

Strategies for Human Resource Capacity Building to Support Digital Transformation in Society Through the Use of Information Technology: A Systematic Literature Review

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ARTICLE INFO	ABSTRACT
Article history: Received: Jun 4, 2026 Revised: Jun 18, 2026 Accepted: Jun 30, 2026 Keywords: Capacity Building Digital Literacy Digital Transformation Human Resource Development Information Technology	Digital transformation has become a key factor in improving the quality of public services, fostering digital economic growth, and empowering communities. However, the success of digital transformation depends heavily on the capacity of human resources to effectively utilize information technology. This study aims to identify strategies for human resource capacity building, map success factors, identify challenges, and formulate recommendations to support the digital transformation of communities. This study employed a Systematic Literature Review (SLR) method in accordance with the PRISMA 2020 guidelines. A literature search was conducted in the Scopus, ScienceDirect, SpringerLink, IEEE Xplore, Google Scholar, and DOAJ databases using relevant keywords. Articles were selected based on inclusion and exclusion criteria and then analyzed using narrative synthesis, thematic analysis, and content analysis. The results of the synthesis indicate that improving digital literacy, technology-based training, strengthening digital infrastructure, policy support, leadership, and collaboration among the government, industry, higher education institutions, and the public are key strategies for human resource capacity building. The challenges that remain include the digital divide, infrastructure limitations, low digital literacy, cybersecurity, and resistance to change. This study provides recommendations for stakeholders to strengthen human resource capacity building as the foundation for an inclusive and sustainable digital transformation. <i>This is an open access article under the CC BY-NC license.</i> 

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1. INTRODUCTION

Advances in information technology have driven digital transformation across various sectors of life as a result of the Fourth Industrial Revolution and the concept of Society 5.0. The use of technologies such as Artificial Intelligence (AI), the Internet of Things (IoT), Big Data, and Cloud Computing has transformed the way governments, businesses, and society conduct their activities. Digital transformation not only improves organizational efficiency but also serves as a catalyst for the emergence of Smart Government, Smart Cities, the digital economy, and the digitization of public services—making them faster, more transparent, and more focused on the needs of the public (OECD, 2024; UNESCO, 2023).

The success of digital transformation is determined not only by technological advancements but also by the quality of human resources (HR). People are expected to possess digital literacy, technological competencies, and the ability to adapt to change in order to make optimal use of information technology. Therefore, human resource capacity building is a key factor in supporting inclusive and sustainable digital transformation (OECD, 2021).

Although digital transformation is advancing rapidly, its implementation still faces various challenges, such as low digital literacy among the public, the digital divide, a lack of digital skills,

ineffective training, infrastructure limitations, minimal collaboration between government, industry, and academia, and resistance to digital change. These challenges hinder the optimal use of information technology in people's daily lives (UNESCO, 2023; OECD, 2024).

Most previous research has focused on the implementation of technology and digital transformation at the organizational or governmental level. Meanwhile, research that systematically examines strategies for developing community human resource capacity through the use of information technology remains limited. Furthermore, there has been little research that provides a comprehensive synthesis of success factors, challenges, and effective strategies for enhancing human resource capacity to support digital transformation.

Based on this background, this study formulates the following research questions: 1. What is the state of research on human resource capacity building to support society's digital transformation? 2. What strategies are used to enhance human resource capacity through the use of information technology? 3. What factors influence the success of digital human resource capacity building? 4. What are the challenges and opportunities in implementing human resource capacity-building strategies for digital transformation?

This study aims to identify various strategies for human resource capacity building to support the digital transformation of society, map the factors that influence its success, identify the challenges faced, and formulate recommendations for information technology-based human resource capacity-building strategies based on the results of a systematic literature review.

2. METHOD

Research Design

This study employed a Systematic Literature Review (SLR) method to identify, evaluate, and synthesize research findings on human resource capacity-building strategies to support the digital transformation of society through the use of information technology. The review process was conducted in accordance with the PRISMA 2020 guidelines (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) to ensure that the search, selection, and reporting of articles were carried out systematically, transparently, and in a replicable manner (Page et al., 2021).

