

Rethinking: The Role Of Digital Transformation

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Abstract— Digital transformation in Indonesia is accelerating, driven by a 600% surge in QRIS digital payment usage in Q1 2025 and major investments such as Microsoft’s USD 1.7 billion commitment to AI and cloud infrastructure. This study aims to map research themes, identify gaps, and explore policy implications for achieving inclusive and sustainable digital transformation, both in Indonesia and comparable developing economies. Using a Systematic Literature Review (SLR) based on the PRISMA method, we searched the Elsevier database (2020–2025) with the keyword “digital transformation”, applied inclusion/exclusion criteria for relevance and quality, and screened down from 581 to 164 peer-reviewed articles. Bibliometric analysis was conducted using VOSviewer with keyword co-occurrence mapping, generating network, overlay, and density visualizations. Findings reveal dominant clusters around digital literacy, digital financial inclusion, and innovation, alongside emerging themes such as agroecology and digital public service evaluation. Barriers including low literacy, infrastructure gaps, and rigid regulations most strongly affect sectors like education, health, and public administration. Policy implications highlight the need for targeted literacy programs, investment in rural infrastructure, and cross-sector collaboration to leverage emerging areas like AI and green technologies. This study contributes to the regional discourse on digital development by offering a thematic roadmap for future research and policy action.

Keywords: Digital Transformation, PRISMA, Bibliometric Analysis, Indonesia, Emerging Economies

I. Introduction

The development of digital technology in Indonesia has seen significant progress in recent years. This progress is evident not only in Indonesia's improved ranking in the World Digital Competitiveness Ranking (IMD), which rose from 62nd in 2018 to 51st in 2022 [1], but also reflected in the increasing number of technology users. According to a survey by the Indonesian Internet Service Providers Association (APJII), the number of internet users in Indonesia reached 221.6 million in early 2024, or approximately 79.5% of the total population, and increased to 225 million in early 2025 [2]. Furthermore, the number of smartphone users continues to grow, reaching 213 million in 2023 [3], indicating that digital technology adoption in society is growing.

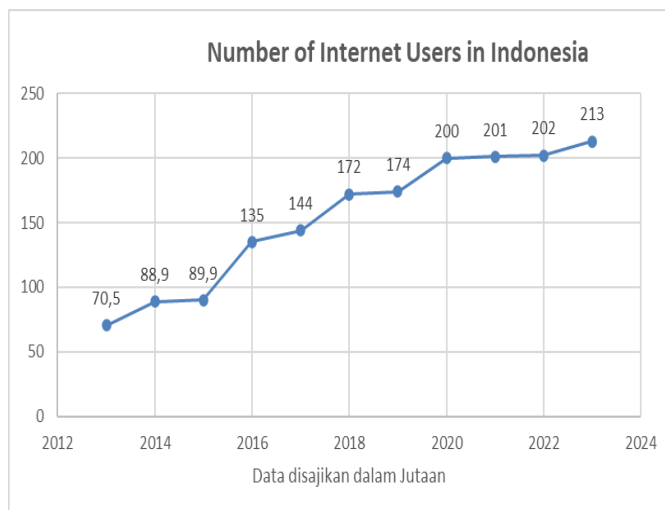


Figure 1. Number of Internet Users in Indonesia

The growth of the digital economy is also reflected in the increase in digital transactions. The use of QRIS as a digital payment tool has recorded significant growth. Bank Indonesia, in Table 1, noted that QRIS transaction volume in the first quarter of 2025 reached 2.6 billion transactions, a nearly 600% jump compared to the same period in 2023. Transaction value also increased dramatically from IDR 105 trillion to IDR 262.1 trillion, representing a growth of approximately 150%. Furthermore, the number of QRIS users increased from 48 million to 56.3 million, and the number of merchants increased from 32 million to 38.1 million, the majority of which are MSMEs [4]. This rapid growth is also driven by technological innovations such as NFC-based QRIS Tapping, which simplifies transactions without the need for manual QR code scanning. In fact, QRIS implementation has now expanded to several countries such as Malaysia, Thailand, and Singapore, with plans to expand to Japan, China, India, South Korea, and Saudi Arabia by 2025 [4]

