



Agile Leadership in the Public Sector and Governance: A Systematic Literature Review with Synthesis and Meta-Analysis

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Abstract

Public sector organizations are increasingly expected to respond to complex and rapidly changing governance challenges while maintaining accountability, transparency, and public trust. Although agile leadership has received growing attention in public administration, existing studies remain fragmented across different concepts, governance levels, and methodological approaches, leaving limited evidence regarding its overall effectiveness and conceptual boundaries. This study therefore aims to synthesize and critically evaluate the existing evidence on agile leadership in the public sector through a systematic literature review and meta-analysis. Following the PRISMA 2020 guidelines, this study reviewed 47 peer-reviewed articles published between 2010 and 2024. The evidence was analyzed using thematic synthesis and a random-effects meta-analysis. The thematic synthesis identified three major themes: digital transformation and e-leadership, cultural and institutional resistance, and organizational outcomes. The meta-analysis demonstrated a moderate positive overall effect of agile leadership on organizational outcomes ($\beta = 0.49$, 95% CI [0.38, 0.61], $p < 0.01$), with particularly strong associations for organizational trust ($\beta = 0.93$) and organizational performance. The findings indicate that agile leadership functions as a multilevel organizational capability whose effectiveness depends on organizational readiness, institutional context, and governance arrangements. By integrating thematic synthesis with meta-analysis, this study extends previous reviews by providing a more comprehensive and evidence-based understanding of agile leadership in public administration. The findings offer theoretical guidance for future agile leadership research and practical implications for policymakers seeking to strengthen adaptive, innovative, and citizen-centered public sector leadership.

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INTRODUCTION

The accelerating pace of technological change, increasing citizen expectations, and the growing complexity of transboundary challenges, including pandemics, climate change, cybersecurity threats, and digital disruption, have fundamentally reshaped the environment in which public sector organizations operate (Mergel, 2024; Roy, 2024; OECD, 2023). Governments are increasingly expected to respond rapidly while maintaining transparency, accountability, and public trust (Pratolo et al., 2022). However, traditional hierarchical governance models rooted in Weberian bureaucracy, characterized by rigid procedural norms, centralized authority, and linear decision-making, are increasingly viewed as inadequate for addressing volatile, uncertain, complex, and ambiguous (VUCA) conditions (Tando, 2025; Tai & Awasthi, 2025). Public organizations therefore require leadership approaches that complement administrative stability with greater

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adaptability, responsiveness, and continuous organizational learning (Maharani, 2025; Rachmawati, 2025; Rifdan et al., 2024).

This challenge is closely aligned with the global sustainable development agenda. Strengthening adaptive, responsive, and accountable public institutions directly contributes to Sustainable Development Goal (SDG) 16, while accelerating digital innovation in government supports SDG 9 by fostering resilient institutions and technological advancement. Consequently, enhancing leadership capacity has become increasingly important not only for improving organizational performance but also for strengthening sustainable public governance.

Among the emerging approaches proposed to address these challenges, agile leadership has received growing scholarly and practical attention (Fischer & Neumann, 2024; Sary et al., 2024). Originating from the Agile Manifesto, agile leadership emphasizes adaptability, cross-functional collaboration, decentralized decision-making, continuous feedback, iterative learning, and a human-centered orientation (Beck et al., 2001). Although initially developed for software engineering, agile principles have progressively expanded into public administration, influencing organizational reform, project management, collaborative governance, digital transformation, and public service innovation (Mergel et al., 2021). Rather than replacing bureaucratic principles, agile leadership complements conventional administrative systems by enabling governments to become more adaptive while preserving legality, accountability, and procedural integrity.

The increasing relevance of agile leadership reflects broader changes in public governance (Hustad & Brogaard, 2026; Maulana et al., 2026; Maulidiyah et al., 2025; Silitonga, 2025). Contemporary governments face highly interconnected policy challenges that require collaboration across organizational, sectoral, and jurisdictional boundaries. Public health emergencies, climate adaptation, digital inequality, urban poverty, and cybersecurity threats demand coordinated action, continuous organizational learning, and timely policy adjustment based on implementation feedback (Mergel et al., 2021; Osborne, 2006; Tai & Awasthi, 2025). Consequently, public leaders are expected to mobilize multidisciplinary actors, facilitate organizational learning, and adapt strategies before complex problems escalate into systemic failures (Walker et al., 2024). While bureaucratic authority remains essential for ensuring accountability and legal certainty, it increasingly needs to be complemented by leadership capabilities that promote collaboration, experimentation, and adaptive decision-making (Baxter et al., 2023; Intaratat, 2021).

Reflecting these developments, agile principles and related approaches have increasingly appeared in public sector reform and digital transformation initiatives in several countries, including Germany, the United States, and South Korea (Intaratat, 2021; Neumann et al., 2024). Nevertheless, despite this growing momentum, previous studies consistently identify bureaucratic resistance, rigid organizational cultures, hierarchical structures, and accountability requirements as persistent barriers to agile implementation (Baxter et al., 2023; Intaratat, 2021). These findings indicate that the central challenge is no longer whether agility is desirable, but how agile leadership can be effectively institutionalized within public organizations without compromising democratic accountability or institutional legitimacy.

Agile leadership is not derived from a single theoretical tradition but represents an integrative leadership capability drawing upon Adaptive Leadership Theory, Transformational Leadership, Complexity Leadership Theory, New Public Governance (NPG), Dynamic Capabilities Theory, and the Agile Manifesto (Bass & Avolio, 1994; Beck et al., 2001; Heifetz, 1994; Osborne, 2006; Teece, 2007; Uhl-Bien et al., 2007). In this study, these perspectives are treated as complementary conceptual lenses rather than as separate theories to be independently tested. They were selected because, collectively, they capture key dimensions relevant to agile leadership in public organizations, including adaptation to uncertainty, transformational change, distributed and collaborative leadership, networked governance, organizational reconfiguration, and the principles of agility. Although these perspectives originate from different theoretical foundations, they converge in emphasizing leaders' ability to facilitate organizational adaptation, collaboration, distributed decision-making, continuous learning, and responsiveness under conditions of uncertainty. Accordingly, they serve as sensitizing concepts for interpreting the literature and organizing the thematic analysis rather than as an a priori causal model. Collectively, they provide the conceptual foundation for understanding agile leadership as an integrative capability that

enables governments to navigate increasingly complex governance environments (Mergel et al., 2021).

The principal theoretical perspectives used as conceptual lenses for understanding agile leadership are summarized in Table 1, which highlights their core assumptions and relevance to public sector organizations. Collectively, these complementary theories demonstrate that agile leadership extends beyond the application of agile project management techniques and instead represents a multidimensional capability that integrates strategic adaptability, collaborative governance, organizational learning, and citizen-oriented public service delivery.

