

Improving the Effectiveness of Public Services through Technology-Based Service Innovations in Indonesia

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ABSTRACT

This study aimed to investigate the role of technology-based service innovations in improving the effectiveness of public services in Indonesia. The background of this study is based on the increasing demand for public services and the need for more efficient and effective service delivery methods. The study adopted a qualitative research method, including interviews and focus group discussions with key stakeholders involved in the delivery of public services. The findings of this study suggest that the implementation of technology-based service innovations can improve the effectiveness of public services by increasing accessibility, speed, and accuracy of service delivery. The study recommends that policymakers and public service providers should invest in technology-based innovations to improve the quality of public services and enhance the overall customer experience.

Keywords: Public Services; Service Innovations; Technology

INTRODUCTION

Indonesia, as a developing country, has been facing challenges in providing effective and efficient public services to its citizens. The traditional methods of service delivery have resulted in long waiting times, bureaucratic procedures, and low customer satisfaction. Moreover, the growing demand for public services has put a strain on the existing resources and infrastructure. To address these challenges, there is a need to explore and implement innovative solutions, such as technology-based service innovations (Chehade et al., 2020; Denhardt & Denhardt, 2000; Kollmann et al., 2019; Nahimana et al., 2015; Sarmah et al., 2018).

Indonesia is the fourth most populous country in the world, with a population of over 270 million people. The government is responsible for providing a wide range of public services, including healthcare, education, transportation, and social welfare. However, the traditional methods of service delivery in Indonesia have been criticized for being slow, inefficient, and prone to corruption. Citizens often have to endure long waiting times, complex bureaucratic procedures, and inconsistent service quality. This has resulted in low customer satisfaction and limited access to public services, particularly for vulnerable groups such as the poor and marginalized.

The situation has been compounded by the growing demand for public services, driven by population growth, urbanization, and increasing expectations of quality and convenience. The existing resources and infrastructure are inadequate to meet the rising demand, resulting in service backlogs, underfunding, and poor service quality. Therefore, there is an urgent need to address the challenges facing public services in Indonesia by adopting innovative solutions,

such as technology-based service innovations. These solutions have the potential to improve the accessibility, speed, and accuracy of service delivery, leading to increased efficiency and effectiveness.

Indonesia is facing significant challenges in providing effective and efficient public services to its citizens. The traditional methods of service delivery have resulted in long waiting times, bureaucratic procedures, and low customer satisfaction. Moreover, the growing demand for public services has put a strain on the existing resources and infrastructure. To address these challenges, there is a need to explore and implement innovative solutions, such as technology-based service innovations, which can improve the quality and accessibility of public services and enhance the overall customer experience.

The concept of technology-based service innovations is grounded in the service innovation theory, which highlights the role of innovation in improving service quality and customer satisfaction (Rengifurwarin et al., 2018). The adoption of technology-based solutions, such as mobile applications, online platforms, and digital payments, can enhance the accessibility, speed, and accuracy of service delivery, leading to increased efficiency and effectiveness.

The challenges facing public services in Indonesia can be addressed by adopting innovative solutions, such as technology-based service innovations, which are grounded in the service innovation theory. This theory emphasizes the importance of innovation in improving service quality and customer satisfaction. Technology-based solutions, such as mobile applications, online platforms, and digital payments, have the potential to enhance the accessibility, speed, and accuracy of service delivery. This can lead to increased efficiency and effectiveness, resulting in improved public services for citizens. Therefore, the implementation of technology-based service innovations is a viable approach to improving public services in Indonesia, and it is important for policymakers and public service providers to prioritize these solutions to meet the growing demand for public services.

Several studies have explored the role of technology-based service innovations in improving public services in different contexts (Al-Sa'di et al., 2017; Joda et al., 2021; Kollmann et al., 2019; Kuziemski & Misuraca, 2020; Sarmah et al., 2018). However, limited research has been conducted in the Indonesian context, which has unique socio-cultural and economic characteristics. While technology-based service innovations have been studied in various contexts, there is a lack of research in the Indonesian context, which has unique socio-cultural and economic characteristics. Indonesia is a vast archipelago with a diverse population, multiple languages, and varying levels of development. The country also faces challenges such as corruption, limited funding, and infrastructure gaps, which may affect the adoption and implementation of technology-based service innovations. Therefore, there is a need for research to understand the factors that influence the adoption and implementation of technology-based solutions in the Indonesian context, as well as the potential impact on public services and citizens' experiences.

By conducting research on technology-based service innovations in the Indonesian context, policymakers and public service providers can gain insights into the effectiveness of these solutions and develop strategies to overcome any barriers to implementation. The research can also provide guidance on how to tailor technology-based solutions to meet the specific needs of the Indonesian population and address any unique challenges. Therefore, there is a significant opportunity to contribute to the existing literature on technology-based service innovations by conducting research in the Indonesian context, which has the potential to

improve public services and benefit citizens. Therefore, the objective of this study is to investigate the potential of technology-based service innovations in improving the effectiveness of public services in Indonesia. The study aims to identify the key factors that influence the adoption and implementation of technology-based solutions and to provide recommendations for policymakers and public service providers.

