



Analysis of Trends, Methods, Challenges, and Future Research in Agile Governance

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Received 2 February 2025; Received in revised form 29 July 2025

Accepted 27 August 2025; Available online 29 December 2025

Abstract

Agile governance is essential for effective public service delivery. This study explores trends, methods, challenges, and future directions, contributing to academic discourse and addressing unresolved research questions. The research method was systematic literature review (SLR). Research findings indicated that trend analysis has identified 14 common thematic areas studied using the specified keyword. One of the most predominant trends is digital transformation, disaster management, urban society sustainability, and public health, which have been the focus of several studies conducted from 2020 to 2024. Meanwhile, in terms of methodology, qualitative methods are the most commonly used, accounting for 63 percent, while quantitative methods make up 37 percent. The study also identified several fundamental challenges in research, including the lack of capability among informants, samples that do not adequately represent the population, and the difficulty in determining success indicators for programs related to agile governance. For future research, the study utilized the VosViewer application with the Overlay Visualization feature, which highlights several keywords that could serve as potential research topics, such as community, knowledge, and capacity organization. Additionally, methods that have been less frequently used, such as grounded theory and qualitative approaches with interview-based data collection, were still considered relevant. The study also recommends using the SmartPLS software for managing and analyzing complex datasets in future empirical research. A notable limitation of this study is its exclusive reliance on the ScienceDirect database, which may restrict the comprehensiveness of the literature reviewed.

Keywords

Conventional online behavior, Natural Language Processing, Sentiment, Time lag, Trend

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DOI: 10.14456/tureview.2025.29

Introduction

The government's capacity to adapt and maintain resilience through agile governance is essential for effective public service delivery and for responding to evolving challenges and dynamic environments (Luna et al., 2014; Ohiwutun et al., 2023; Wasistiono & Anggraini, 2019). This concept emerged after the 21st century, when the world faced various crises due to the flow of globalization (Goldin & Vogel, 2010). For example, Singapore has implemented the concept of agile governance by successfully adapting the context from the United Kingdom (Elliott et al., 2024). As an official institution, the government must be able to provide public services to its citizens. Public services constitute a fundamental obligation of the state, encompassing both essential services provided to citizens and core administrative functions (Ferlie & Ongaro, 2022; Mutiarin et al., 2021). The transformation of public services is increasingly shifting toward agile governance, whether through the use of digitalization to enhance efficiency or direct community engagement (Steen et al., 2019). According to Mergel (2024) productivity plays a pivotal role in enhancing sustainable performance and delivering tangible solutions in the execution of governmental responsibilities. Integrated public service management not only addresses internal administrative challenges but also responds effectively to external pressures and societal demands (Carrubbo et al., 2024; Polese et al., 2018). The waves of administrative restructuring, privatization, deregulation, and decentralization frequently emerge as recurring issues in both developed and developing countries (Howlett & Ramesh, 2014). Additionally, economic collaborations between nations often pose challenges to sustainable development (Sacchetti & Borzaga, 2021).

Recent studies have highlighted several real-world challenges faced by countries across the globe. For instance, Tajima et al., (2023) identified disaster waste management as a critical issue in Japan, where both the central and local governments decided to prioritize disaster response mitigation despite facing significant opposition. Similarly, Jeleff et al., (2023) examined the implementation gap in local government initiatives, where responses from the central government have been minimal. This phenomenon has been observed in Austria, where local governments compete to secure a portion of priority policies targeted at regional development. Similarly, in China, urban land issues associated with private sector expansion have triggered conflicts with local communities. These tensions often emerge due to developments encroaching upon low-income neighborhoods, making land use a persistent and contentious concern (Yu et al., 2023). Furthermore, multi-stakeholder cooperation, which requires sustainable collaboration, often encounters challenges at the end of each program, particularly regarding accountability. This has been evident in Botswana, where climate change related drought has significantly influenced decision-making at various levels of government. A lack of resources, weak partnership capacities,

public interest concerns, and leadership challenges have remained unresolved for the past 30 years (Motsumi et al., 2023).

In light of these challenges, both local and central governments are expected to adopt agile governance approaches to effectively address internal and external pressures. This model is anticipated to support the continuity and responsiveness of public service delivery. Recent studies on agile governance have examined a range of dimensions, including urban land use for development purposes, highlighting the model's relevance across diverse policy areas (Adam et al., 2023; Halla et al., 2022; Siangulube et al., 2023; Zerbian et al., 2023), sustainable environmental governance and government resilience (Li et al., 2021; Ogunkan, 2022; Tang, 2021), government adaptation to COVID-19 (Janssen & van der Voort, 2020), risk management in state-owned enterprises (Buganová & Šimíčková, 2019), and government resilience in the face of VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) (Michalides et al., 2023).

Agile governance demands that policy implementers, particularly governmental institutions, demonstrate institutional agility by ensuring flexible regulations, adaptive bureaucratic structures, and other essential components. This adaptive capacity is expected to serve as a guiding framework within the field of public administration (Mergel et al., 2019) and reduce the administrative burdens faced by organizations (Moynihan et al., 2015). Additionally, agile governance is intended to serve as a stakeholder framework with a user-oriented approach, ultimately leading to more efficient and effective public services (Strokosch & Osborne, 2020; Tripp & Armstrong, 2018). It is not an exaggeration to say that this concept should be a key focus for all public administration scholars, as the adoption of agile governance is expected to become an integral part of the field. According to Neumann et al., (2024), agile governance functions as a work culture, a methodology, and a governance model. However, unlike private sector organizations, governments have never systematically observed the replication of agile governance within their operations.

On the other hand, although this concept has garnered significant interest from both practitioners and academics, research on agile governance remains limited (Mergel et al., 2021; Simonofski et al., 2018). To establish the originality of this study, a brief comparison with existing systematic reviews in related governance domains has been incorporated. Previous systematic reviews in the field of digital governance (Gil-Garcia et al., 2018), public sector innovation (De Vries et al., 2016), and adaptive governance (Chaffin et al., 2014) have primarily focused on conceptual frameworks or empirical implementation patterns.

A review of prior studies reveals the existence of a research gap that has not been adequately addressed in the existing literature. Specifically, there is no study that comprehensively discusses trends, methods, challenges, and future research in agile governance. Therefore,

it is important to conduct an exploratory study on agile governance, forming the primary focus of this research. This review contributes a unique perspective by combining a theoretical approach with emerging governance practices in complex and uncertain environments.