Table 1. Theoretical Frameworks Underpinning Agile Leadership in the Public Sector.

Theory	Key Scholars	Core Tenets	Relevance to Public Sector
Adaptive Leadership Theory	(Heifetz, 1994)	Distinguish technical vs. adaptive challenges; mobilize stakeholders	Enables leaders to navigate wicked policy problems
Transformational Leadership	(Bass & Avolio, 1994)	Inspire vision, motivate change, build trust	Drives cultural transformation in bureaucracies
Complexity Leadership Theory	(Uhl-Bien et al., 2007)	Enable emergence, distributed leadership, networked systems	Applicable to multi-stakeholder governance
New Public Governance	(Osborne, 2006)	Co-production, networks, citizen centricity	Aligns with agile's iterative, user-centric approach
Dynamic Capabilities	(Teece, 2007)	Sensing, seizing, reconfiguring organizational assets	Explains agility as organizational competence
Agile Manifesto Principles	(Beck et al., 2001)	Iterative delivery, team autonomy, continuous improvement	Direct operational foundation for agile methods

Recent scholarship further conceptualizes agile leadership as a multilevel capability operating across projects, organizations, and governance systems rather than merely as a project management approach. Tai & Awasthi (2025) classify agile implementation into three interconnected levels: micro (project teams), meso (organizations), and macro (governance systems), while (Mergel et al., 2021) argue that successful agile transformation requires coordinated changes across organizational structures, leadership practices, and governance arrangements. This perspective suggests that agile leadership contributes not only to operational effectiveness but also to broader organizational and governance transformation.

The characteristics of agile leadership across these governance levels are presented in Table 2. Rather than functioning independently, the micro, meso, and macro dimensions reinforce one another, indicating that agile leadership should be understood as a systemic organizational capability rather than simply a collection of agile management practices.

Table 2. Multilevel Framework of Agile Leadership in Public Governance.

Level	Scope	Agile Leadership Practices	Examples	Key Challenges
Micro (Project)	Individual projects & teams	Scrum, Kanban, sprint cycles, daily standups	UK GDS digital teams; US USDS sprints	Accountability within fixed procurement cycles
Meso (Organizational)	Departments & agencies	Innovation labs, flat hierarchies, agile HR, OKRs	German digital agency; Singapore GovTech	Cultural inertia; middle-manager resistance
Macro (Governance)	Policy & regulatory systems	Agile policy-making, regulatory sandboxes, platform governance	South Korea agile government reform; EU digital regulation	Democratic accountability; legal rigidity

Digital transformation has become one of the principal drivers accelerating the adoption of agile leadership in public administration. The increasing use of artificial intelligence, cloud computing, big data analytics, and the Internet of Things (IoT) requires governments to shorten decision-making cycles, strengthen cross-functional collaboration, and continuously improve public services (López-Figueroa et al., 2025; Mergel et al., 2021; Tai & Awasthi, 2025). Previous studies consistently demonstrate that digital leadership positively influences organizational performance

and that this relationship is strengthened by strategic agility (AlNuaimi et al., 2022). These findings indicate that technological investments alone are insufficient; rather, agile leadership functions as a complementary organizational capability that enables governments to translate digital transformation into improved public value, organizational responsiveness, and citizen-centered service delivery.

Successful implementation of agile leadership nevertheless depends upon organizational readiness. Previous studies consistently identify political commitment, supportive organizational culture, leadership capability, institutional support, and digital infrastructure as critical enabling factors, whereas rigid hierarchies, legal constraints, organizational inertia, legacy systems, and middle-management resistance remain major barriers to agile transformation (Mergel et al., 2021; Tai & Awasthi, 2025; Backhaus & Vogel 2022; Fischer & Neumann, 2024). Accordingly, agile leadership should be viewed as an organizational transformation process rather than merely a leadership style.

A synthesis of the principal enabling factors and barriers identified across the reviewed studies is presented in Table 3. Overall, the evidence indicates that successful agile transformation requires integrated reforms involving leadership, organizational culture, governance arrangements, and digital capability enhancement rather than isolated managerial interventions.

Table 3. Enablers and Barriers to Agile Leadership Adoption in the Public Sector.

Category	Enablers	Barriers	Cited Sources
Political & Strategic	Senior leadership commitment; formal policy mandates; national agile strategies	Political short-termism; electoral cycles disrupting long-term agile programmes	(Mergel et al., 2021; Tai & Awasthi, 2025)
Cultural & Human	Growth mindset; psychological safety; agile training for civil servants	Cultural inertia; fear of losing control; professional identity threats for managers	Mergel (2024)
Structural & Institutional	Innovation labs; protected experimentation budgets; flat team structures	Rigid hierarchy; fixed procurement rules; siloed departments; legal accountability norms	Annosi et al. (2020); Fischer & Neumann (2024)
Technological	Modern digital infrastructure; cloud platforms; data analytics capabilities	Legacy IT systems; limited digital capabilities; data governance gaps	(AlNuaimi et al., 2022)
Managerial	Empowering mid-level managers; coaching leadership styles	Middle manager resistance; role ambiguity in agile team structures	Mergel (2024); Backhaus & Vogel (2022)

An expanding body of empirical research demonstrates that agile leadership is associated with positive organizational outcomes across multiple governance levels. Evidence from public sector cases examined in the reviewed literature indicates associations between agile leadership and improved team performance, policy innovation, organizational responsiveness, and citizen satisfaction when supported by appropriate organizational and institutional conditions (Barboza, 2023). At the micro level, studies primarily report improvements in operational performance and cross-functional collaboration, whereas meso-level studies emphasize organizational effectiveness, employee engagement, and innovation management. Meanwhile, macro-level research highlights broader governance outcomes, including citizen satisfaction, policy responsiveness, and crisis management capacity (Porkodi, 2024; Sazzad et al., 2021; Tai & Awasthi, 2025).

The principal empirical outcomes reported across governance levels are summarized in Table 4. Overall, the reviewed literature consistently suggests that agile leadership enhances organizational adaptability and public sector performance. However, these benefits remain highly dependent on organizational readiness, institutional context, and leadership capability, highlighting the need for a comprehensive synthesis that integrates both conceptual developments and empirical evidence.

Table 4. Reported Outcomes of Agile Leadership in the Public Sector by Governance Level.