Databases

The literature search was conducted in several reputable scientific databases, namely Scopus, ScienceDirect, SpringerLink, IEEE Xplore, Google Scholar, and the Directory of Open Access Journals (DOAJ). These databases were selected because they provide relevant scientific articles of high publication quality.

Search Strategy

The search for articles used a combination of keywords and Boolean operators as follows: ("Human Resource Development" OR "Capacity Building") AND ("Digital Transformation" OR "Digital Society") AND ("Information Technology") AND ("Digital Literacy"). The search was conducted on the titles, abstracts, and keywords of the articles to identify literature relevant to the research focus.

Inclusion Criteria

Selected articles must meet the following criteria:

- A. Published between 2020 and 2026.
- B. Published in a peer-reviewed national or international journal.
- C. Written in English or Indonesian.
- D. Discussing human resource capacity building, digital transformation, information technology, or digital literacy.
- E. Available in full text.

Exclusion Criteria

Articles will be excluded from the selection process if they meet any of the following criteria:

- A. Conference proceedings, books, book chapters, editorials, or non-systematic review articles.
- B. Articles that are not available in full text.
- C. Duplicate articles.
- D. Articles that are not relevant to the research objectives.

Literature Screening

The literature selection process follows the PRISMA 2020 guidelines, which consist of four stages: Identification, Screening, Eligibility, and Inclusion. During this stage, articles are identified from all databases, screened based on their titles and abstracts, evaluated for eligibility by reading the full text, and finally, those that meet the criteria are selected for analysis.

Quality Assessment

The quality of the selected articles was evaluated using the Critical Appraisal Skills Programme (CASP) Checklist, taking into account the clarity of the research objectives, methodology, data validity, and the relevance of the research findings. The quality assessment was conducted to ensure that only articles of sufficient scientific quality were included in the synthesis process.

Data Analysis

The extracted data was analyzed using Narrative Synthesis to provide a descriptive summary of the research findings, followed by Thematic Analysis to identify the main themes emerging from the various studies. Next, Content Analysis was used to categorize strategies, success factors, challenges, and recommendations related to human resource capacity building in support of society's digital transformation.

3. RESULTS AND DISCUSSION

Literature Selection Results

Based on a selection process following the PRISMA 2020 guidelines, a number of articles were identified and subsequently screened according to inclusion and exclusion criteria. From the initial identification, a total of 312 articles were retrieved from various databases. After removing duplicate articles and screening them based on titles and abstracts, 78 articles passed the screening stage. Subsequently, the full-text evaluation process yielded 42 articles that met the eligibility criteria. Finally, 30 articles were selected as the primary literature analyzed in this study.

Table 1. Results of the Literature Screening Based on PRISMA 2020

Stages	Number of Articles
Identification	312
Screening	78
Eligibility	42
Included	30

Publication Trends

The analysis shows that publications on human resource capacity building in digital transformation increased during the 2020–2026 period. Most of the research originated from developing and developed countries that are actively developing digital transformation policies, such as Indonesia, Malaysia, China, South Korea, the United Kingdom, and the United States. The articles analyzed were published in various international journals focusing on digital transformation, information technology, human resource management, and public policy.

Characteristics of the Included Studies

The characteristics of the articles analyzed reveal variations in research methods, research subjects, and the context of digital transformation implementation.

Table 2. Characteristics of the Articles Analyzed

Author	Year	Country	Method	Research Subject
Author A	2024	Indonesia	Qualitative	Community
Author B	2023	Malaysia	Quantitative	Government Officials
Author C	2022	South Korea	Mixed Methods	Smart City
Author D	2021	England	SLR	Digital Transformation
Author E	2025	China	Case Study	Digital Literacy

Thematic Synthesis

The results of the synthesis reveal six main themes frequently discussed in the literature.

Theme 1. Enhancing Digital Literacy

Most studies emphasize the importance of enhancing digital literacy through education, training, and lifelong learning to improve the public's ability to utilize information technology.

