

# Public Service Transformation: A Literature Review on the Role of Technology in Improving Service Quality

Soma Gantika\*

\* Department of Public Administration, Universitas Pasundan, Bandung Jawa Barat, Indonesia.  
Email: [laras.puspita12@gmail.com](mailto:laras.puspita12@gmail.com) [soma.gantika@unpas.ac.id](mailto:soma.gantika@unpas.ac.id)

## ARTICLE HISTORY

Received: December 25, 2024

Revised: January 01, 2025

Accepted: February 28, 2025

## DOI

<https://doi.org/10.52970/grsse.v5i1.952>

## ABSTRACT

The application of technology in public services has become an essential topic in various discussions on service efficiency and quality. However, in Indonesia, the implementation of technology in the public sector still faces multiple challenges that need to be further analyzed. This research aims to explore the role of technology in improving the quality of public services in Indonesia, focusing on e-government, big data analytics, and artificial intelligence (AI), as well as the supporting factors that influence its success. The method used in this research is a literature review, which reviews various previous studies on the application of technology in the public sector in Indonesia and developed countries. Technologies such as e-government, big data analytics, and AI have been proven to improve the efficiency and transparency of public services in developed countries. However, in Indonesia, the implementation still faces obstacles, such as low digital literacy among employees and the public and resistance to change. Factors that support technology implementation include digital literacy, organizational readiness, and pro-digitalization government policies. The implementation of digital technology has great potential to improve the quality of public services in Indonesia. However, existing challenges must be overcome, especially regarding infrastructure, digital literacy, and supportive policies. Improving digital literacy and organizational readiness are key to successful digital transformation in the public sector.

**Keywords:** Technology, Public Service, Service Quality.

## I. Introduction

Public service is one of the main pillars of realizing good governance. Information technology has become a significant catalyst in transforming public services in various countries, including Indonesia, in recent decades. The urgency of this research lies in the increasing public expectations for faster, more transparent, and more efficient services. Amid the Industrial Revolution 4.0 phenomenon, the government faces significant challenges adapting to digital technology to improve service quality. For example, applying technologies such as e-government, artificial intelligence (AI), and big data analytics in the public sector has significantly improved operational efficiency and public satisfaction (Dwivedi et al., 2023). However, the application of technology in public services in Indonesia still faces various obstacles, such as low digital literacy, uneven infrastructure, and resistance to change (Susanto, 2022). These conditions indicate that

research on the role of technology in improving the quality of public services needs to be carried out immediately to answer these challenges.

One meaningful relationship that is the focus of this research is between technology implementation and the quality of public services. Technology enables better accessibility, increased transparency, and reduced complex bureaucracy. However, this relationship is influenced by other variables, such as organizational readiness, human resource capability, and government policy support. Previous research, such as that conducted by Dwivedi et al. (2023), has shown that implementing digital technology can increase public trust in government. However, these studies focused more on developed countries and less on the context of developing countries like Indonesia, which have different challenges and dynamics. This creates a research gap that needs to be filled through more localized studies (Rahman et al., 2021).

Other related research, such as that conducted by Susanto (2022), found that low levels of implementation still constrain technology adoption in public services in Indonesia due to a lack of integration between systems. The study provides an overview but does not yet explain how technology can be optimized to improve service quality holistically. In addition, the study by Rahman et al. (2021) highlights the importance of digital literacy in successfully implementing technology. However, how this factor affects public service satisfaction has not been examined. Thus, there is a research gap in an in-depth analysis of the Indonesian context's relationship between technology, service quality, and supporting factors. To conclude, this research offers novelty in the form of a comprehensive analysis of the role of technology in improving the quality of public services, particularly in Indonesia. This novelty includes an approach emphasizing integrating technology with supporting variables, such as digital literacy and human resource capabilities. This research is also expected to provide practical benefits for policymakers in formulating effective technology implementation strategies. This research aims to identify key factors that influence the successful adoption of technology in public services, evaluate its impact on service quality, and provide evidence-based recommendations for technology optimization in the context of the Indonesian government. Thus, this research not only answers the existing gaps but also makes a real contribution to improving the quality of public services in the digital era.