Governance Level	Reported Outcome	Effect / Evidence	Source(s)
Micro	Faster project delivery; team performance	Sprint velocity +30–45% vs. waterfall	Tai and Awasthi, (2025)

Micro	Improved cross-functional collaboration	Qualitative evidence; 8 of 19 administrations adopted agile as governance	Neumann et al. (2024)
Meso	Organizational performance & effectiveness	$\beta = 0.90$ (meta-analysis)	Porkodi (2024)
Meso	interpersonal trust	$\beta = 0.93$ (meta-analysis)	Porkodi (2024)
Meso	Innovation management	$\beta = 0.81$ (meta-analysis)	Porkodi (2024)
Macro	Citizen satisfaction with public services	$\beta = 0.44$ (95% CI: 0.34–0.55)	Sazzad et al. (2021).
Macro	Policy innovation & responsiveness	Positive in 12/15 governance case studies	Mergel (2024); (Tai & Awasthi, 2025)
Crisis context	COVID-19 pandemic management effectiveness	Strong interdependence with PSI across 23 Asian countries	Sazzad et al. (2021)

Despite the growing body of research on agility in government, several important limitations remain. Existing studies predominantly examine agile government, agile governance, organizational agility, or digital transformation, while comparatively limited attention has been devoted to agile leadership as a distinct leadership construct within public administration. Consequently, its conceptual boundaries remain insufficiently defined, and empirical evidence continues to be fragmented across governance levels, organizational settings, and methodological approaches (Mergel et al., 2021; Tai & Awasthi, 2025). Although Tai and Awasthi (2025) provide a multilevel perspective on agile government across macro, meso, and micro levels, the present review focuses specifically on agile leadership as the leadership construct underlying adaptive practices in public sector organizations. In addition, this study integrates thematic synthesis with quantitative meta-analysis to examine how agile leadership is conceptualized, which factors are associated with its implementation, and which measurable organizational and governance outcomes have been reported. Although previous studies report positive impacts on innovation, organizational performance, service quality, and citizen satisfaction, these findings have not yet been comprehensively integrated around the specific construct of agile leadership through a systematic synthesis combining qualitative and quantitative evidence.

Accordingly, this study aims to synthesize and critically evaluate the existing body of knowledge on agile leadership in the public sector by clarifying its theoretical foundations, identifying the factors influencing its implementation, and assessing its reported organizational outcomes through a Systematic Literature Review (SLR), thematic synthesis, and meta-analysis. By integrating qualitative thematic synthesis with quantitative effect-size estimation, this study seeks to provide a more comprehensive understanding of agile leadership across different levels of public governance.

To achieve this objective, the study addresses the following research questions:

RQ1: How is agile leadership conceptualized in public sector and governance literature?

RQ2: What are the key enablers and barriers to agile leadership adoption in government?

RQ3: What measurable outcomes are associated with agile leadership in the public sector?

By answering these research questions, this study makes four main contributions. First, it provides a PRISMA-compliant systematic synthesis of agile leadership research in public administration, offering a transparent overview of the existing evidence. Second, it integrates thematic synthesis and meta-analysis, extending previous reviews that have largely relied on narrative or descriptive approaches. Third, it clarifies the conceptual boundaries of agile leadership by distinguishing it from related concepts, including agile government, agile governance, organizational agility, digital leadership, and adaptive governance. Finally, rather than introducing the micro-meso-macro structure as a new framework, this study uses and further organizes this multilevel perspective around the specific construct of agile leadership and the evidence synthesized across the reviewed studies, linking individual/team, organizational, and governance-level outcomes. This synthesis provides a basis for interpreting how agile leadership is discussed and associated with outcomes across different levels of public governance, while avoiding the assumption that these levels represent established causal pathways.

METHOD

This study employed a Systematic Literature Review (SLR) as the primary research design to comprehensively synthesize existing evidence on agile leadership in public sector and governance contexts. The review was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines to ensure a transparent and systematic process of study identification, screening, eligibility assessment, and inclusion (Page et al., 2021). To provide a comprehensive understanding of the topic, the review integrated thematic synthesis and meta-analysis. Thematic synthesis was used to identify, compare, and integrate recurring concepts, theoretical perspectives, implementation factors, and reported outcomes across the included studies, while meta-analysis was subsequently performed on studies reporting compatible quantitative data to estimate the overall magnitude of the relationships examined. The integration of qualitative and quantitative evidence enabled this study to provide both conceptual and empirical insights into agile leadership within contemporary public administration.

Search Strategy and Inclusion Criteria

A systematic literature search was conducted using Scopus, Web of Science, and Google Scholar. Scopus and Web of Science were selected because they provide extensive coverage of high-quality, peer-reviewed international journals across multidisciplinary fields, making them widely recognized as primary databases for evidence synthesis. Google Scholar was included as a complementary source to improve search sensitivity by identifying potentially relevant studies that may not be indexed in the two primary databases, thereby reducing the likelihood of publication omission.

The search strategy employed predefined Boolean search strings combining leadership- and governance-related keywords: ("agile leadership" OR "agile management" OR "strategic agility") AND ("public sector" OR "government" OR "governance" OR "public administration"). The search was limited to peer-reviewed journal articles published in English between January 2010 and December 2024, reflecting the period during which agile leadership began to receive increasing attention within public administration research. The predefined inclusion and exclusion criteria used during the screening process are summarized in Table 5.

Table 5. Inclusion and Exclusion Criteria for Study Selection.

Criterion	Inclusion	Exclusion
Publication type	Peer-reviewed journal articles	Conference papers, book chapters, grey literature
Language	English	Non-English publications
Sector focus	Public sector, government, or governance	Exclusively private sector or NGO focus
Content focus	Agile leadership dimensions in government	General agile methods without leadership dimension
Date range	January 2010 – December 2024	Pre-2010 publications
Availability	Full text accessible	Abstract-only or paywalled without institutional access

PRISMA Flow and Study Selection

The study selection process followed the PRISMA 2020 framework to ensure a transparent, systematic, and reproducible identification and screening of relevant literature (Page et al., 2021). After the database search was completed, all retrieved records were imported into the review database and screened for duplicate entries before proceeding to title, abstract, and full-text assessment. The predefined inclusion and exclusion criteria presented in Table 5 were applied consistently throughout the selection process to ensure that only studies directly addressing agile leadership within public sector, government, or governance contexts were retained for further analysis.

The complete study selection process is illustrated in Figure 1. The initial database search identified 1,243 records across Scopus, Web of Science, and Google Scholar. Following duplicate removal ($n = 312$), 931 records remained for title and abstract screening. Subsequently, 184 articles underwent full-text eligibility assessment, of which 47 studies satisfied all inclusion criteria and were included in the systematic review. Among these, 18 studies reported compatible quantitative data and were therefore included in the meta-analysis. The principal reasons for exclusion during the eligibility assessment were insufficient focus on agile leadership ($n = 67$), an exclusive private-sector focus ($n = 43$), and unavailable full-text access ($n = 27$). To enhance the reliability of the study selection process, article screening was independently conducted by two reviewers, resulting in a Cohen's κ coefficient of 0.82, indicating strong inter-rater agreement.