Various methodological approaches have been employed in previous studies, particularly those related to agile governance. According to De Vries et al., (2016) there may be only a few studies that empirically examine agile governance, despite the fact that, when understood comprehensively, agile governance is an innovative governance approach with great potential for addressing societal problems. Any organization that can adapt will be able to navigate the complexities of various challenges and enable both innovation and competitiveness (Meng et al., 2024; Neumann et al., 2024). Several studies have highlighted the diverse challenges encountered by governments in adapting to complex and rapidly changing environments. Consequently, further research is warranted to systematically review the literature and critically examine the phenomenon of agile governance. Additionally, because agile governance encompasses three fundamental aspects values, practices, and methodologies there is no standardized guideline, leading to frequent misinterpretations in its adoption (Baxter et al., 2023; Simonofski et al., 2018).

Accordingly, this study builds upon previous research that has predominantly employed qualitative approaches to address various contemporary issues intersecting with the context of agile governance. Given the absence of standardized guidelines in prior studies and the fragmented nature of earlier findings, this study adopts a Systematic Literature Review (SLR). This method enables the synthesis of comprehensive and robust data sources, supports the formulation of well-defined research questions, and facilitates a deeper interpretation of the underlying literature. The present study offers a novel and timely contribution within the domain of agile governance, exploring a wide range of relevant dimensions for future scholarly inquiry. Specifically, it aims to identify emerging trends, methodological approaches, persistent challenges, and prospective research directions in the field. Moreover, it highlights potential avenues for the continued development of agile governance, thereby providing a critical academic perspective to inform future research and practice.

Literature Review

To construct the analytical framework, the research draws on the concept of adaptive governance, a governance approach that emphasizes institutional capacity to adapt dynamically to uncertainty, complexity, and systemic change (Chaffin et al., 2014; Folke et al., 2005). Adaptive governance offers a relevant theoretical foundation for understanding agile governance, as both share core principles such as flexibility, responsiveness, and cross-sector collaboration in the

face of contemporary challenges. In the context of public sector governance, agile governance may be interpreted as a concrete manifestation of institutional adaptation, as outlined within the adaptive governance framework. Integrating this perspective into the study allows for more than a descriptive account of empirical trends, it also enables a critical evaluation of the extent to which agile governance practices reflect key adaptive principles, including social learning, multi-level decision-making, and the capacity to respond effectively to crises.

Public services are one of the obligations of the government, society, also private sector. The social and environmental dynamics within society have influenced the implementation of public services that must be undertaken (Powell & DiMaggio, 2012). Several countries have implemented various innovations to address challenges in their public services, even though these challenges may include environmental, demographic, geographical, and social factors. Despite these challenges, the demand for public services continues to drive the adoption of innovations needed by the public (Jing & Osborne, 2017). Criticism directed at government, private, and society in the realm of public service has been longstanding, driven by increasing societal demands for adaptation and change. These pressures have compelled governments to provide public services through taxation (Osborne, 2002).

Agile governance emerges from the broader discourse on public service, providing innovation solutions to contemporary governance challenges (Ritz et al., 2016), such as digital-era governance (Dunleavy et al., 2006), public value management (Stoker, 2011), and more recently, collaborative governance (Purdy, 2012). In recent years, researchers have increasingly advocated agile governance as an integral part of dynamic public service agenda, highlighting its capacity to adapt to specific contextual needs. This paradigm shift represents a movement beyond policy-centric approaches toward more human-centered and citizen-driven models of governance (Bason & Austin, 2022).

In this context, governments and stakeholders are challenged to achieve optimal, human-centered public services. Unique adaptations and responsiveness to change create expectations for outcomes that can serve as guidelines (Luna et al., 2014; Nolte & Lindenmeier, 2024). Another expectation is the clear separation between stakeholders, whether due to administrative burdens or organizational structures that limit performance (Kim & Kang, 2024). Thus, public service remains a unique subject of research, and agile governance is part of the transformation and innovation in this disruptive era, focusing on humans and making them the central subject of governance. In recent years, research on the principles and values of methods in public administration has shown a positive outlook, particularly in the context of agile governance (Mergel, 2024; Mergel et al., 2018; Neumann et al., 2024).

Previous studies have highlighted various areas of application, demonstrating the benefits for the implementation of agile approaches in public administration. The flexibility of agile methods, adopted across different departments and in different contexts (Mergel et al., 2021). For example, in Bone Regency, South Sulawesi, Indonesia has integrated public service technology into its public service system to enhance accessibility and service delivery for all citizens (Ibrahim, 2025). Several requirements must be met by governments in implementing agile governance, including strict regulations, complex bureaucracy, and demands for transparent decision-making. Agile governance has the potential to enhance the government's administrative functions, especially in the context of digital transformation and responsive public service delivery (Mergel et al., 2019), reducing administrative burdens (Moynihan et al., 2015) or enhancing public-centered services (Strokosch & Osborne, 2020). However, the public sector environment often generates tensions and dissatisfaction due to bureaucratic rigidity, conflicting stakeholder interest, and limited adaptability to change (Lappi & Aaltonen, 2017).

Agile governance offers various benefits, including increased efficiency in governmental processes (Tripp & Armstrong, 2018). However, there is broad consensus that the practice of agile governance presents significant challenges for public sector organizations, which are traditionally structured in a hierarchical and bureaucratic manner (Baxter et al., 2023; Simonofski et al., 2018). Such transformation inevitably creates new challenges for governments, requiring them to maximize their available resources and make independent decisions without external interference. Several factors can weaken the agile system, including insufficient training for personnel and unanticipated changes, which may hinder the successful adoption of agile governance (Baxter et al., 2023; Simonofski et al., 2018).

The necessity of agile governance in the current context reflects such as global financial crisis, the COVID-19 pandemic that impacted the entire world, the tangible effects of climate change, and the repercussions of wars in certain countries all of which significantly influence local economies and national politics. Scholars commonly refer to this phenomenon as VUCA: Volatility, Uncertainty, Complexity, and Ambiguity (Codreanu, 2016; Du & Chen, 2018; Nurhaeni et al., 2022). Nevertheless, governments, society, and private sector cannot simply remain passive in the face of these challenges. Governments are obligated to provide services and fulfill their responsibilities to meet societal needs amid such uncertainty (Taskan et al., 2022). Analyzing these unpredictable issues is essential, as it offers insight that inform governance strategies and enhance public service delivery (Kaivo-oja & Lauraeus, 2018; Millar et al., 2018).

Agile governance, as a means of enhancing governmental resilience, extends beyond the role of government institutions alone. It requires the active involvement of multiple stakeholders, including educational institutions that can provide alternative responses to VUCA conditions, civil society as a mechanism of social oversight, the private sector with its robust and dynamic resources, and the media, which plays a pivotal role in disseminating timely and accurate information. Long-term predictions are no longer relevant; instead, diverse and logical indicators are needed to navigate VUCA conditions (Indiarti & Lantu, 2022).