Table 1. QRIS Growth in Q1 2025

Indicators	First Quarter 2024	First Quarter 2025
Transaction Volume	374 Million	2.6 Billion
Transaction Value	IDR 105 Trillion	IDR 262.1 Trillion
Number of Users	48 Million	56.3 Million
Number of Merchants	32 Million	38.1 Million

Source: Goodstats, 2025

Global companies' commitment to accelerating digital transformation in Indonesia is growing stronger, as demonstrated by Microsoft's USD 1.7 billion investment in the development of artificial intelligence (AI) and cloud computing infrastructure in Indonesia (AP News, 2024). This investment reflects the international community's confidence in Indonesia's digital economic potential. Accelerating digital transformation not only contributes to national economic growth but also drives structural changes in various sectors, including education, health, and public services, which are increasingly integrated with digital technology. This indicates that Indonesia is on a progressive path toward building an inclusive, adaptive, and globally competitive digital ecosystem.

Amidst the acceleration of the Industrial Revolution 4.0 and the currents of globalization, digital transformation has become a disruptive force redefining how organizations operate, compete, and innovate. Digital transformation is not only about technology adoption but also impacts organizational structures, business models, and work patterns across various sectors [5]. Popkova & Sergi, 2020 also predicts that by 2030, not only large companies but also entrepreneurs will maximize the opportunities of Industry 4.0 to optimize their activities, although still rejecting full automation.

Research conducted by Holopainen shows that digital transformation contributes to an increased understanding of how companies can leverage digital business strategies and improve corporate performance Holopainen et al., 2024. Another study by Xu and Liu shows that digital transformation enables companies to mitigate the negative effects of managerial short-termism on green innovation, due to increased information processing capabilities that drive improvements in internal governance and corporate analytics [8].

Alieva & Powell confirms that several variables have a positive influence on the successful implementation of digital transformation in organizations, such as top management leadership, middle management involvement, employee education, corporate social responsibility, innovation, knowledge sharing, work-life balance, psychological capital, job satisfaction, and career commitment [9]. These results are also supported by the findings of Akhtar which shows that the ability, experience, and predictability of management, both at the top and middle levels, have an important role in supporting the digital transformation process to improve company performance Akhtar et al., 2025.

In accounting, digital transformation has also contributed positively to creating a more resilient financial landscape. This is evident in improvements in audit quality, financial inclusiveness, cybersecurity, and transparency in reporting Shehadeh & Hussainey, 2025. The implementation of Artificial Intelligence (AI) and Machine Learning (ML) can also increase bank profitability through cost efficiency and strengthening digital infrastructure (Aydın & Yildirim, 2020). In addition, the use of appropriate accounting software can produce better financial reports and support strategic decision making [13].

However, not all organizations are able to optimally realize the potential of digital transformation. Failure in this process is often caused by low digital literacy among human resources, which results in resistance to change and unpreparedness in managing new technologies [14], [15]. Digital literacy encompasses not only technical skills but also critical thinking skills, digital ethics, and adaptive readiness to the ever-evolving digital environment. Díaz-Arancibia also emphasized that the main challenges to digital transformation in developing countries are local social and cultural aspects, including low digital understanding and competency among small and medium-sized enterprises (SMEs) [16]. This is in line with the findings of Kusumawardhani, which stated that SMEs with high levels of digital adoption tend to have better digital financial literacy, which in turn positively impacts the company's financial performance [17].

In addition to digital literacy, unequal access to digital infrastructure in rural areas is a significant barrier to equitable digital transformation [18]. High technology implementation costs are also a serious obstacle, particularly for small financial institutions and developing countries, in adopting AI and ML [12]. Other barriers include rigid regulations, which hamper inclusive and equitable technology adoption [19].