Figure 1. PRISMA 2020 Flow Diagram. Records identified across Scopus, Web of Science, and Google Scholar (2010–2024). Final sample: $n = 47$ studies included in the systematic review; $n = 18$ studies included in the meta-analysis. Figure 1 provides a visual summary of the identification, screening, eligibility, and inclusion stages, enabling readers to trace the study selection process from the initial search to the final analytical sample. The consistency between the PRISMA flow diagram and the reported number of studies also strengthens the transparency and reproducibility of the review process.

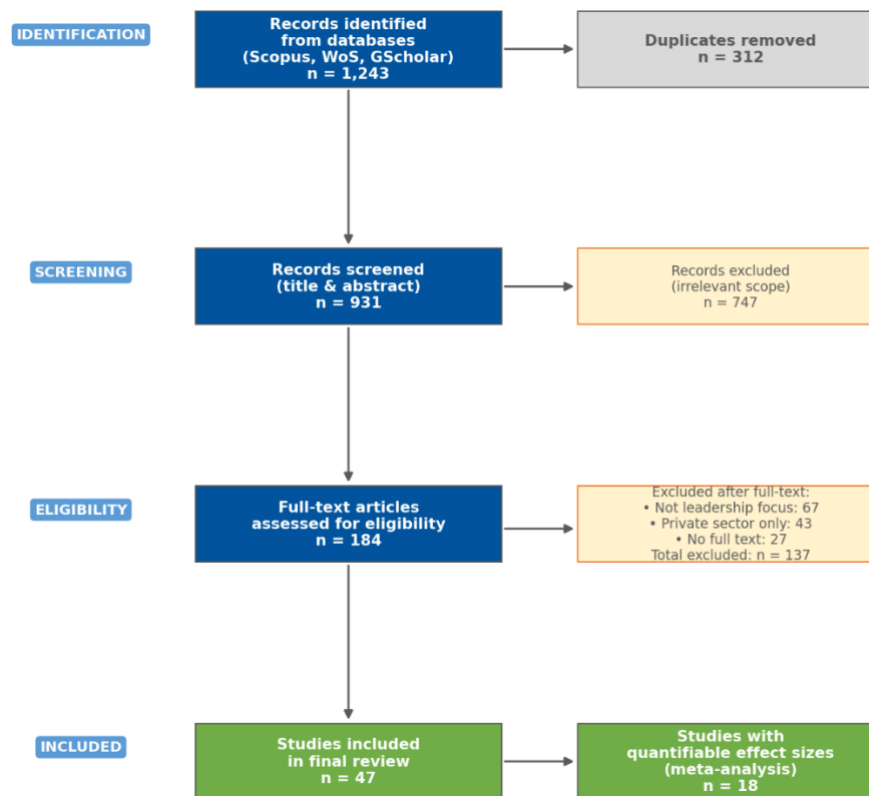


Figure 1. PRISMA 2020 Flow Diagram. Records identified across Scopus, Web of Science, and Google Scholar (2010–2024). Final sample: $n = 47$ articles; meta-analysis subset: $n = 18$ articles.

Data Extraction and Coding

Following the study selection process, data were systematically extracted from each of the 47 included articles using a standardized data extraction framework to ensure consistency throughout the review. The extracted information comprised publication characteristics (author, year, and publication source), study context (country and public sector setting), research design, theoretical foundations, agile leadership dimensions, implementation factors, reported organizational outcomes, and quantitative findings relevant to the meta-analysis where available. This standardized extraction process facilitated both qualitative comparison across studies and the identification of studies suitable for quantitative synthesis.

Subsequently, the extracted data were subjected to an iterative coding process to support the thematic synthesis. Studies were coded according to their principal focus, including conceptualization of agile leadership, enabling factors, implementation barriers, governance level (micro, meso, or macro), and reported organizational outcomes. During the coding process, conceptually similar findings were grouped into broader analytical categories through constant comparison across the included studies, allowing common themes and patterns to emerge while preserving contextual differences among individual studies. The coded dataset subsequently served as the basis for the thematic synthesis, whereas studies reporting compatible quantitative effect measures were retained for the meta-analysis.

Thematic Synthesis

The thematic synthesis was conducted to identify, integrate, and interpret recurring patterns across the included studies. Building upon the coded dataset, conceptually related codes were iteratively organized into broader analytical themes through constant comparison across studies.

This process enabled the synthesis of diverse evidence while preserving variations in research context and methodological approach. The resulting themes formed the basis for explaining the theoretical foundations of agile leadership, its multilevel implementation in public sector organizations, the principal enabling factors and implementation barriers, and the organizational outcomes associated with agile leadership. These synthesized themes subsequently informed the qualitative interpretation presented in the Results and Discussion sections and provided the conceptual framework for integrating the findings from the meta-analysis.

RESULTS AND DISCUSSION

Synthesis Analysis

The synthesis analysis mapped thematic clusters across all 47 included studies using the thematic domains defined in the methodological analysis. The analysis identified three overarching thematic domains: (1) digital transformation and agile leadership/e-leadership; (2) cultural and institutional conditions and implementation barriers; and (3) organizational and governance outcomes. These domains provided the analytical foundation for interpreting the qualitative evidence and subsequently guided the integration of findings with the quantitative meta-analysis.

The temporal distribution of the included studies is presented in Figure 2, which illustrates the evolution of scholarly interest in agile leadership within public sector and governance contexts. As shown in the figure, publication output remained relatively limited during the early years of the review period but increased substantially after 2018, with the highest concentration of studies occurring between 2020 and 2024. This increase in publication activity coincides with the period of accelerated government digital transformation and organizational adaptation during and following the COVID-19 pandemic. The pattern therefore indicates increasing scholarly attention to agile leadership in the context of changing public governance challenges.