According to Liu et al., (2024), adaptation through strong leadership within organizations is crucial in overcoming major challenges in this era of uncertainty. Organizations will inevitably be broadly affected by these issues, and the lack of VUCA-responsive strategies can be mitigated through various means the simplest being greater public access and transparency (Sam et al., 2024). Resilience-oriented governance must be elevated to a more advanced level in order to generate a meaningful impact on governance. Agile governance functions as a practical framework that enables governments to anticipate and manage emerging challenges with greater precision and speed (Tomažević et al., 2023; Worley & Jules, 2020).

Method

Systematic Literature reviews (SLR) were used in this research. A literature review was feasible because it provided actual findings from previous research along with a structured and in-depth analysis (Galvan & Melisa, 2017; Lang et al., 2022). To conduct this study on trends, methods, challenges, and the scope of agile governance, this study used a database as the primary source, specifically ScienceDirect database, accessible through www.sciencedirect.com. The decision to use only ScienceDirect was based on (1) its relevance to the governance domain, (2) consistency in indexing quality, and (3) ease of access for transparency screening and replication. However, the exclusion of other major database such as Scopus, Web of Science, or EBSCO host may have led to the omission of relevant studies, particularly those published in interdisciplinary or region-specific outlets.

Another reason for selecting this database refers to the view of Gusenbauer & Haddaway (2020), who argue that articles indexed in the ScienceDirect database generally have advantages, including ease of access and high quality due to their peer-reviewed nature. A comparison of these compilations is presented below:

Table 1 Comparison ScienceDirect with other database

Aspect	ScienceDirect	Scopus	DOAJ	Google Scholar
Full-text Elsevier	Full Access	Only Abstract	Full Access	diverse
Precision & Recall	good	good	-	enough
reproducibility	recommended	-	-	inconsistent
query				
quality of journal selection	Elsevier peer-rev	annual review audit	community curation	-

Referring to Boell & Cecez-Kecmanovic (2015) and Tranfield, Denyer, & Smart (2003) the use of a single database can be justified when it sufficiently represents the target research domain. ScienceDirect was selected due to its strong coverage of social science research and its rigorous peer-review standards. Similarly, Brereton, Kitchenham, Budgen, Turner, & Khalil (2007), noted that the use of a single database remains legitimate when supported by methodological transparency and relevance to the research scope.

To ensure focus and coherence, researchers must formulate a research question, in this case concerning the trends, methods, challenges, and scope of agile governance. Consistent with the recommendation by Wohlin et al., (2024) that research questions serve as a foundation for data extraction and synthesis in systematic literature review.

The term “AGILE GOVERNANCE” were selected based on keyword, ensuring its presence in the title, abstract, and keywords. Only articles published from 2020 to 2024 (a five-year period) were included to ensure the novelty of the research. Each database follows a different pattern for retrieving articles. Therefore, various filtering criteria was applied to streamline the research process (van Wee & Banister, 2023). These include: eliminating articles that do not specify a research method in the abstract and excluding articles that are not open access to enhance the transparency, accessibility, and reproducibility of the review process¹. Articles not written in English were removed, literature reviews, books, book reviews, book chapters, and policy briefs were excluded, and articles from international seminars or conference proceedings were eliminated. These measures aimed to minimize duplicate studies and research redundancies, ensuring clarity and consistency in the study.

Subsequently, the selected studies were compiled, documented, and evaluated based on their abstracts using a predefined inclusion criterion. In cases where the full text of a paper was

¹ Limiting the dataset to open access publications ensures that all included materials are publicly accessible, thereby supporting the principles of open science and enabling verification or replication by other researchers

unavailable, an attempt was made to contact the corresponding author via email. If no response was received or contact could not be established, the article was excluded from the review.

Articles that were complete and met the inclusion criteria (IC) underwent further evaluation based on the following conditions:

IC1: Journal article.

IC2: Written in English.

IC3: Peer reviewed.

IC4: Not registered in another database or publisher.

IC5: The study must fall within the domain of agile governance or related with that.

IC6: Published in journals indexed only as Q1 or Q2, verified through scimagojr.com.

IC7: Availability of full text and scope social science.

The decision to limit the IC to Q1 and Q2 ranked journals was made to ensure the review draws from sources that meet established benchmarks of methodological rigor, peer-reviewed quality, and international relevance. However, there is a potential limitation in that this approach may introduce publication bias, particularly by overrepresenting mainstream or elite perspectives and underrepresenting high-quality but niche or regionally-focused research that often appears in Q3, Q4 or non-indexed journals. This trade-off was consciously made to maintain a consistent quality threshold and reduce variability in methodological standards.

These criteria were used to address the research question, which was: What are the trends, methods, challenges, and the scope of agile governance in the 2020s? After applying the search process and inclusion criteria, an in-depth analysis was conducted, and the findings were categorized based on the research question. Additionally, a study quality assessment was performed, where potential bias in each article was evaluated using a modified Newcastle-Ottawa scale (Modesti et al., 2016; Pahlevan-Sharif et al., 2019) this scale was structurally modified to enable bias assessment, as the referenced source provided a framework that allowed such modification to be conducted as outlined in Appendix 1. The use of this scale was not intended to assess the quality of papers in this method, but only to assess the risk of bias in the study. The recommendation to use the Newcastle-Ottawa Scale is widely made by scholars throughout the world (Luchini et al., 2017).

After that, the data extraction process was utilized to assess the relevance and potential of each study in addressing the research question. Key information is presented in a table, starting with details on the authors, methodology, and a brief content description. Separate codes were assigned to determine the eligibility of each identified article. Thematic classification was applied to provide a clear overview of the relevant research question, facilitating a structured review

process. A total of 7,944 articles (see Figure 1) were reviewed, and those deemed potentially relevant were further analyzed. Key details such as publication year, research trends, study direction, methodology, research objectives, and conclusions were systematically documented. To specifically address future research directions, the VosViewer software was used to generate a detailed visualization of emerging research trends. Following data triangulation, 51 journal articles were selected. The relevant information collected was classified based on major themes and aligned with the research topic. Below is a comprehensive table summarizing the findings, including detailed descriptions of the reviewed studies.