## II. Literature Review and Hypothesis Development

### 2.1. Technology Innovation

Technological innovation refers to creating, developing, and implementing new technology-based solutions to improve service efficiency and effectiveness. According to Rogers (2003), technological innovation in organizations can be adopted through five stages: knowledge, persuasion, decision, implementation, and confirmation. In public services, technological innovation includes implementing e-government systems, using web-based service applications, and integrating data across agencies (Mergel, Edelman, & Haug, 2019). Ting and Chou (2018) assert that the success of technological innovation depends on organizational readiness, policy support, and public acceptance. In addition, the Technology Acceptance Model (TAM) theory developed by Davis (1989) is also relevant in explaining how perceived ease of use and technological benefits affect technology adoption in public services.

### 2.2. Service Quality

Service quality is the extent to which the services can meet or exceed user expectations. According to Grönroos (1984), service quality consists of two main dimensions: technical quality (outcome) and functional quality (process). Parasuraman, Zeithaml, and Berry (1988), through the SERVQUAL model, identified five dimensions of service quality: tangibility, reliability, responsiveness, assurance, and empathy. In public services, service quality is often associated with the government's ability to provide fast, accurate,

transparent, and accessible services (Osborne, Radnor, & Nasi, 2013). Liu and Lin (2022) state that technology can improve these aspects, but success depends on human resource management and process supervision.

### 2.3. Community Satisfaction

Community satisfaction refers to the level of conformity between community expectations and the reality of the services received. Kotler and Keller (2016) define satisfaction as an emotional response to a consumption experience, which reflects an evaluation of whether a service meets or exceeds expectations. In the Expectation-Confirmation Model (ECM) theory developed by Oliver (1980), satisfaction is influenced by initial expectations, perceived performance, and the level of confirmation of expectations. In the context of public services, public satisfaction is often used as an indicator of the success of service transformation, focusing on aspects of speed, accessibility, and fairness in service distribution (Brinkerhoff & Brinkerhoff, 2015).

### 2.4. Implementation of Technology in Public Services

Implementing technology in public services is often influenced by infrastructure readiness, human resources, and organizational culture (Li et al., 2022). A study by Mergel et al. (2019) shows that successful technology transformation requires a holistic approach involving all stakeholders. This includes strategic planning, team member training, and monitoring of program implementation. Conversely, technology implementation failures are often caused by a lack of integration between technology systems and existing business processes (Heeks, 2018). Janssen et al. (2015) added that bureaucratic complexity is also a significant obstacle to digital transformation in the public sector.

### 2.5. Key Factors for Successful Technology Transformation

Based on the literature review, several key factors influence the success of technological transformation in public services:

1. Infrastructure Readiness: Adequate technological infrastructure is the main prerequisite for supporting digital systems (Zhang, 2020).
2. Human Resource Competencies: Training and developing digital competencies for government employees is essential to support technology implementation (Liu & Lin, 2022).
3. Change Management: The government must manage resistance to change through effective communication and active participation from all relevant parties (Osborne et al., 2013).
4. Public Education: Provide digital literacy to the community to ensure maximum accessibility and utilization of services (Smith et al., 2023).

## III. Research Method

The research method in this literature review will focus on a systematic and comprehensive analysis of the existing literature on the role of technology in improving the quality of public services, with particular emphasis on the Indonesian context. This research uses a literature review approach that aims to identify and analyze various previous studies relevant to this topic.

### 3.1. Literature Sources

The literature sources used in this research include journal articles, books, research reports, and case studies from various international and national publications. The focus will be on publications related to the application of technology in the public sector, especially in developing countries such as Indonesia. Some

topics that will be explored include e-government, big data analytics, artificial intelligence, digital literacy, and other supporting factors in public services (Heeks, 2018; Mergel, 2019).

### 3.2. Literature Selection Criteria

1. Relevance: The literature selected must be directly related to the research topic, namely, technology in public services and its impact on service quality (Mergel, 2019).
2. Quality: Focus on literature published in reputable scientific journals, government research reports, and publications from international institutions (Heeks, 2018).
3. Indonesian context: Paying particular attention to research that addresses the application of technology in Indonesia, although global studies are also needed to provide a broader perspective (Setiawan & Aryanto, 2020).

### 3.3. Data Analysis

The analysis approach used is thematic analysis. Each study reviewed will be analyzed based on key themes that emerge in the context of technology, service quality, and other supporting factors such as digital literacy and human resource capabilities. This analysis will help identify existing studies' trends, gaps, and differences and relate the findings to Indonesia's challenges (Setiawan & Aryanto, 2020).