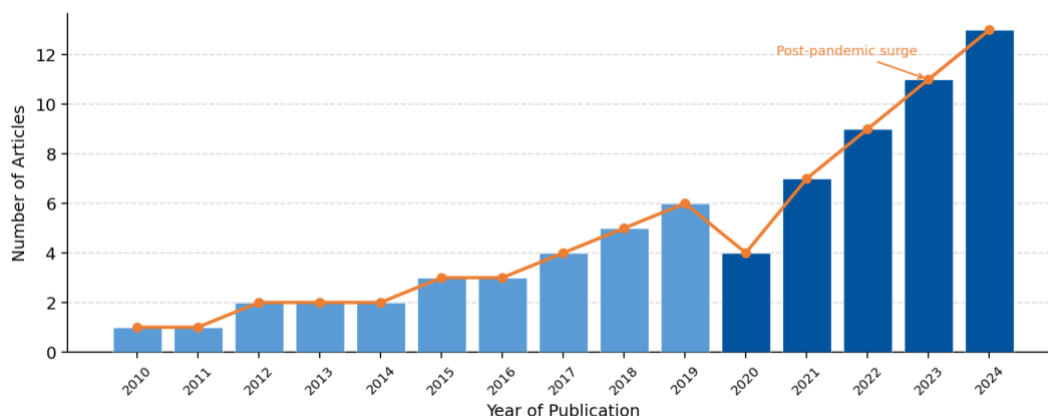


Figure 2. Annual publication trend of agile leadership in public sector literature (2010–2024; n = 47). Lighter bars = pre-pandemic; darker bars = pandemic/post-pandemic period.

Beyond publication trends, the conceptual relationships among the reviewed studies are illustrated in Figure 3, which presents the bibliometric thematic cluster map based on keyword co-occurrence analysis. The visualization highlights three closely interconnected thematic domains: digital transformation and agile leadership/e-leadership, cultural and institutional factors, and organizational and governance outcomes. The frequent co-occurrence of these themes indicates that the reviewed literature commonly examines agile leadership in relation to technological transformation, organizational and institutional conditions, and broader organizational or governance outcomes. These clusters therefore provide a descriptive representation of the thematic structure of the reviewed literature rather than evidence of temporal or causal relationships among the themes.

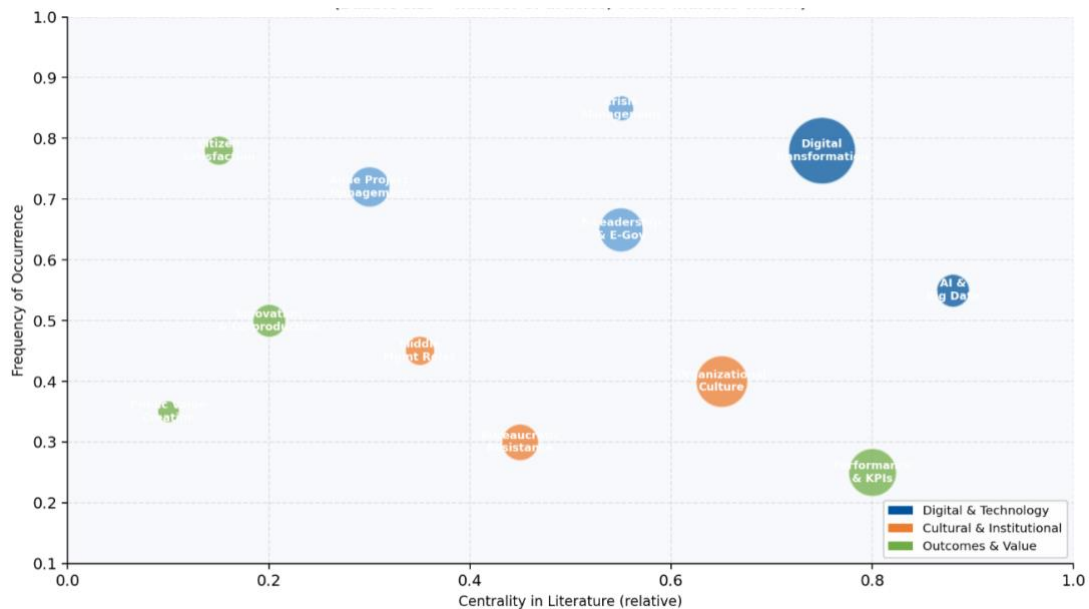


Figure 3. Bibliometric thematic cluster map. Bubble size proportional to number of articles per theme; colours denote thematic domain: blue = digital & technology, orange = cultural & institutional, green = outcomes & value.

Taken together, the thematic synthesis indicates that agile leadership should be understood as a multidimensional organizational capability rather than merely a project management approach. The recurring relationships identified across the thematic clusters further suggest that leadership effectiveness is influenced not only by agile practices themselves but also by the institutional and organizational environments in which they are implemented. Building upon these qualitative findings, the subsequent meta-analysis quantifies the strength of the relationships between agile leadership and reported organizational outcomes across the eligible empirical studies.

Meta-Analysis

Among the 47 studies included in the systematic review, 18 reported compatible quantitative effect sizes, including correlation coefficients and standardized regression coefficients, and were therefore eligible for quantitative synthesis. Because correlation coefficients and standardized regression coefficients do not represent identical statistical quantities, the quantitative synthesis required an explicit effect-size harmonization procedure before pooling. The conversion procedure, including the formulas, assumptions, treatment of effect signs, standard errors or variances, and the handling of adjusted and unadjusted coefficients, is reported in the methodological description and supplementary material. A random-effects meta-analysis was performed using the DerSimonian-Laird estimator, with the choice of estimator reflecting the expectation that the underlying effects may vary across organizational and governance contexts. Where alternative estimators were used for sensitivity analysis, their results are reported separately. All reported effect sizes were transformed into a common standardized metric (β) according to the specified conversion procedure rather than being treated as directly equivalent measures.

Between-study heterogeneity was assessed using Cochran's Q test and the I^2 statistic, with τ^2 additionally reported to quantify the estimated between-study variance. Potential publication bias was examined through Egger's regression test ($p = 0.14$, non-significant) and, where available, visual inspection of the funnel plot. Given the limited number of studies contributing to several outcome domains, the non-significant Egger test was interpreted cautiously because statistical power to detect asymmetry may be limited in small samples. To explore potential sources of variation, subgroup analyses were conducted according to governance level (micro, meso, and macro) and geographical context. The corresponding subgroup estimates, within-group heterogeneity, numbers of contributing studies, and tests of differences between subgroups are reported separately where these analyses were conducted.

Table 6 summarizes the pooled effect sizes obtained from the random-effects meta-analysis across the principal organizational outcome domains examined in the eligible studies. The table provides the number of contributing effect sizes (k), pooled standardized effect sizes (β), confidence intervals, significance levels, and heterogeneity estimates for each outcome, thereby offering an integrated quantitative assessment of the associations between agile leadership and organizational outcomes across public sector contexts.

Table 6. Summary of Meta-Analytic Evidence: Agile Leadership and Organizational Outcomes.