Table 2 Study review description

Author and Date	Method	Scope Research	Quartile	Name of Journal
(Almazrouei et al., 2024)	Quantitative	Public Service	Q1	Heliyon
(Amoujavadi & Nemati, 2024)	Quantitative	Public Service	Q1	Sustainable Futures
(Ansari et al., 2024)	Quantitative	Leadership	Q1	Project Leadership and Society
(Baxter et al., 2023)	Qualitative	Digital Transformation	Q1	Government Information Quarterly
(Bainomugisha & Mwotil, 2022)	Quantitative	Digital Transformation	Q2	Development Engineering
(Asthana et al., 2024)	Qualitative	Public Health	Q1	Lancet Regional Health - Western Pacific,
(Bell et al., 2024)	Qualitative	Disaster Management	Q1	The Geoforum
(Bignami et al., 2024)	Quantitative	Disaster Management	Q1	International Journal of Disaster Risk Reduction
(Blaustein et al., 2023)	Qualitative	Disaster Management	Q1	International Journal of Disaster Risk Reduction
(Bradlow, 2024)	Qualitative	Urban Society Sustainable	Q1	World Development

Table 2 Study review description (Cont.)

Author and Date	Method	Scope Research	Quartile	Name of Journal
(Breaugh et al., 2023)	Quantitative	Leadership	Q1	Government Information Quarterly
(Cristina et al., 2024)	Quantitative	Public Health	Q1	Heliyon
(Crusoe et al., 2024)	Quantitative	Digital Transformation	Q1	Government Information Quarterly
(Chiu & Lin, 2022)	Qualitative	Public Sector Management	Q1	Journal of Innovation & Knowledge
(Cox, 2021)	Qualitative	Public Sector Management	Q2	The Journal of Academic Librarianship
(Capatina et al., 2024)	Quantitative	Disaster Management	Q1	Journal of Innovation & Knowledge
(Guenduez et al., 2024)	Qualitative	Smart City	Q2	Urban Governance
(Gonzalez et al., 2020)	Quantitative	Smart City	Q1	Ain Shams Engineering Journal
(Elayah & Al-Mansori, 2024)	Qualitative	Conflict	Q1	World Development Perspectives
(García-Estevez et al., 2024)	Quantitative	Use Land	Q1	The Extractive Industries and Society
(Deininger et al., 2021)	Quantitative	Use Land	Q1	World Development
(Hunter, 2022)	Qualitative	Public Health	Q2	Urban Governance
(Imjai et al., 2024)	Quantitative	Digital Transformation	Q1	International Journal of Information Management Data Insights
(Irani et al., 2023)	Qualitative	Digital Transformation	Q1	Government Information Quarterly
(Ingham et al., 2023)	Qualitative	Disaster Management	Q1	International Journal of Disaster Risk Reduction

Table 2 Study review description (Cont.)

Author and Date	Method	Scope Research	Quartile	Name of Journal
(Karadimitriou et al., 2022)	Quantitative	Public Spaces	Q1	Land Use Policy
(Isip, 2022)	Qualitative	Micro Agribusiness	Q1	Research in Globalization
(Janssen & van der Voort, 2020)	Qualitative	Public Health	Q1	International Journal of Information Management
(Krigsholm et al., 2020)	Qualitative	Use Land	Q1	Land Use Policy
(Love et al., 2021)	Qualitative	Infrastructure and Transformation	Q1	Research in Transportation Economics
(Kroll & Adelle, 2022)	Qualitative	Use Land	Q1	Cities
(Krombach et al., 2024)	Quantitative	Smart City	Q1	Transport Policy
(Kunzler et al., 2024)	Qualitative	Public Health	Q1	Journal of Clinical Epidemiology
(Lin & Tao, 2024)	Qualitative	Digital Transformation	Q1	Telematics and Informatics
(Mancuso et al., 2024)	Qualitative	Leadership	Q1	Industrial Marketing Management
(Mulyana et al., 2024) ability, and innovation culture	Qualitative	Digital Transformation	Q1	Digital Business
(Razzano & Bernardi, 2024)	Qualitative	Urban Society Sustainable	Q2	Urban Governance
(Mendes, 2022)	Qualitative	Smart City	Q2	Urban Governance
(Maqdliyan & Setiawan, 2023)	Quantitative	Public Sector Management	Q1	Journal of Open Innovation: Technology, Market, and Complexity
(Cámará-Menoyo et al., 2024)	Qualitative	Urban Society Sustainable	Q1	Environmental Science and Policy
(Xu et al., 2024)	Quantitative	Digital Transformation	Q1	Heliyon

Table 2 Study review description (Cont.)

Author and Date	Method	Scope Research	Quartile	Name of Journal
(Oliveira & Siqueira, 2022)	Qualitative	Digital Transformation	Q1	Earth System Governance
(Popa et al., 2024)	Quantitative	Public Spaces	Q1	Journal of Innovation & Knowledge
(Siregar et al., 2023)	Quantitative	Leadership	Q1	Journal of Open Innovation: Technology, Market, and Complexity
(Robinson et al., 2021)	Qualitative	Urban Society Sustainable	Q1	Progress in Planning
(Sainz-Santamaria & Martinez-Cruz, 2022)	Qualitative	Infrastructure and Transformation	Q1	Urban Forestry & Urban Greening
(Schintler & McNeely, 2022)	Qualitative	Urban Society Sustainable	Q1	Journal of Urban Management
(Scupola & Mergel, 2022)	Qualitative	Globalization	Q1	Government Information Quarterly
(Thorn et al., 2021)	Qualitative	Infrastructure and Transformation	Q1	Landscape and Urban Planning
(Tan & Taeihagh, 2021)	Qualitative	Digital Transformation	Q1	Government Information Quarterly
(Woodall et al., 2024)	Qualitative	Disaster Management	Q1	Progress in Disaster Science

An integrated data analysis was conducted using the PRISMA method, where this study began with a fundamental theoretical approach that required the researcher's involvement, openness, and interactivity (Boland et al., 2017; Higgins et al., 2019). This guideline helped prevent researcher subjectivity, ensured simultaneous data collection, and maintained continuous coding and documentation (Gómez-Leal et al., 2022). The study was also initiated based on the researcher's understanding of trends, methods, challenges, and the scope of agile governance research. The selection of literature was aligned with PRISMA methodology practices (Haddaway et al.,

2022; Mengist et al., 2019; Page et al., 2021). Although this study does not aim to criticize the concept of agile governance, it acknowledges the conceptual ambiguities surrounding the term and examines how these affect its practical implementation. In doing so, the study contributes to the ongoing academic debate by synthesizing existing knowledge and identifying key directions for future research on agile governance.

The table above presents several key insights derived from the exploration of 51 journal articles deemed eligible for interpretation within this study. The integration of each article was undertaken through thematic or substantive categorization, allowing for a structured approach in addressing each of the research question parts.

