO capability. KM predicted SP directly (β = .545, p = .006), and PMO capability also predicted SP (β = .325, p = .011).

The direct GOV and SPT paths to SP were not supported. The explanatory power reported in the AMOS output was high in both groups, but it was greater for managers (R^2PMOCAP = .928; R^2SP = .875) than for non-managers (R^2PMOCAP = .800; R^2SP = .735). Given the very high correlations among the managerial-group antecedents, these values should not be treated as independent causal contributions.

The role patterns suggest different organisational lenses. Managers' evaluations were dominated by knowledge pathways, consistent with an interpretation of knowledge management as a strategic organisational resource. Non-managers' evaluations gave PMO capability a more visible translation role and connected governance with capability.

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This pattern is compatible with the possibility that non-managers experience governance and knowledge through the practical coordination and support activities of the PMO, whereas managers encounter knowledge more directly in strategic and portfolio decision processes.

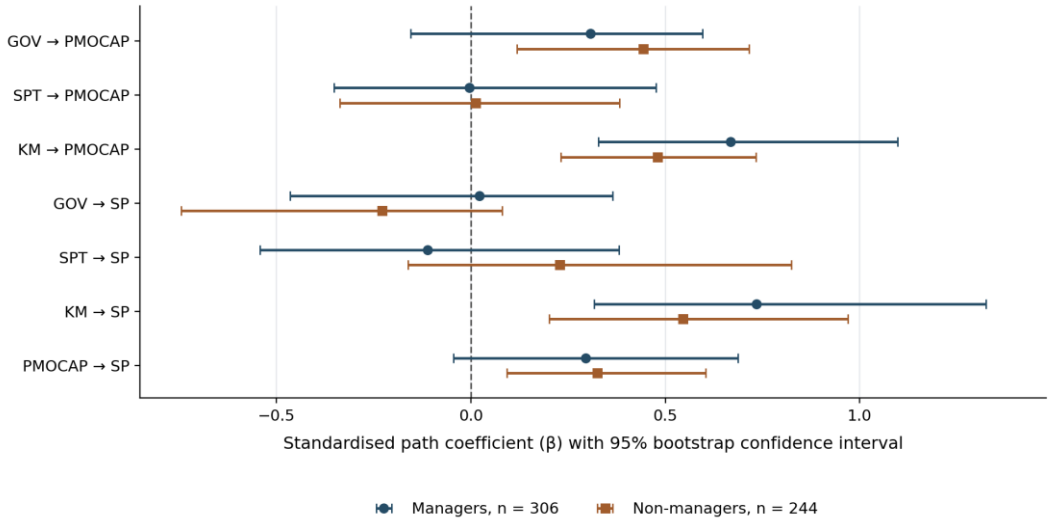


Figure 2. Standardised structural estimates and 95% percentile bootstrap confidence intervals by managerial role.

D. Group-specific indirect effects through PMO capability

Table VI. Specific indirect effects through PMO capability

Group	Indirect path	β	95% CI	p	Decision
High experience	GOV → PMOCAP → SP	.130	[.001, .327]	.049	Supported
High experience	SPT → PMOCAP → SP	-.029	[-.112, .083]	.511	Not supported
High experience	KM → PMOCAP → SP	.157	[.003, .330]	.047	Supported
Low experience	GOV → PMOCAP → SP	.045	[-.537, .331]	.730	Not supported
Low experience	SPT → PMOCAP → SP	.142	[-.102, 1.001]	.156	Not supported
Low experience	KM → PMOCAP → SP	.089	[-.367, .773]	.485	Not supported
Managers	GOV → PMOCAP → SP	.091	[-.049, .304]	.217	Not supported
Managers	SPT → PMOCAP → SP	-.001	[-.083, .214]	.939	Not supported
Managers	KM → PMOCAP → SP	.197	[-.038, .448]	.087	Not supported
Non-managers	GOV → PMOCAP → SP	.144	[.015, .330]	.028	Supported
Non-managers	SPT → PMOCAP → SP	.004	[-.120, .144]	.909	Not supported
Non-managers	KM → PMOCAP → SP	.156	[.035, .341]	.012	Supported

Note. Decisions are based on 95% percentile bootstrap confidence intervals from 5,000 samples. These tests establish indirect effects within each group; they do not test whether indirect effects differ significantly between groups.

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The experience comparison produced supported governance- and knowledge-based indirect effects only in the high-experience group. GOV influenced SP through PMOCAP (β = .130, 95% CI [.001, .327], p = .049), and KM also operated through PMOCAP (β = .157, 95% CI [.003, .330], p = .047). No indirect effect was supported in the low-experience group. The SPT indirect effect was unsupported in both experience groups.

The managerial-role comparison showed a different pattern. None of the three indirect effects was supported among managers. Among non-managers, GOV operated through PMOCAP (β = .144, 95% CI [.015, .330], p = .028), and KM also showed a positive indirect effect (β = .156, 95% CI [.035, .341], p = .012). SPT again did not operate through PMOCAP.