Outcome Variable	k (studies)	β (pooled)	95% CI	p-value	I^2 (%)
Trust	8	0.93	[0.88–0.98]	<0.001	42%
Org. Performance & Effectiveness	12	0.90	[0.84–0.96]	<0.001	51%
Career Success	6	0.89	[0.83–0.95]	<0.001	38%
Innovation Management	9	0.81	[0.74–0.88]	<0.001	55%
Operational Outcomes	14	0.58	[0.51–0.66]	<0.01	62%
Employee Outcomes	16	0.48	[0.38–0.59]	<0.01	68%
Citizen Satisfaction	7	0.44	[0.34–0.55]	<0.01	71%
Policy Innovation	5	0.38	[0.28–0.49]	<0.05	76%
Overall (pooled)	18	0.49	[0.38–0.61]	<0.01	68%

Note: k = number of effect sizes contributing to the respective pooled estimate; β = standardized effect size; I^2 = heterogeneity statistic; τ^2 = estimated between-study variance; random-effects model (DerSimonian-Laird).

As presented in Table 6, the overall pooled effect of agile leadership on organizational outcomes was moderate and statistically significant ($\beta = 0.49$; 95% CI: 0.38–0.61; $p < 0.01$), indicating a positive overall association between agile leadership and the organizational outcomes represented in the quantitative synthesis. Nevertheless, the magnitude of the observed effects varied across outcome domains. The strongest pooled effects were found for trust ($\beta = 0.93$), organizational performance and effectiveness ($\beta = 0.90$), career success ($\beta = 0.89$), and innovation management ($\beta = 0.81$), showing the strongest pooled associations with these outcome domains rather than demonstrating causal influence. These findings are consistent with previous studies emphasizing that agile leadership primarily strengthens organizational learning, employee empowerment, and adaptive organizational performance before generating broader governance outcomes (Barboza, 2023; Mergel et al., 2021).

Conversely, relatively smaller (although still statistically significant) effect sizes were observed for citizen satisfaction ($\beta = 0.44$) and policy innovation ($\beta = 0.38$). These comparatively lower effects are consistent with previous literature suggesting that governance-level outcomes depend on a broader combination of institutional, political, and regulatory factors beyond leadership alone (Sazzad et al., 2021; Tai & Awasthi, 2025). Consequently, the findings suggest that agile leadership is positively associated with strategic governance outcomes, while the magnitude of these associations may vary according to organizational readiness, policy environments, inter-organizational collaboration, and institutional capacity.

The meta-analytic findings complement the thematic synthesis presented in the previous section. The qualitative evidence consistently identified organizational adaptability, collaborative culture, leadership commitment, and digital capability as the principal enabling conditions for agile leadership implementation. The quantitative synthesis provides complementary evidence of positive associations across organizational outcome domains, while the variation in pooled effect sizes indicates that these associations are not uniform across outcomes. Likewise, the comparatively smaller effects observed at the governance level can be interpreted alongside the thematic evidence identifying institutional rigidity, bureaucratic complexity, and legal accountability requirements as persistent constraints on agile transformation.

The overall heterogeneity was substantial ($I^2 = 68\%$), indicating that variation among the included studies exceeded what would be expected from sampling error alone. Cochran's Q , its degrees of freedom and p-value, τ^2 , and the prediction interval for the overall effect should also be reported to provide a more complete assessment of between-study variability. This heterogeneity is likely attributable to several methodological and contextual differences across the reviewed studies. First, agile leadership was conceptualized and operationalized using different theoretical perspectives and measurement instruments. Second, studies were conducted across diverse governance settings, including project teams, government agencies, and national governance

systems operating under different administrative traditions. Third, variations in organizational digital maturity, bureaucratic culture, institutional arrangements, and public sector reform contexts may have influenced the magnitude of reported effects. Finally, differences in research design, outcome indicators, and analytical approaches further contributed to variability across studies. These findings support the use of a random-effects model, which assumes that true effect sizes legitimately differ across organizational and governance contexts rather than representing a single common population effect.

The forest plot presented in Figure 4 further illustrates the distribution of pooled effect sizes and their corresponding confidence intervals across the analyzed outcome domains. Because Figure 4 presents pooled outcome domains rather than individual study estimates, a study-level forest plot should also be provided, at least as supplementary material, to allow readers to assess between-study variability and the contribution of individual studies. Although variability among studies is evident, the confidence intervals consistently indicate positive associations between agile leadership and organizational outcomes, which should be interpreted in light of the substantial heterogeneity and the dependence among multiple effect estimates where the same studies contributed to more than one outcome domain.

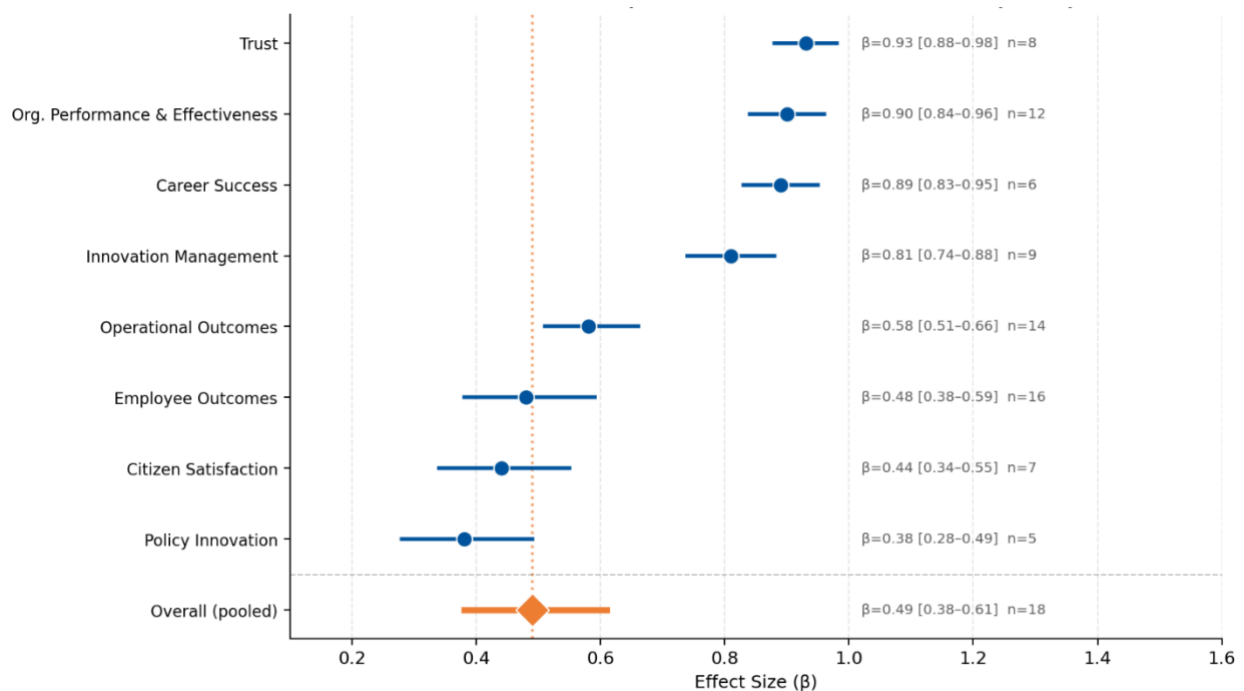


Figure 4. Forest plot of meta-analytic results. Effect sizes (β) with 95% confidence intervals for each outcome domain. Diamond (◆) represents the pooled overall effect ($\beta = 0.49$). Random-effects model; $k = 18$ contributing studies.