Result and Discussion

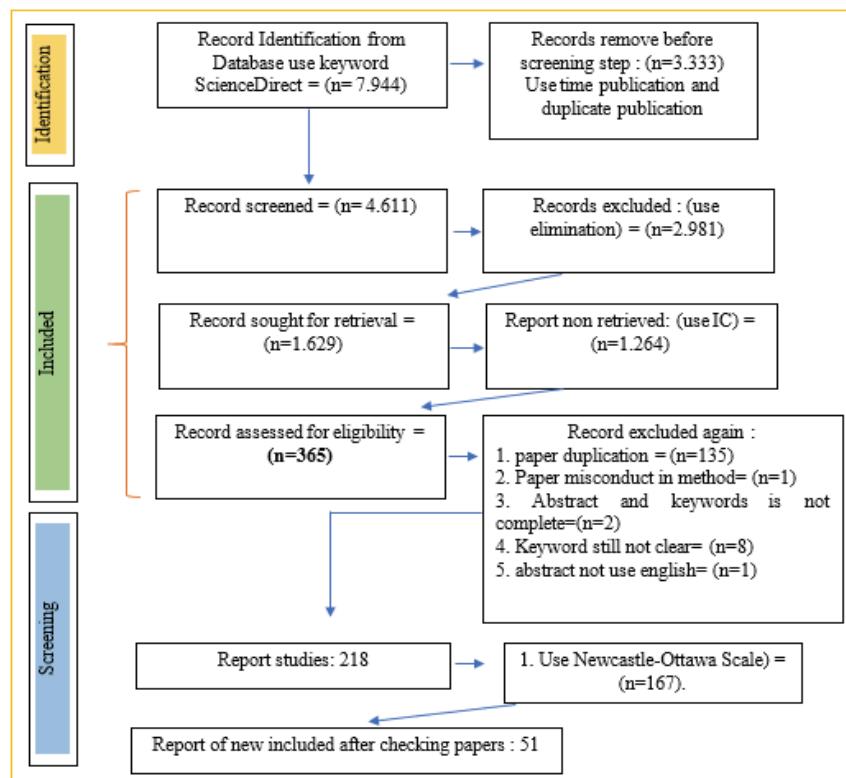
Result From Search in DataBase

The result of the literature survey study concerning the frequency of articles on “trends in agile governance over the period 2020 to 2024” shows that researchers wrote 7,944 articles from the ScienceDirect database (identification) on this topic. The process followed the PRISMA Protocol, which is a widely recognized method for conducting systematic reviews in a transparent and reproducible way. PRISMA consists of 4 phases:

Screening by removing duplicate studies and filtering by publication year, left 4,611 articles remaining. Eligibility was determined through the undertaking of an elimination procedure, reducing the selection to only 1,629 articles in the form of scientific journals. Inclusion, after applying the Inclusion Criteria (IC), only 365 journal articles were retained. However, for alignment with the research problem formulation, only 51 journal articles met the Newcastle-Ottawa Scale criteria.

The use of this scale was adopted to provide a comprehensive understanding of the content being assessed. During the screening phase, the researcher encountered several recurring challenges. Consequently, a thorough re-evaluation of all 365 papers was conducted. This process revealed that at least 147 papers were deemed ineligible (e.g., duplicates, unclear abstracts, missing keywords, etc.). As a result, only 218 papers were further assessed using the Newcastle-Ottawa Scale (see link <https://rb.gy/h7s3hd>). An example of the implementation of this scale can also be found in one of the reviewed papers. Data export was conducted from the researcher's database using Mendeley Desktop to facilitate data recording. Subsequently, the data were exported from Mendeley in (.xml) format and converted using Microsoft Excel.

The search and filtering process followed the PRISMA method, which consisted of three key steps: Identification, included, screening. This process is illustrated in Figure 1.

**Figure 1** PRISMA Method

To eliminate ambiguity in the research findings, articles that were not relevant to the established criteria were excluded. The search and selection process is clearly and succinctly illustrated in the PRISMA diagram, as presented in Figure 1.

Analysis of Research Trends in Agile Governance

Interpretation of this study, using 51 journal articles, examines trends, methods, challenges, and the scope of agile governance from 2020 to 2024. Each year within this period, the journals discuss various issues related to topics that have become trends in agile governance. The research trends in agile governance for the 2020 to 2024 period include “digital transformation,” followed by “disaster management,” “urban society sustainability,” and “public health.” Additionally, several other publication trends during this period include “land use,” “smart cities,” “leadership,” “public sector management,” “infrastructure,” and “transformation,” among others. Furthermore, the research areas of “leadership” and “smart cities” show a similar number of research trends. Figure 2 below presents the research trends for the 2020 to 2024 period.



Figure 2 Research trends in agile governance

During the 2020 to 2024 period (five years), “digital transformation” emerged as the most extensively studied research trend, ranking the highest compared to other topics. “Digital transformation” has become a widely discussed subject across various countries (10 journals), “disaster management” (6 journals), “urban society”, “sustainability” and “public health” (5 journals), “leadership,” “land use,” and “smart cities” (4 journals), “public sector management,” “infrastructure” and “transformation” (3 journals), “public spaces,” “public service” (2 journals), and last such as “conflict,” “globalization,” and “micro agribusiness” (1 journal). Examples of rapid governmental adaptation often described as agile governance, appears throughout these articles. Such adaptations responds to various volatile or rapidly changing sectors, including education, healthcare, social affairs, land governance (e.g., conflict resolution), disaster management, public service delivery, and the economy.

Digital Transformation refers to the integration of digital technologies into all areas of public service, fundamentally changing how governments operate and deliver value to citizens. It encompasses not only technological advancement but also a shift in institutional culture, processes, and competencies. This transformation aims to improve efficiency, responsiveness, and transparency in governance. According to Bainomugisha & Mwotil (2022) and Baxter et al., (2023), many government institutions face considerable challenges in implementing digital transformation. Key barriers include the lack of skilled and competent human resources and limited support from various stakeholders, including political leaders, civil servants, and the private sector. These

limitations hinder the government's ability to adopt digital tools effectively and to respond to the evolving expectations of citizens in the digital age. Moreover, this trend in digitalization serves as a means to facilitate various public services and has become a necessity for governments to implement (Crusoe et al., 2024). Furthermore, the rapid development of digitalization now permeates all aspects of society, progressing beyond Industry 4.0 and moving towards Society 5.0 (Imjai et al., 2024).