### 3.4. Theory Synthesis and Development

After the analysis, the results of the literature review will be synthesized to build a theoretical framework regarding the relationship between technology implementation, service quality, and supporting factors in the Indonesian context. This framework is expected to contribute to developing theories about digital transformation in the public sector (Heeks, 2018).

### 3.5. Practical Implications

This research not only focuses on theory but also provides practical recommendations for policymakers and practitioners in the public sector, especially in formulating technology implementation strategies to improve public service quality. These recommendations will be based on the findings of the existing literature review, with an emphasis on solutions that fit the local challenges in Indonesia (Mergel, 2019).

## IV. Results and Discussion

The results of this study are based on the analysis of the literature review conducted, with the following main findings:

### 4.1. Application of Technology in Public Services

Technologies such as e-government, big data analytics, and artificial intelligence (AI) have been proven to improve the efficiency and quality of services in developed countries. These technological innovations contribute significantly to creating a more transparent, responsive, and efficient system. However, in Indonesia, the application of these technologies still faces various challenges that hinder their optimization. One of the main obstacles is the uneven integration of systems in various service sectors, which causes process fragmentation and inefficiency. In addition, team member resistance to change is a significant obstacle that slows the adoption of new technologies. Nevertheless, technology-based public services still show great

potential to improve transparency and efficiency, although realization on the ground is often far from expectations (Mergel, 2019; Heeks, 2018).

#### 4.2. Supporting Factors for Technology Implementation

Low digital literacy among government employees and the public is one of the main barriers to technology implementation in the public sector. Studies show that high digital literacy is important in accelerating technology adoption, making it easier for individuals to understand and utilize technology effectively (Setiawan & Aryanto, 2020). In addition, organizational readiness is also a crucial factor in successful technology implementation. Organizations with a work culture supporting innovation and change tend to be more successful in adopting and managing digital transformation. Therefore, policies that encourage such changes are indispensable. Governments with clear policies and support for digital transformation can encourage accelerating technology implementation, especially in remote areas often left behind regarding digital infrastructure and resources (Mergel, 2019; Choudrie & Dwivedi, 2021).

#### 4.3. Impact of Technology on the Quality of Public Services

Technology has great potential to increase transparency, speed up bureaucratic processes, and reduce corrupt practices in public services. Effective technology adoption can facilitate better oversight and make it easier for people to access public services more efficiently. However, the successful implementation of these technologies largely depends on how well they can be appropriately integrated into the existing public service system. In addition, the government's readiness to manage the changes that come with digital transformation also plays an important role. Without adequate readiness in terms of infrastructure, team member training, and policy adjustments, technology's potential to improve public service quality will not be fully realized (Setiawan & Aryanto, 2020).

#### 4.4. Discussion

The application of technology in public services in Indonesia shows excellent potential to improve the quality of services but still faces various challenges. Technologies like e-government, big data analytics, and artificial intelligence (AI) have proven effective in developed countries, where digital innovation can create more transparent, efficient, and responsive service systems (Alshehri & Drew, 2010; Rana et al., 2015). Although various technology initiatives have begun to be implemented in Indonesia, such as e-government in several regions, technology implementation is often hampered by factors such as resistance to change and lack of system integration (Susanto et al., 2021). This shows that although technology has the potential to improve public services, its success is highly dependent on readiness and a strategic approach to its implementation.

Supporting factors such as digital literacy are one of the most influential aspects of the success of technology implementation. Previous research has shown that low levels of digital literacy among government employees and the public are the main obstacles to effective technology adoption (Setiawan & Aryanto, 2020). High digital literacy affects technical skills and increases community participation in technology-based services (Choudrie & Dwivedi, 2021). In addition, organizational readiness is also the key to success. Organizations with an adaptive work culture and support digital innovation are more receptive to change than resistive organizations (Mergel, 2019). In this context, Heeks' (2018) research highlights the importance of the readiness of bureaucratic structures to adopt technology, especially in developing countries.

Government policies are also important in accelerating digital transformation in the public sector. Choudrie and Dwivedi (2021) found that governments with consistent policies that support digitalization are more successful in integrating technology into service systems. In Indonesia, although there are regulations such as the Presidential Regulation on Electronic-Based Government Systems (SPBE), their implementation is

often uneven, especially in remote areas. The study by Dwivedi et al. (2020) emphasized that policies that provide strategic direction and technical and funding support are needed to overcome this obstacle.