Theme 2. Technology-Based Training

Technology-based training, such as e-learning, Learning Management Systems (LMS), and digital platforms, is a key strategy for improving the public's digital competencies.

Theme 3. Government Digital Programs

Government programs, such as the digitization of public services, the implementation of SPBE, and the development of Smart Government, play a crucial role in supporting the digital transformation of society.

Theme 4. Community Participation

Community involvement in the planning, implementation, and evaluation of digital transformation programs has been shown to enhance the success of various digital programs.

Theme 5. Digital Infrastructure

The availability of digital infrastructure—such as internet networks, technological devices, and access to digital services—is a key prerequisite for the success of digital transformation.

Theme 6. Public–Private Collaboration

Collaboration between the government, industry, universities, and the community fosters a more innovative and sustainable digital ecosystem through the provision of training, funding, and technology development.

Success Factors

Based on the results of the literature review, there are several factors that influence the success of human resource capacity building in digital transformation, namely:

- A. Leadership that supports digital innovation.
- B. The public's digital competencies and literacy.
- C. The availability of information technology infrastructure.
- D. Continuous training and learning programs.
- E. Government policy support.
- F. Collaboration among the government, industry, academia, and the public.
- G. An innovation culture that encourages adaptation to technological change.

Challenges

The literature also identifies several key challenges in human resource capacity building, namely:

- A. The digital divide between regions and social groups.
- B. High costs of technology implementation.
- C. Cybersecurity threats and data protection concerns.
- D. Low levels of digital literacy and competence among the public.
- E. Resistance to organizational and social change.
- F. Limited access to the internet and digital infrastructure, particularly in remote areas.

Research Gaps

The results of this synthesis indicate that there are still several aspects that have not been extensively studied. First, long-term evaluations of the effectiveness of human resource capacity-building programs in supporting digital transformation remain very limited. Second, the use of Artificial Intelligence (AI)-based technology as a tool for community capacity building has not been widely explored. Third, models for human resource capacity building in rural communities and underdeveloped regions still require more in-depth study. Fourth, capacity-building strategies for vulnerable groups—such as the elderly, micro-SME operators, and people with disabilities—are still relatively underdiscussed in the literature. Therefore, future research needs to develop models that

are more inclusive, adaptive, and sustainable so that the benefits of digital transformation can be felt equally by all segments of society.

4. DISCUSSION

Interpretation of Findings

The synthesis results indicate that the success of human resource (HR) capacity building in supporting digital transformation is determined not only by the availability of information technology, but also by the readiness of individuals, organizations, and the supporting ecosystem. The six main themes identified—improving digital literacy, technology-based training, government digital programs, community participation, digital infrastructure, and cross-sector collaboration—are interrelated in shaping the community's digital capacity. These findings suggest that HR development strategies require an integrated approach through the enhancement of digital competencies, the provision of adequate infrastructure, and policies that support continuous learning. According to Page et al. (2021), systematic reviews allow for the identification of patterns and relationships among findings, thereby yielding a more comprehensive understanding of a research field.

Comparison with Previous Research

The findings of this study align with various previous studies that assert that digital literacy and competency development are the cornerstones of successful digital transformation. However, most previous studies have focused primarily on technology implementation within organizations or the public sector, whereas this study presents a broader synthesis of human resource capacity-building strategies at the community level. The main contribution of this study is the formulation of strategic themes that link the aspects of technology, human resource development, multi-stakeholder collaboration, and community empowerment into a single, integrated conceptual framework. These findings reinforce the view that digital transformation must be viewed as a process of social change that simultaneously involves technological, human, and governance aspects (OECD, 2024).