Discussion: Three Thematic Clusters

The thematic synthesis identified three closely interconnected clusters that collectively explain how agile leadership is conceptualized, implemented, and translated into organizational outcomes within public sector organizations. Rather than representing independent themes, these clusters illustrate an interpretive framework in which digital transformation creates new leadership demands, while organizational and institutional conditions shape how agile leadership is implemented and associated with organizational and governance outcomes. This relationship is presented as a synthesized conceptual interpretation rather than as an established temporal or causal sequence.

Cluster 1. Digital transformation and e-leadership.

The synthesis demonstrates that agile leadership is most frequently operationalized through public sector digital transformation initiatives, where leadership extends beyond technology adoption toward enabling organizational adaptability and continuous learning. Across the reviewed studies, leaders who combine digital competencies with agile leadership behaviours (including

cross-functional collaboration, iterative decision-making, and responsiveness to stakeholder feedback) are consistently identified as key drivers of successful public sector transformation (Barboza, 2023; Khan et al., 2025). This finding reinforces previous research suggesting that digital technologies alone rarely improve public sector performance unless accompanied by leadership practices that encourage organizational learning, employee empowerment, and adaptive decision-making. Accordingly, agile leadership should be understood not simply as digital leadership, but as a broader organizational capability that enables governments to transform technological investments into more responsive and citizen-centered public services.

Cluster 2. Cultural and institutional resistance.

Despite increasing governmental commitment to agile transformation, the synthesis consistently identifies institutional and cultural barriers as the principal constraints on implementation. Bureaucratic hierarchy, formal accountability requirements, rigid administrative procedures, and organizational inertia frequently limit the diffusion of agile practices beyond pilot projects and innovation units. A particularly consistent finding concerns the role of middle managers, who often experience tension between traditional supervisory responsibilities and the decentralized decision-making expected within agile environments (Mergel et al., 2021). Rather than reflecting resistance to innovation itself, this tension illustrates the institutional complexity of introducing agile leadership into organizations where legal accountability, procedural compliance, and administrative stability remain fundamental organizational values. These findings therefore suggest that successful agile transformation depends less on introducing agile tools than on aligning leadership practices with organizational structures, institutional incentives, and bureaucratic governance arrangements.

Cluster 3. Organizational and governance outcomes.

The reviewed literature consistently reports positive organizational outcomes associated with agile leadership; however, the strength and consistency of these outcomes vary considerably across governance contexts. Most available evidence originates from qualitative case studies conducted in Anglo-American public administration settings. The characteristics of the 47 included studies should therefore be reported descriptively in a study-characteristics table, including country or region, study design, sample, governance level, and major variables or outcomes, to make the geographical and methodological distribution of the evidence transparent. While longitudinal and large-scale quantitative investigations remain comparatively limited, existing studies generally conclude that agile leadership is associated with improved organizational responsiveness, innovation, collaboration, and service delivery, although the available empirical evidence remains uneven across governance levels and geographical contexts. This observation is consistent with the quantitative synthesis presented in the meta-analysis, which identified positive but context-dependent associations across different organizational outcomes. Together, these findings indicate that agile leadership should not be regarded as a universally applicable management solution but rather as a context-sensitive leadership capability whose observed associations with organizational and governance outcomes may depend on institutional readiness, organizational capacity, and governance environment.

Discussion: Meta Analytic Findings

The quantitative synthesis demonstrates that agile leadership is associated with a moderate overall positive effect on organizational outcomes ($\beta = 0.49$), although the magnitude of this relationship varies considerably across governance contexts and outcome domains. Consistent with the thematic synthesis, the strongest effects were observed for organizational-level outcomes (including trust, organizational performance, innovation management, and career success) where agile leadership directly influences internal organizational processes and employee interactions. By contrast, governance-level outcomes such as policy innovation and citizen satisfaction exhibited comparatively smaller effect sizes, indicating that broader public governance performance is shaped by multiple institutional, political, and regulatory factors beyond leadership alone.

The observed pattern reinforces the qualitative evidence synthesized from the reviewed studies. Organizational adaptability, collaborative culture, leadership commitment, and digital

capability emerged as recurring enabling conditions across the thematic synthesis, while institutional rigidity, hierarchical governance, and accountability requirements were consistently identified as implementation barriers. Together, these findings suggest that agile leadership generates its strongest impact when organizational conditions support experimentation, distributed decision-making, and continuous learning. Conversely, its influence becomes more constrained as organizational outcomes become increasingly dependent on external governance arrangements and institutional environments.

The substantial heterogeneity identified across the meta-analysis ($I^2 = 68\%$) further supports this interpretation. Rather than indicating inconsistency in the effectiveness of agile leadership, the observed heterogeneity reflects the diversity of public sector contexts represented in the reviewed studies. Variations in administrative systems, organizational digital maturity, bureaucratic culture, governance level, measurement approaches, and research designs are all likely to contribute to differences in reported effect sizes. Accordingly, the findings should be interpreted as representing context-dependent relationships rather than universally applicable organizational effects, thereby reinforcing the importance of adopting a contingency perspective when examining agile leadership in public administration.

Discussion: Synthesized Multilevel Framework

The integration of the thematic synthesis and meta-analysis culminates in the multilevel framework presented in Figure 5, which illustrates how agile leadership operates simultaneously across the micro, meso, and macro levels of public governance. Rather than functioning as independent organizational domains, these three levels are closely interconnected, with the framework proposing that leadership practices at the project level are associated with organizational transformation, while organizational capabilities are linked to broader governance adaptability. These relationships are presented as synthesized and theoretically proposed relationships rather than established causal pathways.

