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The role of the Project Management Office (PMO) in knowledge management and transfer: A systematic literature review and future research agenda

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Abstract

The Project Management Office (PMO) has evolved to become central in addressing challenges related to communication, control, competence, and culture within project-based organisations (PBOs). This paper presents a systematic literature review aimed at synthesising current research on the specific role of the PMO in knowledge management and transfer (KM/KT). Fueled by three major academic databases, 55 peer-reviewed articles from the past decade are analysed. The review identifies key themes, including PMO implementation and maturity, governance and stakeholder management, and the mechanisms of knowledge management. Findings reveal the fragmented nature of existing literature and highlight the strategic importance of the PMO in facilitating knowledge flow and managing project uncertainty. The paper identifies gaps in current research, particularly regarding PMO maturity measurement, governance in Agile contexts, and adoptive culture, and proposes directions for future studies to enhance the PMO's role in diverse organisational settings.

Keywords: Governance, Literature Review, Organisational Design, Pmo, Project Management Office, Transformation.

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INTRODUCTION

In times of innovation and change (Dalcher, 2022), many organisations transition to a matrix hierarchy, project-based (PBO) setup, to achieve flexibility (Gomo et al., 2021). The project management (PM) environment subsequently faces challenges relating to communication, control, competence, and culture (Dempsey et al., 2022). In response, the concept of the

Project Management Office (PMO) emerged (Oliveira and Martins, 2018). The PMO, sometimes referred to as a project office, support office, or project directorate, is an entity within an organisation designed to enable the success of the project portfolio (Tshuma et al., 2018). Monteiro et al. (2016) describe the PMO as a global phenomenon in the PM arena, and a function of increasing importance which has, and will, continue to evolve.

The evolution of the PMO has seen a shift in focus to knowledge management (KM) and knowledge transfer (KT), for example, by coordinating the document management system, and acting as moderators and mediators of technical information and project knowledge (Tshuma et al., 2022; Jhamba and Steyn, 2021). While organisations are generally good at exploiting project-specific knowledge, there is insufficient attention towards centralised knowledge management and transfer by PMOs (Mehrizi et al., 2008). However, if executed effectively, PMO KM/KT can create awareness, establish trust, and foster conducive culture (Tshuma et al., 2024).

Despite expansion of PMO KM/T use by organisations, this has not been matched by an increase in associated scholarly activity or best practice guidance (Szalay et al., 2017). Subsequently, literature on the topic is limited and fragmented (Pemsel and Wiewiora, 2013). Therefore, the purpose of this paper is to provide a synthesis of current PMO KM/T research via a systematic literature review approach to identify gaps in current knowledge and subsequent research needs (Garcia-Penalvo, 2022).

METHODOLOGY

Development of Search Strategy

Increasingly adopted in the studies of project management (Maylor and Turner, 2017), the systematic literature review approach is a rigorous and transparent process with reduced bias (Tranfield et al., 2003), which allows contribution to existing knowledge by establishing opportunities for future research (Wang et al., 2022).

This systematic literature review was conducted in August 2024, following a three-stage process to develop the sample for analysis, as per the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) guidelines (Page et al., 2021). Three reputable databases were drawn upon to ensure broad inclusion of relevant PMO KM/T literature: Scopus, Web of Science, and ScienceDirect (Heck et al., 2024; Baas et al., 2020; Goossen et al., 2018; Bramer et al., 2017).

Initial Search and Data Collection

The initial search string consisted of “project management office” and “knowledge.” The open-ended term “knowledge” allowed for capture of all associated concepts such as knowledge management, knowledge transfer, knowledge exchange, and knowledge sharing. The initial search of titles and abstracts via Scopus, Web of Science, and ScienceDirect, yielded 157 results.

Inclusion and Exclusion Criteria

To refine the search, the following inclusion and exclusion criteria, as seen in Figure 1, were applied sequentially. Firstly, a date range of 2014-2024 was applied (Wang et al., 2023), excluding 37 records. Next, only journal articles were included to ensure scientific rigour and source quality via peer-reviewed scholarly work (Lane and Kettler, 2019), excluding 37 records. Papers written in languages other than English were then filtered out (9 records). Finally, duplicate records were removed (19 records). Of the remaining 55 records, content analysis was conducted based upon extracted and tabulated data.