The combined evidence is theoretically informative. Mediation appeared among highly experienced respondents and among non-managers, but not among managers. A plausible interpretation is that experience helps professionals recognise the PMO as an organisational translation mechanism, while non-managers are more directly exposed to that mechanism in practice. Managers, by contrast, may perceive knowledge management as exerting a more direct influence on sustainable practices. This interpretation remains provisional until formal difference tests are completed.

E. Integrated professional-heterogeneity pattern

Table VII. Integrated interpretation of the two professional lenses

Professional lens	Most stable evidence	Unsupported or unstable evidence	Provisional interpretation
High experience	GOV → PMOCAP; KM → PMOCAP; KM → SP; PMOCAP → SP; GOV and KM indirect effects	SPT paths; direct GOV → SP	Experienced respondents differentiate antecedents from the PMO translation mechanism.
Low experience	No path met percentile-bootstrap criterion	All direct and indirect effects had wide intervals	Smaller group and narrower organisational exposure produced imprecise estimates; absence of support is not evidence of absence.
Managers	KM → PMOCAP; KM → SP	PMOCAP → SP was positive but not bootstrap-supported; GOV and SPT paths; all indirect effects	Knowledge is perceived as the dominant direct strategic route.
Non-managers	GOV → PMOCAP; KM → PMOCAP; KM → SP; PMOCAP → SP; GOV and KM indirect effects	SPT paths; direct GOV → SP	Governance and knowledge are perceived as translating through visible PMO capability.

Note. The terms "most stable" and "unsupported" refer to within-group percentile-bootstrap evidence. They do not imply statistically significant coefficient differences between groups.

Across both comparisons, three regularities emerged. First, knowledge management was the most persistent organisational antecedent. Second, sustainability planning and training did not make a stable unique contribution after governance and knowledge were included simultaneously. Third, PMO capability was most clearly visible as a translation mechanism among high-experience respondents and non-managers. These regularities provide the basis for the discussion that follows.

V. Discussion

A. Experience and the recognition of organisational translation

The high-experience results suggest that temporal expertise is associated with a more structured interpretation of how organisational systems create sustainability practices.

Governance and knowledge predicted PMO capability, while knowledge and PMO capability predicted sustainable practices. The supported indirect effects indicate that experienced professionals recognised capability-mediated translation rather than attributing all effects directly to formal organisational inputs.

This pattern is consistent with workplace-learning arguments. Repeated exposure to projects can develop a richer repertoire of examples, allowing experienced professionals to judge whether governance arrangements are enacted, whether knowledge is usable and whether the PMO has sufficient relational and resource capacity to convert them into practice. Experience may therefore improve construct differentiation at the level of professional judgement even when the latent constructs remain highly correlated statistically.

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The low-experience pattern should be interpreted cautiously. Point estimates did not uniformly collapse towards zero; instead, they varied considerably and were accompanied by very wide confidence intervals. The smaller sample and possibly narrower exposure to organisational routines reduced precision. A journal submission should therefore avoid a deficit narrative in which less experienced professionals are described as incapable of recognising PMO mechanisms. The evidence shows uncertainty, not inferior professional competence.

B. Managerial authority and the strategic visibility of knowledge

The managerial-role results reveal a different axis of heterogeneity. Managers displayed strong knowledge-management paths to both PMO capability and sustainable practices, but the PMO-capability path to SP and all indirect effects were not supported by percentile bootstrap intervals. This configuration suggests that managers may treat knowledge infrastructure as directly embedded in strategic and portfolio action. From their vantage point, knowledge is not necessarily experienced as passing through a distinct PMO mechanism because the PMO and managerial decision system may be closely integrated.

Non-managers displayed a more explicit translation architecture. Governance and knowledge predicted PMO capability; knowledge and capability predicted sustainable practices; and both governance and knowledge generated indirect effects through PMO capability. This pattern is compatible with the operational experience of professionals who encounter governance through procedures, support, resource coordination, standards and cross-project communication. For them, the PMO is a more visible intermediary between organisational intention and project practice.

This interpretation does not establish that managers and non-managers differ statistically. It does, however, show why a pooled coefficient can conceal professionally meaningful configurations. The same aggregate relationship may represent strategic integration for managers and operational translation for non-managers.

C. Temporal expertise and positional authority are not substitutes

Combining the two analyses demonstrates that experience and role should not be used interchangeably. High experience was associated with supported PMO-capability mediation, while managerial status was associated with a more direct knowledge configuration. The most PMO-centred pathway was visible among high-experience respondents and non-managers, not simply among those with greater authority.

The distinction enriches professional-heterogeneity research. Temporal expertise concerns accumulated exposure and pattern recognition; positional authority concerns access to decisions, information and resources. Both shape organisational sensemaking, but they do so through different mechanisms [25]. Future PMO research should therefore avoid treating demographic controls as nuisance variables and should examine theoretically meaningful professional positions.

D. Theoretical contributions

The first contribution is to PMO theory. Existing work emphasises that PMOs are heterogeneous, dynamic and dependent on organisational context [3, 4]. The present study extends this contextual view from organisational structures to professional interpreters. A PMO can occupy the same formal position yet be understood differently by professionals with different experience and authority.