Based on this background, this study aims to determine whether the topic of digital transformation remains relevant for further development. The study was conducted using a structured and transparent Systematic Literature Review (SLR) approach, along with bibliometric analysis to map research developments and identify contributing factors in this field. The SLR approach allows researchers to filter and synthesize the literature objectively and systematically, while bibliometric analysis provides quantitative insights into publication trends, collaboration networks, and visualization of relationships between dominant research topics.

II. Methodology

This study uses a combination of a systematic literature review (SLR) and bibliometric analysis to examine the research focus, namely digital transformation. The SLR will provide a perspective on research conducted to date, while bibliometrics will provide a future perspective on intersectional research that needs attention, using thematic maps. The SLR is based on the Prisma (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology, which uses a flowchart to objectively and transparently depict the entire article selection process at each stage. The PRISMA method in the SLR follows three stages: Identification, Screening, and Elimination.

Stage 1: Identification – The phase of identifying relevant articles. Articles were obtained from <https://www.elsevier.com/>. The publications included scientific journal articles and conference papers. The language used was English, with a search period of 2020-2025, or a five-year period.

Stage 2: Screening – The screening phase began with open access journals, keywords, and titles to eliminate papers that did not meet the search context. Multi-stage screening using the keyword "Digital Transformation" obtained $n = 581$.

Stage 3: Inclusion - Elimination was carried out after reading the articles through the abstracts obtained, $n = 164$ relevant articles from the Elshevier database.

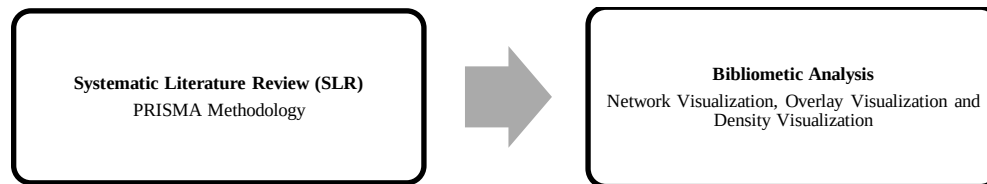


Figure 2. Methods used in Research

Based on the PRISMA method, the following are the stages for identifying papers to be considered for the Literature Review.

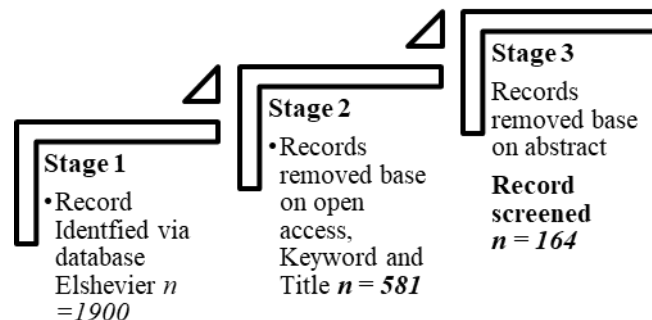


Figure 3. SLR – PRISMA methodology

III. Discussion

Systematic Literature Review

A systematic analysis of literature reviews conducted on a number of scientific articles from various international journals indexed by Scopus in 2020-2025 obtained the following results:

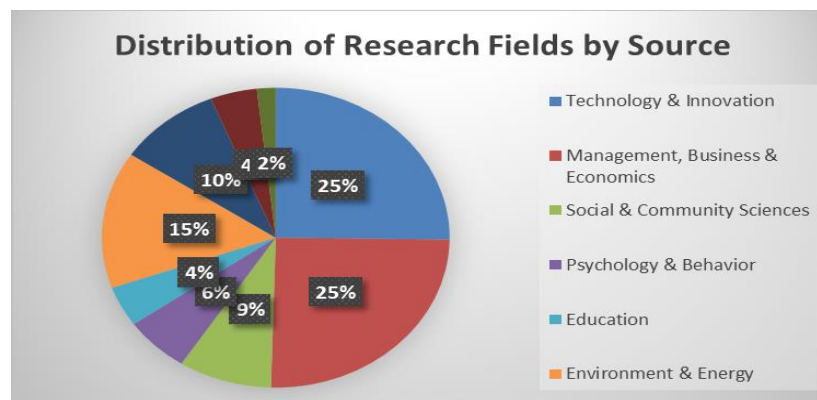
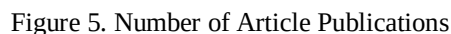


Figure 4. Distribution of Research Fields by source

Several studies have also begun to explore the use of digital technology in the education and health sectors. This points to a trend towards greater development, where technology is used to directly improve people's quality of life.