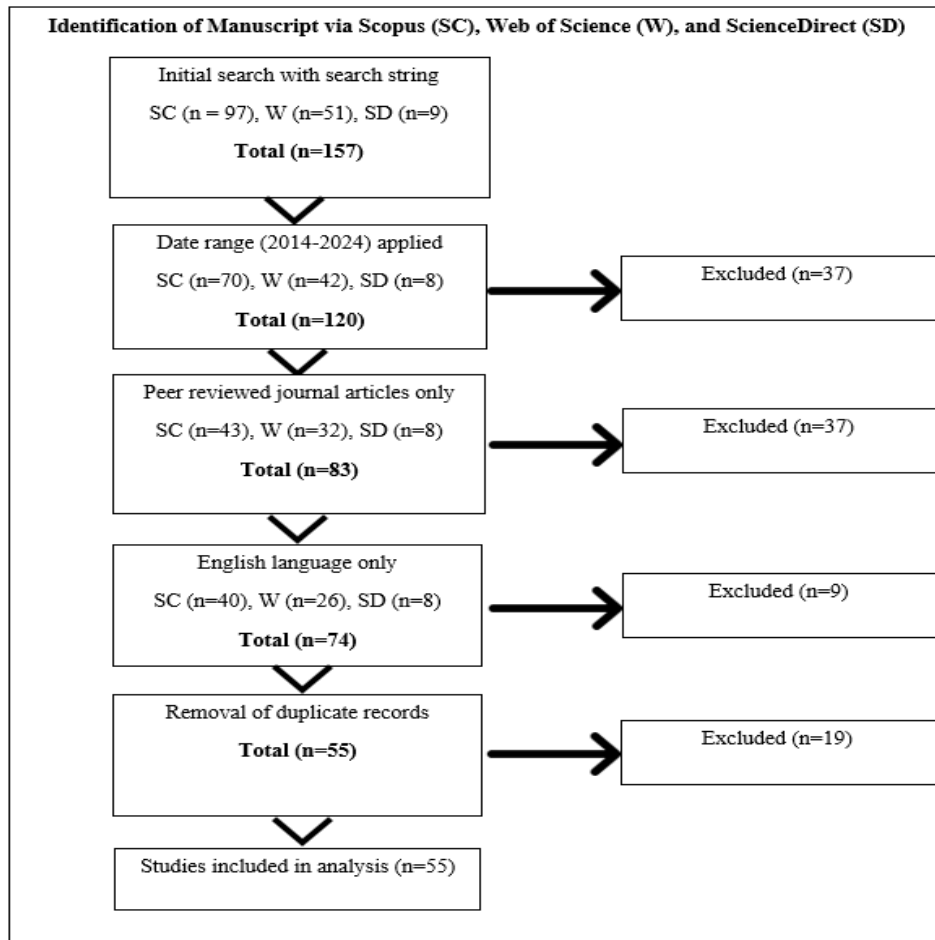


Figure 1: Systematic literature review protocols and results

FINDINGS

Articles Per Year

Figure 2 shows the number of results per-year. 2021 featured the highest frequency of published research papers concerning knowledge processes by PMOs, with 8 records. 2014 was second highest with 7 records, while 2016 and 2018 featured the lowest frequency, with 3 papers each. With a small range of 3-8 papers per-year, no single period dominated the research area. While only 5 records are noted in 2024, at the time of writing, 4 months of the year remain. However, there is no indication of interest in the subject increasing over time.