Another significant research trend is disaster management, which has become a prominent topic due to the growing concerns over global climate change, making this issue a top research priority. Disaster management not only addresses the negative impacts of disasters but also emphasizes the importance of post-disaster rehabilitation and disaster mitigation as a proactive measure, which requires support from multiple stakeholders. Several effective disaster management strategies include disaster response policies, such as those implemented in Australia, as well as community resilience which, while crucial, may not sustain itself in the long term without government intervention as the leading sector (Blaustein et al., 2023; Ingham et al., 2023). Meanwhile, in European countries, the capabilities of technological services are highly anticipated to aid in disaster mitigation, post-disaster recovery, and future disaster prediction. Through various disaster engineering techniques, these technologies can help assess the extent of damage caused by disasters (Capatina et al., 2024). Additionally, disaster education must be prioritized by stakeholders to enhance disaster preparedness and ensure effective disaster response whenever needed (Bell et al., 2024).

Another key research trend is urban society sustainability, where urban governance plays a crucial role as a buffer zone that must be managed effectively by stakeholders. Agile governance demonstrates that urban areas tend to be dominated by the middle-income economy, which has the capacity to absorb a diverse workforce (Bradlow, 2024; Razzano & Bernardi, 2024). Urban areas also serve as separators between different regions. For instance, in Shanghai, China, urban areas have been developed as satellite cities; in London, the United Kingdom, urban development focuses on sustainability and in Johannesburg, South Africa, urban areas are divided into various zones to prevent over-concentration in a single location (Robinson et al., 2021).

Additionally, water resource management has emerged as a critical issue within the urban context (Cámarra-Menoyo et al., 2024). Lastly, the sustainability of urban areas as modern buffer zones equipped with comprehensive facilities is believed to enhance a city's appeal while simultaneously contributing to government resilience by decentralizing urban concentration (Schintler & McNeely, 2022). Another emerging trend is public health, where community health has become a major focus of research in the 2020-2024 period. Agile governance in healthcare has been significantly tested, particularly during the COVID-19 pandemic (2019-2021) (Cristina et al., 2024;

Janssen & van der Voort, 2020). Most studies on public health during this period focus on COVID-19, examining the extent to which resilience can be measured in extreme conditions (Hunter, 2022; Kunzler et al., 2024). One notable example of adaptation is Singapore, which leveraged centralization, legitimacy, and agility to effectively respond to the COVID-19 crisis (Asthana et al., 2024).

Meanwhile, leadership, land use, and smart cities are publication trends with equal significance, all of which are integral to agile governance. It is imperative for governments to adapt to various potential challenges. One proposed solution to urban issues is the “smart city” concept, where urban problems can be addressed through integrated smart technology (Gonzalez et al., 2020; Guenduez et al., 2024). Agile governance through smart cities has also been implemented in Brazil, where urban governance aims to facilitate the transition to renewable energy, enhance public services, and improve service accessibility (Mendes, 2022). Similarly, in Germany, the emphasis is on facilitating small-scale population mobility to streamline local economic activities (Krombach et al., 2024). Another significant trend is land use, which encompasses land management, national economies (Deininger et al., 2021), and agriculture, including integrated land administration systems (García-Estevez et al., 2024; Krigsholm et al., 2020; Kroll & Adelle, 2022). One of the frequently emerging challenges in this area is land conflicts, which have become a key research topic (Elayah & Al-Mansori, 2024). Additionally, leadership has emerged as a crucial factor in the development of sustainable projects, particularly in economic growth (Breaugh et al., 2023; Siregar et al., 2023). Discussions on leadership trends often revolve around transactional and transformational leadership, both of which are essential for successful development initiatives (Ansari et al., 2024). Furthermore, leadership plays a vital role in leading reputable companies, especially in expanding new business ventures (Mancuso et al., 2024).

Agile governance, as defined by Luna, Kruchten, & de Moura (2015) the concept is primarily applied within the context of public sector governance. This includes emerging trends such as digital governance, land use planning, and public health. A key feature of this approach is its human-centered orientation, where active public engagement is essential particularly in relation to the principles of good governance, which are embedded within the broader framework of agile governance. Moreover, one of the core indicators of agile governance is the adoption of a systematic and adaptive approach, which emphasizes the need for responsive and flexible actions in the face of change.

Various government actions have been undertaken in response to VUCA conditions, ranging from policy implementation, monitoring, and evaluation to stakeholder engagement involving actors with diverse bargaining positions. This situation creates space for multi-stakeholder participation in governance processes. In its contextual application, agile governance primarily

refers to governance undertaken by the government itself. Rapid decision-making becomes a key element in addressing VUCA dynamics (Lukman & Hakim, 2024). Therefore, agile governance serves as a foundational pillar for sustainable governance in the face of uncertainty.

Agile governance should not be understood solely as a conceptual construct. The systematic categorization in this paper primarily functions as a synthesis of the existing literature. Scholarly contributions must extend beyond descriptive grouping and instead serve as a foundational platform for further academic inquiry. Furthermore, agile governance should not be viewed merely as an operational approach but as a dynamic and responsive governance model that adapts to ongoing change. The initial conceptualization of agile governance provided in this study is therefore an important starting point and is intended to serve as a basis for future theory-building grounded in empirical data, as well as for the development of more specific, sector-based governance models.

This study was limited to an analysis of trends to only those with the highest number of studies, aligning similar themes and identifying overlapping topics across articles. Furthermore, several research areas remain underexplored and present opportunities for further study. These include public sector management, infrastructure and transformation, public service, and public spaces, which could benefit from more in-depth research. Additionally, globalization and micro agribusiness are emerging topics that could be studied using the agile governance approach, making them viable for further exploration. While some previous studies have discussed these trends, they did not meet the inclusion criteria (IC) or pass the evaluation based on the Newcastle-Ottawa Quality Assessment Scale. As a result, only 51 journal articles qualified for further review.

Analysis of Research Methods in Agile Governance

Based on Table 2, the majority of studies utilized qualitative methods. From figure 3, the research methods used during this period were categorized and comprehensively reviewed. Among the 51 journal articles, approximately 63 percent (32 articles) applied qualitative methods, which were further divided into several approaches: case studies were the most commonly used, appearing in 12 articles, narrative research was employed in 11 articles, grounded theory and exploratory research were used in 4 articles each, phenomenological methods appeared in 1 (one) article (e.g., Scupola & Mergel, 2022). Studies using the phenomenological approach remain limited.