The impact of technology on the quality of public services is very significant if appropriately managed. Technology can increase transparency, accelerate bureaucratic processes, and reduce corruption, as found in studies by Heeks (2018) and Rana et al. (2015). However, this impact can only be achieved if the technology system is fully integrated into the public service process. System fragmentation, as reported by Susanto et al. (2021) in Indonesia, can hinder efficiency and create new challenges. Therefore, strengthening system integration and team member training is crucial. This study provides important implications for policymakers and practitioners in the public sector. In the short term, efforts to improve digital literacy among employees and the public should be a priority. As suggested by Mergel et al. (2019), continuous training can help improve employees' capabilities in managing technology. In addition, investment in digital infrastructure, especially in remote areas, must be increased to ensure equitable access to technology. In the long term, the government must create policies supporting digital transformation and encourage synergy between various agencies in building an integrated and sustainable system.

## V. Conclusion

Based on the literature review results on the application of technology in public services, it can be concluded that technology, such as e-government, big data analytics, and artificial intelligence (AI), has excellent potential to improve public service efficiency, transparency, and quality. In developed countries, technology has successfully optimized the public service process. However, in Indonesia, the application of technology still faces various challenges, such as limited infrastructure, team member resistance to change, and low digital literacy among the community and government employees. The main supporting factors for the success of technology implementation include higher digital literacy, organizational readiness to adopt technology, and government policies that support digital transformation. The central government needs to pay special attention to developing policies that encourage the adoption of technology in remote areas and increasing digital literacy among employees and the community to accelerate the implementation of technology effectively. The positive impact of technology on public services is highly dependent on integrating technology into existing systems and the government's readiness to manage these changes. Without adequate readiness, the application of technology may fail to achieve the desired goals. Therefore, the government needs to ensure strong policy support and the provision of adequate infrastructure so that digital transformation in public services can occur properly. Although the challenges are significant, with the right approach to increasing digital literacy, policy support, and organizational readiness, technology has great potential to improve the quality of public services in Indonesia.

## References

- Alshehri, M., & Drew, S. (2010). Implementation of e-government: Advantages and challenges. *International Journal of Advanced Computer Science and Applications*.
- Anderson, J., & Rainie, L. (2020). *The Role of Technology in Improving Public Sector Performance*. Pew Research Center.
- Brinkerhoff, D. W., & Brinkerhoff, J. M. (2015). Public Sector Management Reform in Developing Countries: Perspectives Beyond NPM Orthodoxy. *Public Administration and Development*, 35(4), 222–237. <https://doi.org/10.1002/pad.1739>
- Brown, T., Green, L., & Cooper, M. (2019). Organizational Readiness for Digital Transformation in Public Administration. *Public Management Review*, 21(2), 195–213. <https://doi.org/10.1080/14719037.2018.1480246>
- Chourabi, H., Nam, T., & Heeks, R. (2012). Understanding the Role of E-Government in Public Administration Reform: A Comparative Perspective. *Government Information Quarterly*, 29(4), 587–594. <https://doi.org/10.1016/j.giq.2012.03.005>
- Choudrie, J., & Dwivedi, Y. K. (2021). Bridging the Digital Divide in Developing Countries. *Telecommunications Policy*, 45(8), 102–122. <https://doi.org/10.1016/j.telpol.2020.102122>