The second contribution concerns organisational knowledge. The results reinforce the PMO's potential knowledge-brokering role [19], but they show that this role is not equally visible across professional groups. Knowledge management remained the most stable antecedent, yet its route was more direct among managers and more capability-mediated among non-managers and highly experienced respondents.

The third contribution concerns sustainability implementation. Sustainability strategies require organisational translation rather than policy statements alone [1, 22]. The findings suggest that such translation is partly a professional sensemaking problem: the perceived mechanism depends on who is observing the organisation. This helps explain why evaluations of the same governance, training and knowledge systems may differ across respondents.

The fourth contribution is methodological. The study illustrates why subgroup papers should not infer moderation from a significant coefficient in one group and a non-significant coefficient in another. By separating within-group bootstrap evidence from between-group claims, the paper provides an analytically honest foundation for a later invariance-based multi-group test.

E. Practical implications

PMO leaders should not assume that sustainability systems are interpreted uniformly. Experienced professionals can be used as translators and mentors because they appear more likely to recognise the connections among governance, knowledge, capability and practice. Structured reflection sessions, lessons-learned processes and cross-project communities can make these connections more visible to less experienced professionals.

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The managerial-role results suggest that executives and operational professionals require different communication. Managers may respond to evidence showing how knowledge systems support portfolio choices and strategic sustainability outcomes. Non-managers may require clearer demonstrations of how governance and knowledge are converted into tools, resources, coordination and relational support through the PMO.

The absence of a stable SPT pathway does not justify abandoning sustainability planning or training. Rather, it suggests that plans and training do not create a unique statistical contribution once governance and knowledge are controlled. Organisations should connect training to PMO-supported routines, accountability, project controls and knowledge application instead of treating participation in training as an implementation outcome.

Finally, organisations should monitor professional heterogeneity when evaluating PMO effectiveness. Survey reports that pool managers, specialists, experienced professionals and newcomers may obscure important interpretive differences. Reporting stratified descriptive and structural evidence can reveal where implementation messages are understood and where translation mechanisms require strengthening.

VI. Limitations And Future Research

The most important limitation is that the source analyses did not test measurement invariance. Although the same indicators loaded strongly in each group and the unconstrained models fitted well, these results do not establish that loadings, intercepts or residuals are equivalent. The absence of formal measurement-invariance tests limits between-group interpretation [6, 7, 24]. Configural and metric invariance should be established for the experience and role comparisons, with scalar invariance added if latent means are examined.

The second limitation is the absence of equality-constrained structural tests. Omnibus structural-weight constraints, path-specific $\Delta\chi^2$ tests or direct bootstrap confidence intervals for coefficient differences were not available. Therefore, the paper cannot claim that experience or role moderates a specific relationship. The present draft consistently reports group-specific patterns. Equality-constrained structural tests are therefore required before any specific pathway can be interpreted as differing between professional groups.

Third, the manager/non-manager standalone CFA output contained an incorrect second-group sample size of 550. The present analysis excluded that file and used the measurement component embedded in the correctly specified SEM output.

The original AMOS data assignment should be reconstructed and a clean multi-group CFA should be generated before journal submission.

Fourth, the available subgroup outputs do not preserve the recoding syntax that defined low versus high experience and manager versus non-manager. The exact threshold and role composition must be documented. Experience and role are also likely to overlap, and neither analysis controls the other dimension. A stronger design would cross-classify respondents or estimate a model that controls experience when comparing roles and role when comparing experience.

Fifth, the data are cross-sectional, perceptual and obtained from a common survey instrument. Causal language is therefore inappropriate. Common method influence, response styles and the high correlations among GOV, SPT and KM may contribute to the observed patterns [20]. Future studies should use multiple respondents per organisation, objective PMO characteristics, longitudinal designs and project-level sustainability outcomes.

Sixth, the low-experience group was considerably smaller than the high-experience group. Wide confidence intervals may reflect lower statistical power and greater heterogeneity. Future sampling should deliberately recruit early-career professionals and distinguish experience in project management, PMO work and sustainability rather than relying on one general tenure measure.

Future research can extend the paper in four directions. First, conduct full measurement invariance and path-difference testing. Second, estimate a two-dimensional professional-heterogeneity model that separates experience and authority simultaneously. Third, use qualitative interviews to examine why managers perceive knowledge as a direct route while non-managers perceive PMO capability as an intermediary. Fourth, test whether the professional patterns replicate across centralised, hybrid and decentralised PMO architectures.

VII. Conclusion

This study examined PMO-enabled sustainability through two professional lenses: accumulated experience and managerial role. Knowledge management was the most stable organisational pathway, but its configuration differed across groups. Highly experienced respondents recognised both direct knowledge effects and capability-mediated governance and knowledge routes. Managers primarily displayed direct knowledge pathways, whereas non-managers showed a broader architecture in which governance and knowledge translated through PMO capability. Less experienced estimates were substantially less precise.

The results do not establish formal moderation, but they demonstrate why professional heterogeneity matters when PMO mechanisms are evaluated. PMO-enabled sustainability is not only an organisational design problem; it is also an interpretive problem shaped by what professionals have learned and where they stand in the organisation.

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