Bibliometric Analysis

The central point of this network is "digital transformation," which appears as the largest and most connected node, indicating that this topic is central to various studies. Surrounding it are several clusters, each colored differently, reflecting a specific thematic focus. The light blue cluster addresses issues related to "digital literacy," "digital competencies," and "ehealth literacy," highlighting individual preparedness for digital transformation. The red cluster highlights the interconnectedness of "financial literacy," "fintech," and "digital financial literacy," indicating the importance of digital financial capabilities in supporting digital transformation.

Overall, this visualization demonstrates that digital transformation is a highly multidimensional theme, encompassing aspects of literacy, technology, economics, inclusion, and public policy. The interconnectedness of these topics also indicates that understanding and implementing digital transformation effectively requires a cross-sectoral and interdisciplinary approach.



The Overlay Visualization, as a whole, provides a compelling overview of the evolution of digital transformation themes: from the foundations of digital literacy and infrastructure to more strategic and inclusive implementation. For researchers, policymakers, and practitioners, this serves as an important roadmap for understanding where the issues they are working on stand and where the next wave is headed.



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while dark blue indicates areas with less density or infrequent occurrence.

It is clear that "digital transformation" is a major focus in the literature, as evidenced by the brightest yellow glow, indicating high intensity of discussion on this topic. Surrounding it, relatively dense areas are also visible around the terms "digitalization," "digital literacy," and "financial literacy," indicating that these three themes also receive significant attention as key elements supporting digital transformation.

Interestingly, although terms like "digital economy," "digital technologies," and "digital financial inclusion" are slightly off-center, they are still surrounded by a soft green to yellow glow, indicating that these themes are also discussed quite frequently, although not as intensely as "digital transformation" itself. This reflects the increasingly broad spectrum of issues related to digitalization across various sectors such as economics, inclusive finance, and even agroecology.

Conversely, several terms like "digital storytelling," "digital capabilities," or "evaluation" fall into the purplish-blue zone, indicating that these topics are still relatively under-reported in scholarly discourse, but could be potential areas for further exploration.

Overall, this map not only provides an overview of what's hot but also opens our eyes to new research opportunities in the field of digital transformation—especially on topics that are still "cool" but highly relevant for the future.

IV. Conclusion and Implications

Based on literature analysis and bibliometric visualization of scientific publications on digital transformation, it can be concluded that this topic is developing rapidly and is increasingly becoming a major focus in various research fields. Digital transformation is no longer discussed solely from a technological perspective, but has expanded into economics, management, social issues, education, and even the environment. This demonstrates that digitalization is understood as a complex phenomenon with a systemic impact on human life. Network visualization shows that "digital transformation" is at the center of the discourse, surrounded by various thematic clusters such as digital literacy, digital financial inclusion, innovation, and sustainable development. The overlay map shows a shift in the focus of studies from basic topics such as digital literacy to more applicable and specific topics, such as policy evaluation, sustainable agriculture, and social participation in the digital ecosystem. Meanwhile, the density map reveals that although there are highly discussed topics, such as digitalization and financial literacy, there are still less explored but potential areas, such as digital storytelling and evaluation.

The implications of these findings are broad and profound. First, academics and researchers have a significant opportunity to explore new issues in digital transformation, particularly on topics that remain understudied. Second, policymakers need to recognize that digital transformation is not just about infrastructure and technology, but also concerns community readiness, literacy, and its impact on social and economic inclusion. Third, practitioners across various sectors need to consider the multidisciplinary dimension in designing and implementing digital programs to address complex, cross-sectoral challenges. Overall, this study confirms that digital transformation is a dynamic, evolving process that requires a collaborative approach to create sustainable and meaningful change for society at large.

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