- Choudrie, J., & Dwivedi, Y. K. (2021). Digital Transformation and Public Sector Trust: Implications for E-Government. *Government Information Quarterly*, 38(3), 101–116. <https://doi.org/10.1016/j.giq.2021.101116>
- Davis, F. D. (1989). Perceived Usefulness, Ease of Use, and User Acceptance of Information Technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>
- Dwivedi, Y. K., Rana, N. P., & Janssen, M. (2020). Exploring the Impact of Digital Transformation in Public Administration. *Government Information Quarterly*, 37(3), 101–108. <https://doi.org/10.1016/j.giq.2020.101108>
- Dwivedi, Y. K., et al. (2023). Impact of Technology on Public Services: A Global Perspective.
- Gordijn, B., Tan, Y., & Goss, D. (2020). *Digital Transformation and the Public Sector: A Global Perspective*. Oxford University Press.
- Grönroos, C. (1984). A Service Quality Model and Its Marketing Implications. *European Journal of Marketing*, 18(4), 36–44. <https://doi.org/10.1108/EUM0000000004784>
- Heeks, R. (2018). *Digital Government: Technology and Public Sector Performance*. Routledge.
- Heeks, R. (2018). *Digital Government for Development*. E-Government and Development Research Center.
- Janssen, M., Charalabidis, Y., & Zuiderwijk, A. (2015). Benefits, Adoption Barriers, and Myths of Open Data and Open Government. *Information Systems Management*, 32(4), 258–268. <https://doi.org/10.1080/10580530.2015.1080744>
- Jansen, A., van den Bosch, A., & Molenaar, P. (2020). *Technology and Governance: E-Government in Emerging Economies*. Springer. <https://doi.org/10.1007/978-3-030-36975-4>
- Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). Pearson Education.
- Li, X., Zhao, Z., & Hu, R. (2022). Digital Transformation in Public Sector Organizations: Drivers and Challenges. *Journal of Digital Government*, 18(1), 34–47.
- Liu, J., & Lin, S. (2022). Enhancing Service Quality in Public Administration Through Digital Innovations. *Public Policy and Administration Review*, 30(2), 120–135.
- Mergel, I. (2019). *Agile Government: Practices, Processes, and Public Sector Transformation*. Oxford University Press.
- Mergel, I. (2019). Digital Transformation of Government. *Public Administration Review*, 79(5), 725–735. <https://doi.org/10.1111/puar.13102>
- Mergel, I., Edelmann, N., & Haug, N. (2019). Defining Digital Transformation: Results from Expert Interviews. *Government Information Quarterly*, 36(4), 101385. <https://doi.org/10.1016/j.giq.2019.06.002>
- Oliver, R. L. (1980). A Cognitive Model of the Antecedents and Consequences of Satisfaction Decisions. *Journal of Marketing Research*, 17(4), 460–469. <https://doi.org/10.2307/3150499>
- Osborne, S. P., Radnor, Z., & Nasi, G. (2013). A New Theory for Public Service Management? Toward a (Public) Service-Dominant Approach. *American Review of Public Administration*, 43(2), 135–158. <https://doi.org/10.1177/0275074012466935>
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing*, 64(1), 12–40.
- Paryanto, & Hidayati, S. (2021). Big Data and AI in Indonesian E-Government: Progress and Challenges. *Journal of Public Administration*, 9(1), 67–79.
- Rahman, R., et al. (2021). Digital Literacy and Its Impact on Public Sector Transformation in Developing Countries.
- Rana, N. P., Dwivedi, Y. K., & Williams, M. D. (2015). E-Government Adoption Research. *Information Systems Frontiers*, 17(3), 559–574. <https://doi.org/10.1007/s10796-013-9435-z>
- Rogers, E. M. (2003). *Diffusion of Innovations* (5th ed.). Free Press.
- Setiawan, M., & Aryanto, A. (2020). Penerapan Teknologi Digital dalam Pelayanan Publik di Indonesia: Tantangan dan Peluang. *Jurnal Teknologi Informasi*, 15(2), 88–99.
- Smith, A., Jones, B., & Williams, R. (2023). Bridging the Digital Divide: Community Education for Equitable Service Delivery. *Digital Policy Journal*, 14(2), 78–95.
- Susanto, H. (2022). Challenges in Adopting Digital Technology in Public Service Delivery in Indonesia.
- Susanto, T., & Aryanto, R. (2021). Challenges of Digital Governance in Indonesia. *Journal of Public Administration*.
- Ting, Y., & Chou, P. (2018). Organizational Readiness and the Adoption of Technology Innovations in Public Service Delivery. *Public Performance & Management Review*, 41(3), 479–504. <https://doi.org/10.1080/15309576.2017.1403333>
- West, D. M. (2018). *Digital Government: Technology and Public Sector Performance*. Brookings Institution Press.
- Wirtz, B. W., & Langer, M. (2020). *Digital Transformation and the Public Sector: Trends, Issues, and Solutions*. Springer. <https://doi.org/10.1007/978-3-030-40174-4>
- Zhang, T. (2020). Infrastructure Readiness for E-Government: A Systematic Review. *Electronic Journal of E-Government*, 18(1), 22–37.