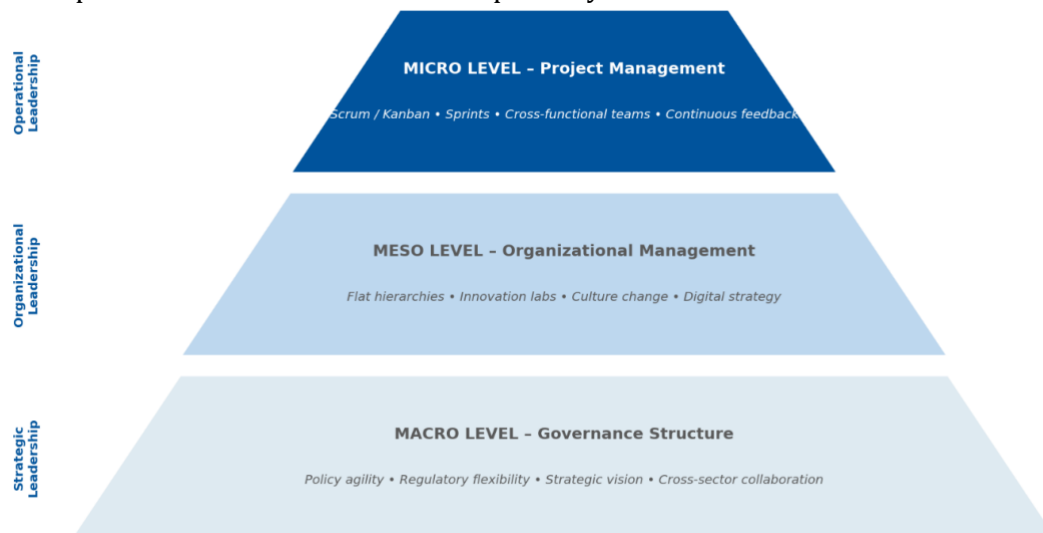


Figure 5. Multilevel framework of agile leadership in public governance. The three levels—macro (governance structure), meso (organizational management), and micro (project management)—represent nested contexts requiring distinct but complementary leadership agility competencies.

As illustrated in Figure 5, effective agile leadership is not determined solely by individual leadership behaviours or the adoption of agile management techniques. Instead, the synthesis suggests that agile leadership is associated with the interaction between leadership practices, organizational capabilities, and institutional conditions across multiple governance levels. The framework therefore integrates the qualitative evidence identifying key enabling conditions (such as collaboration, organizational learning, distributed decision-making, and digital capability) with the quantitative findings demonstrating that the magnitude of agile leadership outcomes varies across different organizational contexts.

The framework also provides a synthesized interpretation of the variation observed in the meta-analysis. Larger effect sizes were generally associated with organizational outcomes that are more directly influenced by internal leadership practices, whereas governance-level outcomes

were comparatively smaller because they are shaped by broader political, institutional, and regulatory environments. This pattern is interpreted as suggesting that the observed effectiveness of agile leadership may depend not only on leadership capability itself but also on the organizational and governance contexts within which leadership is enacted.

Overall, the synthesized framework indicates that agile leadership should be understood as a systemic organizational capability rather than merely a project management approach. By integrating evidence across different governance levels, Figure 5 provides a comprehensive representation of the proposed relationships among leadership adaptability, organizational learning, collaborative governance, and institutional readiness in shaping public sector performance under conditions of uncertainty.

Theoretical and Practical Implications

The findings of this study provide several implications for agile leadership scholarship in the public sector. By integrating evidence from thematic synthesis and meta-analysis, this review positions agile leadership as a multilevel organizational capability operating across project (micro), organizational (meso), and governance (macro) contexts rather than merely as an individual leadership style or a set of agile management practices. The synthesized framework developed in this study offers a conceptual foundation for future empirical research examining how organizational readiness, institutional context, and governance arrangements interact to influence agile leadership effectiveness across different public administration settings.

From a practical perspective, the findings suggest that governments should approach agile transformation as a comprehensive organizational change process rather than focusing solely on the adoption of agile tools or digital technologies. The thematic synthesis indicates that agile leadership is shaped not only by leadership behaviours but also by organizational readiness, learning processes, and institutional and governance conditions. Accordingly, the findings support a set of complementary practical priorities: leadership development can strengthen the leadership capabilities required for agile ways of working; organizational learning can support continuous adaptation and knowledge sharing; middle-management capacity can help translate agile leadership principles into organizational practices; and supportive governance arrangements can provide the institutional conditions necessary for adaptation while maintaining public accountability. These implications indicate that investments in digital transformation should be accompanied by attention to the organizational and institutional conditions identified in the synthesis, particularly collaboration, continuous learning, and evidence-based decision-making, rather than being pursued as technology adoption alone.

LIMITATION

This study has several limitations. The review was limited to English-language publications, which may have excluded relevant studies from other linguistic and governance contexts. The quantitative synthesis was also based on a limited number of eligible studies, making the findings less generalizable. In addition, differences in methods, measurements, and institutional settings across the reviewed studies make direct comparison challenging. Studies from Global South contexts also remain under-represented, limiting the contextual diversity of the evidence. The interpretation of the quantitative findings is also subject to methodological considerations, including the study-quality appraisal, the harmonization of effect sizes derived from different statistical measures, and the potential dependence among multiple effect estimates contributed by the same studies. In addition, the use of Google Scholar as one of the search sources may limit the reproducibility of the search process because its indexing and retrieval results may vary over time. The search was also conducted up to 2024, meaning that studies published after the search cutoff were not included and may provide additional evidence that could affect the synthesis. Although publication bias was not statistically indicated, it cannot be fully ruled out.

CONCLUSION

This study employed a systematic literature review integrated with thematic synthesis and meta-analysis to provide a comprehensive understanding of agile leadership within public sector

and governance contexts. The findings answer the three research questions by demonstrating that agile leadership is best conceptualized as a multilevel leadership capability operating across project, organizational, and governance levels; that its implementation is simultaneously enabled and constrained by organizational, institutional, technological, and political factors; and that it is generally associated with positive organizational outcomes, although the magnitude of these effects varies across governance contexts.

By integrating qualitative thematic synthesis with quantitative meta-analysis, this study extends previous reviews that have primarily relied on narrative evidence or focused on agile government more broadly. The combined analytical approach demonstrates that agile leadership should be understood not merely as a set of agile management practices but as an organizational capability whose effectiveness depends on the interaction between leadership behaviours, organizational readiness, and institutional context. These findings provide a stronger conceptual foundation for agile leadership research and evidence-informed guidance for leadership development, organizational transformation, and adaptive governance initiatives within the public sector.

The findings should nevertheless be interpreted in light of the study's limitations, particularly the relatively limited number of studies included in the meta-analysis, the substantial contextual heterogeneity across governance settings, and the underrepresentation of evidence from Global South countries. Accordingly, future research should prioritize longitudinal and comparative cross-national studies, expand empirical evidence from diverse governance contexts, and employ mixed-methods approaches to further examine how agile leadership evolves across different institutional environments and over time.

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