This approach is particularly valuable as it allows researchers to conduct investigations that are closely aligned with the realities of their specific environments. Data collection is typically undertaken using snowball sampling, which is well-suited for exploring complex and evolving phenomena such as digital transformation. Given its contextual sensitivity, this methodological

approach holds potential for future research in the field of agile governance, which also demands an in-depth understanding of environmental realities and lived experiences of relevant stakeholders. With the percentage distribution illustrated in Figure 3 below:

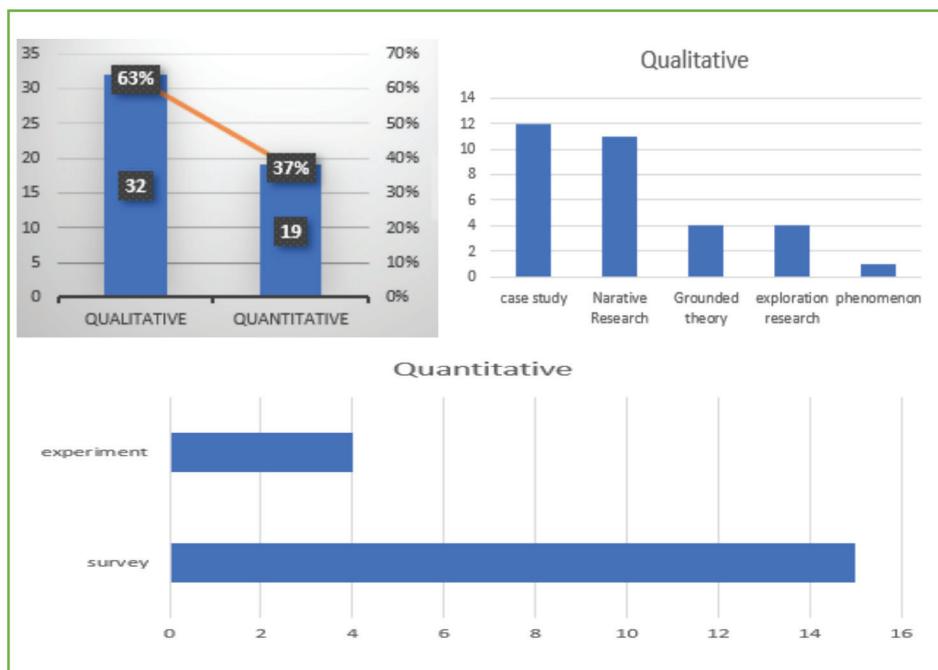


Figure 3 Percentage of Research Methods

Previous research linked this method to the COVID-19 pandemic, and the current analysis suggests that it remains relevant, particularly in assessing the long-term economic, social, and policy impacts on the public. Conversely, quantitative methods accounted for 37 percent (19 articles), which were divided into two approaches: survey research was applied in 15 articles, experimental research was used in 4 articles. Quantitative research still holds significant potential in agile governance studies, especially through experimental approaches. Although some quantitative studies encountered challenges, these can be addressed with careful considerations and methodological adjustments.

Analysis of Challenges in Agile Governance Research

Research challenges during this period highlight several key difficulties, particularly in the context of agile governance. Based on a summary of various studies, the challenges identified include: lack of standardized evaluation criteria, as program assessment is currently difficult due to

the absence of fixed regulations and key performance indicators (KPIs) that are always adjusted to government needs (Ansari et al., 2024; Gonzalez et al., 2020), limited indicators for assessing public service resilience, where several essential aspects such as organizational culture, policy adherence, legal compliance, regulatory authority, tolerance, planning capacity, and management efficiency should be included as key indicators (Amoujavadi & Nemati, 2024; Breaugh et al., 2023; Guenduez et al., 2024) public distrust in government, which hampers the implementation of agile governance (Asthana et al., 2024), constraints in research methodology and sample selection, where some studies do not meet standard procedural requirements (Almazrouei et al., 2024), limitations of single-case study methods in exploring complex phenomena, making research difficult to conduct (Baxter et al., 2023), challenges in ensuring sustainable policies following the resolution of public issues (Blaustein et al., 2023), informants' lack of expertise or capability, which may not meet researchers' expectations (Capatina et al., 2024; Imjai et al., 2024), insufficient sample sizes, which do not adequately represent the population (Cristina et al., 2024). These challenges indicate that further refinement in agile governance research is necessary, particularly in establishing standardized metrics, improving research methodologies, and addressing governance-related limitations.

In addition to the challenges identified, several weaknesses in research have been observed, particularly in studies addressing specific issues at research locations. These include: bias in researchers' understanding, especially in studies on humanitarian collaboration, which highlight critical gaps and may lead to subjective interpretations (Elayah & Al-Mansori, 2024) weak public service efforts by governments, resulting in inefficient urban systems and wasteful resource management (Hunter, 2022), limited literature available on the selected research theme, posing challenges in establishing a strong theoretical foundation (García-Estevez et al., 2024), low urban resource availability, which hinders research in this area (Krombach et al., 2024), deficiencies in theoretical frameworks and small sample sizes, as well as difficulties in selecting participants for focus group discussions due to low informant engagement (Krigsholm et al., 2020).

Research on agile governance has evolved beyond the traditional boundaries of public administration. Agile governance has emerged as an organizational innovation, particularly within the public sector, where its core principles have been widely applied. Numerous studies have highlighted the positive impact of such innovation on organizational performance (Alharbi et al., 2019). The theoretical foundations of this innovation encompass several critical dimensions such as learning, development, implementation, leadership, and creativity that support resource development and the enhancement of human capital, along with other essential organizational components (Alves et al., 2018). This development illustrates that the concept of agile governance is not only

pertinent to public administration, but has also been increasingly adopted and adapted across various academic disciplines to address the complex governance challenges of the modern era.

During the 2020-2024 period, research into agile governance-related issues increasingly adopted interdisciplinary approaches, including: engineering (Crusoe et al., 2024; Gonzalez et al., 2020; Janssen & van der Voort, 2020; Krigsholm et al., 2020), (García-Estévez et al., 2024; Maqdiyan & Setiawan, 2023) economic studies, (Imjai et al., 2024; Irani et al., 2023) management studies, (Mendes, 2022) international relations, (Lin & Tao, 2024), and communication studies. Each disciplinary approach offers its own strengths and limitations, which must be carefully considered to ensure comprehensive and balanced research outcomes.