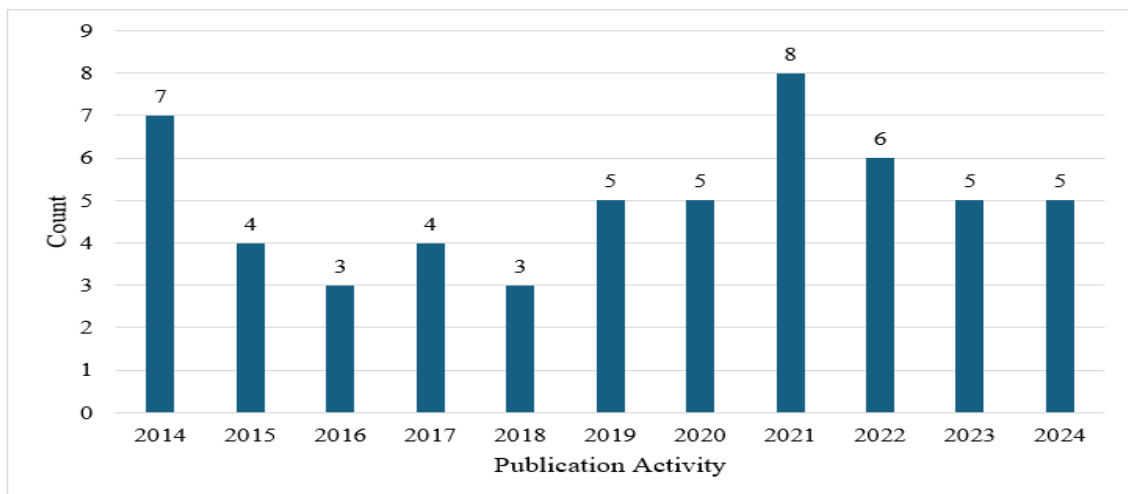


Figure 2: Number of Articles Published Per Year

Geographical Distribution

Figure 3 shows the number of results based on the location of study. South Africa featured the highest frequency of records (n=9). Australia and the United Kingdom followed with six each, then Iran with five. While there was a spread of studies across a good range of 23 countries, over half of these (n=17) featured only one or two records.

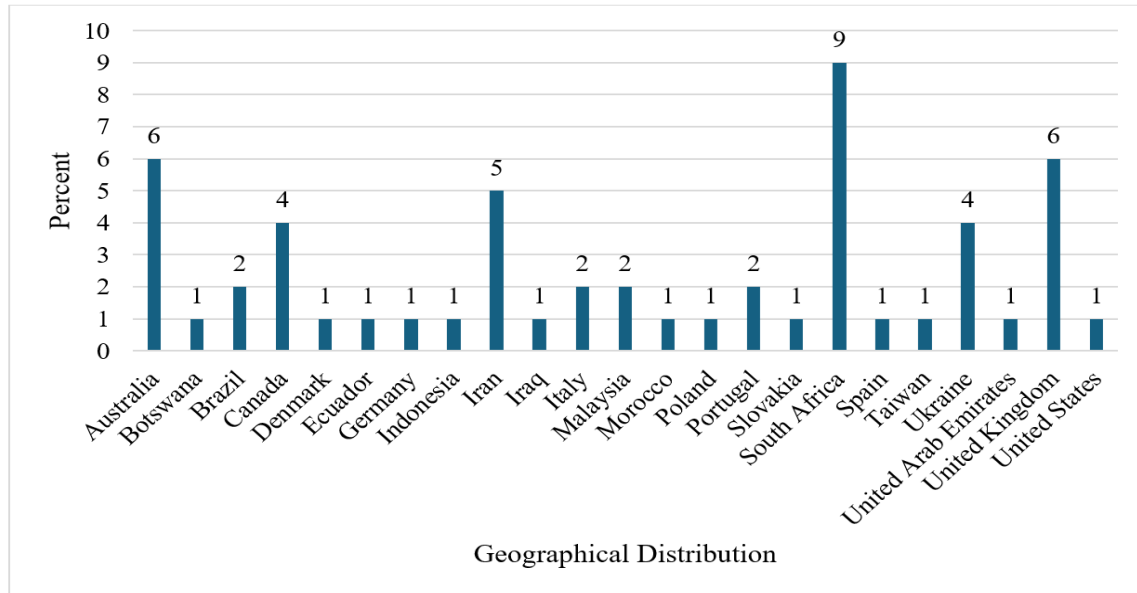


Figure 3: Geographical distribution

Methodological Distribution

Table 1 shows the breakdown of research methods utilised. Case studies were the most deployed methodology (n=19). Desk research, a term encompassing methods such as conceptual papers, featured in 12 records. Qualitative primary research was less common, including interviews (n=4) and multi-method qualitative (n=2). Although this indicates a preference for quantitative methods, primary research in general was less featured.

Table 1
Distribution by Research Methods

Research Methods	Frequency	Percent
Action research	1	1.82
Case study	19	34.55
Desk research	12	21.82
Interviews	4	7.27
Multi-method (qualitative)	2	3.64
Questionnaire	4	7.27
Statistical analysis	5	9.09
Survey	5	9.09
Systematic literature review	3	9.09
Total	55	100.0

Publication Distribution

Table 2 shows the diverse range of journals which contribute to the research area (n=36). The most common featured journal was the International Journal of Project Management (n=7). The South African Journal of Industrial Engineering was second (n=5), likely due to the

geographical distribution. The Eastern-European Journal of Enterprise Technologies was next (n=4), followed by the Project Management Journal (n=3). The remaining 32 records featured once or twice each. With no significant tilt to a particular journal, the variety of industry records reflect the interdisciplinary nature of PMO knowledge research.