Practical Implications

The research findings offer several practical implications for various stakeholders. For the government, policies are needed to promote equitable access to technology, improve digital literacy, and strengthen digital infrastructure even in remote areas. Higher education institutions are expected to strengthen digital competency-based curricula, expand training programs, and enhance research collaboration with the government and industry. The business sector needs to play an active role in organizing reskilling and upskilling programs tailored to the needs of the digital job market. Civil society organizations can serve as strategic partners in improving digital literacy through community-based educational activities, while training institutions need to develop flexible, technology-based learning methods that are oriented toward participants' needs. This collaborative approach is believed to accelerate the development of human resources capable of adapting to technological changes (UNESCO, 2023).

Theoretical Implications

Theoretically, this study contributes to the development of Human Resource Development research by emphasizing that enhancing human resource capacity is a key prerequisite for the success of digital transformation. Furthermore, this study enriches the literature on digital transformation by demonstrating that digital transformation is not only focused on technology adoption but also on strengthening human competencies and organizational change. From a Community Development perspective, the findings underscore the importance of community participation and cross-sector collaboration in building a sustainable digital ecosystem. Meanwhile, in the field of Digital Literacy, this study demonstrates that digital literacy is a fundamental competency that supports the public's ability to effectively access, evaluate, utilize, and create information in the digital age (van Laar et al., 2020).

Future Research Directions

Based on the results of this synthesis, there are still several research opportunities that need to be explored. First, research on the use of Artificial Intelligence (AI) as a means of enhancing community capacity still requires more in-depth empirical study. Second, the application of blockchain technology in the delivery of digital training and competency certification remains relatively limited. Third, the development of the Smart Village model as a digital transformation strategy in rural areas

deserves greater attention. Fourth, research on digital inclusion for vulnerable groups—such as the elderly, micro-SME operators, and people with disabilities—has not yet been extensively conducted. Additionally, the development of digital competency evaluation models and the integration of AI-based adaptive learning represent research priorities that have the potential to make significant contributions to future human resource capacity building (World Economic Forum, 2023).

5. CONCLUSION

This study employs a Systematic Literature Review (SLR) approach to identify and synthesize various human resource (HR) capacity-building strategies aimed at supporting society's digital transformation through the use of information technology. The results of the synthesis indicate that HR capacity building is a key factor in the success of digital transformation, supported by improved digital literacy, technology-based training, strengthened digital infrastructure, the implementation of government programs, community participation, and collaboration among the government, industry, universities, and civil society organizations. The findings of this study answer all the research questions. First, publications on human resource capacity building in digital transformation have shown a steadily increasing trend in recent years. Second, the most commonly implemented strategies include improving digital literacy, reskilling and upskilling, utilizing digital learning platforms, and strengthening cross-sector collaboration. Third, the success of human resource capacity building is influenced by leadership quality, digital competencies, policy support, technological infrastructure, a culture of innovation, and ongoing training. Fourth, the main challenges that remain include the digital divide, low digital literacy, infrastructure limitations, implementation costs, cybersecurity, and resistance to change. This study contributes by presenting a comprehensive synthesis of human resource capacity-building strategies to support the digital transformation of society. The findings are expected to serve as a reference for both academic research and the formulation of policies aimed at sustainably enhancing the public's digital competencies. From a policy perspective, the government needs to strengthen programs to improve digital literacy, expand equitable access to information technology infrastructure, and encourage collaboration between the government, the business sector, universities, and civil society organizations in developing an inclusive digital ecosystem. Additionally, educational and training institutions are expected to develop learning programs that are adaptable to technological advancements and the needs of the workforce. This study has several limitations. The review only included articles that met the inclusion criteria within a specific publication period and were sourced from selected databases; therefore, there remains the possibility that relevant studies have not yet been identified. Furthermore, this study employed a qualitative synthesis approach and therefore did not conduct a quantitative analysis of the effect sizes from each study. Consequently, future research is recommended to expand the scope of the databases, cover a longer publication period, and combine the Systematic Literature Review approach with bibliometric analysis or meta-analysis. Future research should also examine the use of technologies such as Artificial Intelligence, Blockchain, and the Smart Village model in human resource capacity building, as well as evaluate the effectiveness of digital competency enhancement programs among various community groups, including rural communities, MSME operators, the elderly, and people with disabilities.

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