Analysis of Future Research on Agile Governance

To achieve results from future research based on the research question, the VosViewer tool was used, utilizing the Overlay Visualization feature in the application. In VosViewer, a map was created based on text data; data was then read from reference manager files in RIS format, obtained through Mendeley, where 51 journal articles had been exported as RIS files. Next, in the "choose area" step, the title and abstract fields were selected, ensuring that keyword analysis focused on this area. For keyword relevance calculations, binary counting was used, where matching keywords were assigned a value of 1, and non-matching keywords were assigned 0. Additionally, the number of related items was limited to only five. The following results were attained:

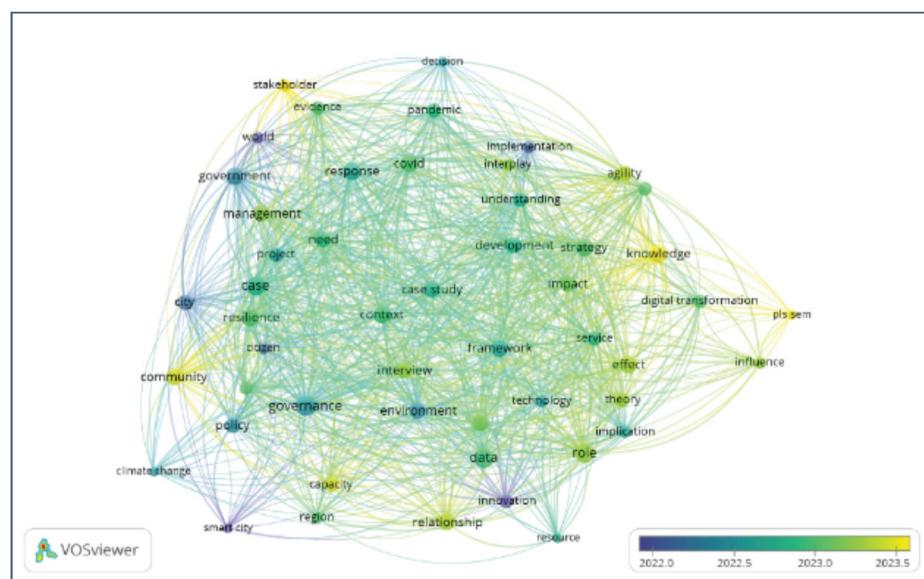


Figure 4 Overlay Visualization

The VOSviewer application has long been utilized in various studies, particularly in Systematic Literature Review (SLR) and bibliometric research. In this study, VOSviewer is applied to support both approaches, in line with the parts of the research question that emphasize the importance of mapping future research directions. The application employs numerical attributes to read and process data; therefore, 51 journal articles were imported that were previously stored in Mendeley. The color gradients generated in the Overlay Visualization feature play a crucial role in identifying emerging research themes. Consequently, the use of this tool significantly enhances the accuracy and depth of analysis within the SLR methodology. In the overlay visualization, colors are used to represent the values of selected attributes, such as publication year or citation count. Blue indicates lower values and older publications, green represents intermediate values, while yellow signifies higher values and more recent publications. This color gradient provides a temporal and impact-based mapping of research development. In general, research on "adaptation" has a similar meaning to "resilience," where studies on the keyword "resilience" are shown in dark blue, indicating that a significant number of studies were conducted on this topic during the 2022-2024 period. Meanwhile, the color yellow suggests that research on certain topics, such as community, capacity, and knowledge, is still limited. Similarly, stakeholder resilience also appears in yellow, indicating the same trend. Additionally, the case study method has been widely used in research on agile governance from 2020 to 2024. In contrast, the interview method and grounded theory still appear in yellow, indicating their relevance for future research. Furthermore, there has been minimal use of PLS-SEM or SmartPLS software in previous studies and various other sources of reference, making it possible for future research on agile governance to incorporate these tools.

The Application of Agile Governance

Based on the findings, the implementation of agile governance remains limited to only 14 thematic areas that align with the inclusion criteria (IC) applied in this SLR method. Nevertheless, this study is limited, primarily due to the exclusive focus on Q1 and Q2 indexed articles, thereby excluding studies from lower quartiles. Additionally, potentially credible articles indexed in other databases were not included in the review. Despite this, the identification of these 14 areas through ScienceDirect, while maintaining the Q1 and Q2 quality threshold, may serve as a useful reference for stakeholders in addressing contemporary governance issues.

Furthermore, the findings of this study should not be generalized to other contexts, given the reliance on a single database. In light of this, it is recommended that future research adopt more comprehensive approaches such as integrating multiple databases or broader inclusion criteria to produce more diverse insights and capture a wider range of thematic areas.

Conclusion

The research findings indicate that the analysis of trends, methods, challenges, and future research, as presented in 51 scientific journal articles, has produced several key insights. This study was conducted with great caution, employing various analytical methods and approaches to minimize bias in the selected articles. The first research question, concerning trend analysis, reveals that studies on digital transformation, disaster management, urban society sustainability, and public health remain relevant for further exploration in this period. The trends in these research areas also align with government obligations to seek alternative solutions to these issues and to address global challenges, such as disaster management and public health in the post-COVID-19 era. These issues do not merely reflect a shift toward a governance model that must adopt the principles of agile governance. Rather, they clearly demand rapid responsiveness, timely decision-making, and adaptive capacity elements that lie at the core of agile governance theory. This convergence signals a transition from agile governance as a purely conceptual framework to its operational application across a variety of public sector issues. Moreover, the trends identified in the 51 journal articles reviewed in this study indicate a growing maturity in the implementation of agile governance, highlighting its relevance in addressing contemporary challenges within the public sector. Regarding research methods, the majority of studies still employ qualitative methods with case studies. However, alternative methods, such as interviews, which remain relevant, as well as grounded theory and the application of SmartPLS, which is recommended based on the findings of this study, are currently underutilized. Furthermore, the theoretical underpinning of agile governance is increasingly used as a conceptual framework in these studies. Agile governance emphasizes responsiveness, adaptability, and collaboration with multiple stakeholders in addressing VUCA (Volatility, Uncertainty, Complexity, and Ambiguity). The findings of this study demonstrate that agile governance provides a promising lens for public sector institutions and organizations to enhance flexibility, encourage rapid and participatory decision-making, and ensure the sustainability of public services in the midst of this era of disruption. Thus, the implementation of agile governance as both a conceptual framework and a practical approach not only strengthens participatory and adaptive governance within the domain of public administration but also aligns with the research focus and key questions addressed in this study. These include the limited indicators for measuring the success of a program, the small sample size in studies, and the issue of informants having limited capabilities and understanding, even when categorized as key informants. Additionally, the concept of agile governance has been widely applied across various academic disciplines, including management, engineering, economics, and others, demonstrating that its scholarly scope extends beyond just public administration. On the other hand, a practical implication of this study

is that the government could develop a roadmap for addressing several currently prominent issues (e.g., disaster management, digital transformation, public health, and others). It is essential for the government to strategically respond to these issues to ensure more focused and technically grounded policy. For future research, VosViewer was utilized to assist in the analysis and identify research topics worth exploring further. Some relevant fields for future studies include community, organizational capacity, and knowledge, which can be examined from the perspective of local communities. These patterns should be recognized and adapted by the government as part of its disaster governance strategy. In terms of research methods, qualitative approaches, particularly interviews and grounded theory, remain relevant and can be further generalized.

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