Table 2
Distribution by Journals

Journal	Frequency	Percent
Acta Structilia	1	1.82
Administrative Sciences	1	1.82
Computers and Industrial Engineering	1	1.82
Eastern-European Journal of Enterprise Technologies	4	7.27
Engineering, Construction and Architectural Management	1	1.82
Healthcare quarterly (Toronto, Ont.)	1	1.82
International Journal of Computers and their Applications	1	1.82
International Journal of Information Technology Project Management	1	1.82
International Journal of Managing Projects in Business	2	3.64
International Journal of Production Economics	1	1.82
International Journal of Project Management	7	12.73
International Journal of Project Organisation and Management	2	3.64
International Journal of Systematic Innovation	1	1.82
Journal of Construction Engineering and Management	1	1.82
Journal of Contemporary Management	1	1.82
Journal of Engineering, Project, and Production Management	1	1.82
Journal of Information and Communication Technology	1	1.82
Journal of Modern Project Management	2	3.64
Journal of Nursing Management	1	1.82
Journal of the Southern African Institute of Mining and Metallurgy	1	1.82
Knowledge Management and E-Learning	1	1.82
Malaysian Journal of Computer Science	1	1.82
Procedia - Social and Behavioural Sciences	1	1.82
Procedia Engineering	1	1.82
Procedia Manufacturing	1	1.82
Project Management Journal	3	5.45
Research Technology Management	1	1.82
Revista de Administracao Publica	1	1.82
Revista San Gregorio	1	1.82
South African Journal of Economic and Management Sciences	1	1.82
South African Journal of Industrial Engineering	5	9.09
Space Policy	1	1.82
Sustainability	2	3.64
Total Quality Management and Business Excellence	1	1.82
TQM Journal	1	1.82
WSEAS Transactions on Systems	1	1.82
Total	55	100

Themes of Research

Table 3 shows 3 key themes that emerged from the search and screening processes. Records were, therefore, categorised into PMO implementation and maturity (n=20), governance and

stakeholder management (n=18), and knowledge management and transfer (n=17). The themes are discussed in the next section.

Table 3
Findings of Themes of Research

Source of Barriers	Frequency	Percent
PMO implementation and maturity	20	36.36
Governance and stakeholder management	18	32.73
Knowledge management and transfer	17	30.91
Total	55	100

DISCUSSION

PMO Implementation and Maturity

Literature indicates PMOs are either born out of organisational projectification (Smith et al., 2021) or recommended because of a previous project (Carden and Brace, 2022). PMO uptake remains mixed (Dwianti et al., 2023), which may be due to standalone project controls being suffice for some organisations to achieve maturity (Diaz-Contino et al., 2023; Ershadi et al., 2023), a lack of clear link between PMO usage and PM competence (Khalema et al., 2015), or lengthy contracting processes (du Plessis, 2015).

The term, project management maturity (PMM) encompasses subcategories such as electronic maturity, which can be captured via self-assessment in the digital management of e-projects (Fesenko et al., 2021). Jalal and Koosha (2015) find PMOs can vary in PMM due to differing organisational contexts, for example, the number of projects within the mandate, PMO age, and optimum location in hierarchy to link operational and strategic levels paradoxes (Hadi, 2022; Aubry et al., 2014). In the early days of PMO implementation, staff optimisation and allocation are impacted (Smith et al., 2021). Similarly, the core function of the PMO may not be understood early on; Pirotti et al. (2022) views this as the implementation of the 10 PMBOK knowledge areas, whereas Arbabi et al. (2020) views this as practice management and technical support. However, as PMM grows, PM knowledge increases in line with maturity (Karim et al., 2022).

As the highest impact area of the 10 knowledge areas of PM, organisations should seek to accelerate PMO PMM (Khalema et al., 2015). Karim et al. (2022) refer to a large difference in PMM levels between organisations with and without PMOs, with culture and strategic integration symptoms of high PMM. Literature suggests several ways to climb the three or five (disputed) levels of maturity (Fernandes et al., 2021; Marsina et al., 2015). Carden and Brace (2022) suggest OPM3 - an organisational PMM model to acquire knowledge, assess it, and manage improvements. Meanwhile, Al-Nakeeb et al. (2024) suggest a learning orientation which also improves overall performance and growth.

Different options for measuring PMO PMM and impact emerge from the literature. Al-Nakeeb et al. (2024) suggest the Project Management Office Centre of Excellence (PMOCoe), while Ershadi et al. (2023) establish a 5-factor measurement model considering HR and culture, strategic alignment, delivery support, knowledge management, and organisational capabilities. Dwianti et al. (2023), however, urge measurement against competency dimensions of intersocial, stewardship, and personal development.

Governance and Stakeholder Management

Ineffective governance emerges as a concern from literature. There are a high number of failed Agile projects (Sithambaram et al., 2021), with limited use of lessons learnt from earlier or parallel projects (Cocchiara et al., 2024). This reinforces a need for formal and informal

knowledge governance mechanisms and reporting (Martinez Sanz and Ortiz-Marcos, 2020; Too and Weaver, 2014).

Wiewiora et al. (2020) acknowledge multiple PMOs may exist in large organisations, possibly under Programme and Project Management Office (PgPMO), each with varied connectivity and power (Fernandes et al., 2020). This means expertise may be distributed ineffectively across these (Sithambaram et al., 2021; Lee-Kelley et al., 2014). Multiple PMOs often operate in silos due to ineffective collaboration (Ershadi et al., 2021), and staff holding multiple, conflicting roles in a matrix setup (Lavoie-Tremblay et al., 2017). Gomo et al. (2021), on the other hand, suggest matrix structure can contribute to KM/S if a central model to capture, store, and share knowledge is present (Korong and Nazeer, 2023; Gomo et al., 2021).

PMOs may also span inter-organisational boundaries (Braun, 2018). To improve internal and external links, the development of Communities of Practice (CoPs), Network Administrative Organisations (NAOs), and industry-university collaborations may be formed (Junqueira and Passador, 2019; Braun, 2018; Lee-Kelley et al., 2014). Networks such as these can be an empowering bridging mechanism for cross-geographical networks (Wiewiora et al., 2020), however, recruiting experts to join is a challenge, and they are a complex interplay to execute (Braun, 2018; Lee-Kelley and Turner, 2017; Lee-Kelley et al., 2014).

Some literature focuses on culture rather than structure (Gomo et al., 2021). At the heart of culture is effective four-way stakeholder communication; horizontal, vertical up, vertical down, and external (Ershadi et al., 2021), however, communication can be challenging due to dispersed multicultural teams and technical complexity (Martinez Sanz and Ortiz-Marcos, 2020).

A relationship between communication and gender emerges (Fesenko and Fesenko, 2017). Fesenko et al. (2017) advocate the transition to a gender-orientated PMO (GPMO), with gender audits and integrated perspective, for example, consideration of meeting locations and time which may impact women. Feminine orientation may also achieve increased PMO acceptance due to alignment with adopters (Lavoie-Tremblay et al., 2017). PMOs may further enhance adoption via 3-dimensional PMO governance (3DPMO), focusing on areas of strategy, resources, and knowledge (Cocchiara et al., 2024). Activities associated with this may include measuring maturity of stakeholder relationships (Fesenko and Fesenko, 2017), for example, capitalising on customer opinions and responses (Ershadi et al., 2019; Sokhanvar et al., 2014).

Knowledge Management and Transfer

Uncertainty in projects derives from a lack of knowledge (Kuchta et al., 2023), and PMOs play a strategic role in managing such uncertainty (Jerbrant, 2014). While they do this by incorporating knowledge into overall portfolio risk (Zaidouni et al., 2024), literature is split on what the PMO role beyond this is.

PMO role depends somewhat on whether it is temporary or permanent (Pensel and Soderlund, 2024). Temporarily, Klag and Richer (2016) point to an information-centric PMO acting as an information brokerage during unprecedented transformations. On a permanent basis, they may be deployed to plug knowledge flow gaps between operation and strategy (Hadi et al., 2022). Terminology in literature is inconsistent, for example, Gomo et al. (2021) use the term ‘moderator,’ whilst Tshuma et al. (2024) say ‘facilitator’ or ‘supporter’ of KT. However, the ability to classify knowledge into assets and render this efficiently is a consistent message (Le Dinh et al., 2016).

Tacit vs explicit knowledge debate emerges from literature. Explicit knowledge may be elicited in a straightforward manner; however, tacit knowledge is challenging to both elicit from project contributors (De Nadae et al., 2015; Dutton et al., 2014), and diffuse amongst employees (Tshuma et al., 2020). Jerbrant (2014) suggests this may be due to high amounts of informal, non-codified communications. Such knowledge requires strong PMO

interpretability capability (Zaidouni et al., 2024), and articulate dissemination to ensure usability (Tshuma et al., 2022). One way of achieving the latter is via storytelling; an inexpensive mechanism for managing knowledge (Shamizanjani and Farzaneh, 2014). Literature emphasises the importance of KT infrastructure. This consists of people, tools, routines, and systems (Tshuma et al., 2018). Elaborating on systems, Jhamba and Steyn (2021) refer to the PMO-operated Document Management System (DMS). They state this must be integrated into practices, simple, and responsive. While this may be referred to as a Knowledge Management System (KMS) (Le Dinh et al., 2016) or data warehouse (Liu., 2019), both are based upon KT processes of create, store, share, and apply (Tshuma et al., 2018). Organisational culture emerges as a factor in system embracement (De Nadae et al., 2015). Culture, alongside creation of awareness and importance, and trust, make up the 3 KT enablers (Tshuma et al., 2024). For example, Tshuma et al., (2020) refers to KT culture created via an IT tool to report lessons learned, albeit with data security risks (Jhamba and Steyn, 2021).

FUTURE RESEARCH AGENDA

PMO Implementation and Maturity

Despite advances, PMO PMM remains a research gap (Pirotti et al., 2022), requiring longitudinal studies (Paton and Andrew, 2019) to understand the relationship between infrastructure and maturity (Arbabi et al., 2020). Future research may explore capabilities of mature, high-performing PMOs in complex cases (Ershadi et al., 2023), such as public sector, national-level PMOs (Gasik, 2016).

Governance and Stakeholder Management

Future research may explore knowledge governance mechanisms in the Agile context (Cocchiara et al., 2024; Sithambaram et al., 2021). Studies may identify strategies to reduce siloes amongst intra-organisational PMOs (Ershadi et al., 2021) and assess the effectiveness of CoPs and NAOs on knowledge exchange in inter-organisational projects (Lee-Kelley et al., 2014; Wiewiora et al., 2020). Furthermore, the works of Fesenko et al. (2021) may be built upon by exploring the interplay of gender further.

Knowledge Management and Transfer

Future research may explore user perceptions of PMOs, for example, whether they are perceived as moderators, facilitators, or supporters (Tshuma et al., 2024; Gomo et al., 2021). Studies may explore usability of knowledge assets (Le Dinh et al., 2016), and embracement of KMS/DMS systems (Jhamba and Steyn, 2021). Furthermore, they may consider factors impacting willingness of PM staff to share knowledge beyond those known (De Nadae et al., 2015).

CONCLUSION

This systematic literature review provides a comprehensive synthesis of the current body of research on the role of PMOs in KM/T. The analysis reveals the widely spread and fragmented nature of this research domain, highlighting key themes such as PMO implementation and maturity, governance and stakeholder management, and knowledge management processes. The findings emphasise the strategic importance of PMOs in facilitating knowledge flow and managing project uncertainty, positioning them as significant contributors to PBO success. This review contributes to the research area by identifying gaps in the literature and proposing future research directions that address the evolving role of PMOs in diverse organisational contexts. Notably, the review underscores the need for a more integrated approach to PMO knowledge management, advocating for enhanced maturity models and improved governance mechanisms that bridge knowledge silos and foster cross-functional collaboration.

Despite the comprehensive nature of this review, several limitations are acknowledged. The review was restricted to English-language articles published between 2014 and 2024, which

may have excluded relevant studies outside this scope. Additionally, the focus on peer-reviewed journal articles could overlook practical insights from wider literature, including industry reports and conference proceedings. Future research may consider broadening the search criteria to include a wider range of sources and languages, thereby providing a more holistic view of the PMO's role in knowledge management across different sectors and regions. Moreover, the review's reliance on certain databases may limit the diversity of perspectives, suggesting the need for a more expansive database selection in subsequent studies.

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Conflict of Interest Statement

No conflict of interest has been declared by the authors.