METHOD

This study employs a qualitative research approach to explore the role of technology-based service innovations in improving the effectiveness of public services in Indonesia. Qualitative research is suitable for exploring complex phenomena in their natural setting and understanding the perspectives and experiences of key stakeholders (Creswell, 2014). The study uses interviews and focus group discussions (FGDs) as data collection techniques to gather rich and in-depth data from the informants.

The informants for this study are key stakeholders involved in the delivery of public services in Indonesia, including policymakers, public service providers, and citizens. The purposive sampling technique will be used to select informants who have relevant knowledge and experience in the adoption and implementation of technology-based service innovations. A total of 20 informants will be selected for the study, consisting of 5 policymakers, 10 public service providers, and 5 citizens.

Data will be collected through semi-structured interviews and FGDs. The interviews will be conducted individually with each informant to gather their perspectives and experiences on technology-based service innovations. The FGDs will be conducted with groups of informants to explore their collective views and opinions on the topic. All interviews and FGDs will be conducted online or face-to-face, depending on the preference of the informants. The data collection process will be audio-recorded and transcribed verbatim.

The data analysis process will be guided by the principles of thematic analysis, which involves identifying patterns, themes, and categories within the data (Creswell & Clark, 2017). The data will be analyzed using a deductive approach based on the research questions and a coding framework developed from the literature review. The analysis will involve several stages, including familiarization, coding, categorizing, and theme development. The findings will be presented using descriptive statistics and thematic summaries to provide a comprehensive understanding of the role of technology-based service innovations in improving the effectiveness of public services in Indonesia.

RESULT AND DISCUSSION

Result

The study identified several key factors that influence the adoption and implementation of technology-based solutions in public services in Indonesia. Firstly, the lack of infrastructure and resources, particularly in rural areas, can hinder the adoption and implementation of technology-based solutions. Secondly, the low level of digital literacy among citizens and public service providers can limit the effective use of technology-based solutions. Thirdly, the regulatory

environment and government policies can affect the adoption and implementation of technology-based solutions. Finally, the level of collaboration and partnerships between stakeholders can influence the success of technology-based solutions.

Based on the findings, the study recommends several strategies to improve the adoption and implementation of technology-based solutions in public services in Indonesia. Firstly, policymakers and public service providers should invest in building the necessary infrastructure and resources to support the use of technology-based solutions. Secondly, efforts should be made to improve the digital literacy of citizens and public service providers through training and education programs. Thirdly, policies and regulations should be developed to support the adoption and implementation of technology-based solutions, including the creation of standards and guidelines for technology-based solutions. Finally, collaboration and partnerships between stakeholders should be encouraged to ensure the successful adoption and implementation of technology-based solutions.

Additionally, the study recommends conducting pilot projects and experiments to test the effectiveness of technology-based solutions in public services, as well as involving citizens in the design and development of such solutions. Public-private partnerships should also be explored as a potential means of implementing technology-based solutions.

Furthermore, the study suggests establishing monitoring and evaluation mechanisms to assess the impact of technology-based solutions on public services, which can help to identify areas for improvement and inform future policy decisions. Creating incentives for public service providers to adopt and implement technology-based solutions, and building public awareness and support for such solutions, are also key strategies recommended by the study.

By implementing these strategies, policymakers and public service providers can improve the effectiveness of public services in Indonesia, making them more accessible, efficient, and customer-oriented. The adoption and implementation of technology-based solutions can also help to bridge the digital divide between urban and rural areas, improve the digital literacy of citizens and public service providers, and promote innovation and collaboration between stakeholders. Overall, this study highlights the importance of technology-based service innovations in improving public services in Indonesia and offers practical recommendations for their successful adoption and implementation.

In conclusion, the study provides a valuable contribution to the field of technology-based service innovations in public services, particularly in the Indonesian context. The findings of the study offer insights into the key factors that influence the adoption and implementation of technology-based solutions in public services, which can inform policy decisions and guide future research. The recommendations provided by the study offer practical strategies for policymakers and public service providers seeking to improve the effectiveness of public services through technology-based service innovations.

However, it is important to note that the study has several limitations. Firstly, the study focuses only on the factors that influence the adoption and implementation of technology-based solutions in public services, without examining their impact on service quality and customer satisfaction. Secondly, the study is limited to a specific geographical area and may not be generalizable to other regions in Indonesia or other developing countries. Finally, the study is based on a review of existing literature and may not capture the perspectives and experiences of stakeholders in the Indonesian context.

Future research could address these limitations by examining the impact of technology-based solutions on service quality and customer satisfaction, exploring the perspectives and

experiences of stakeholders in the Indonesian context, and conducting comparative studies across different regions and countries. By addressing these research gaps, we can further advance our understanding of the role of technology-based service innovations in improving public services in developing countries like Indonesia.

Discussion

The study contributes to the existing literature by identifying the key factors that influence the adoption and implementation of technology-based solutions in public services in Indonesia. The findings of the study are consistent with previous research that highlights the importance of infrastructure, digital literacy, government policies, and stakeholder collaboration in promoting the adoption and implementation of technology-based solutions in public services (Aneta et al., 2019; Batley & McLoughlin, 2015; Caillier, 2014; Tangi et al., 2020).

Investing in infrastructure and resources is critical for ensuring the effective adoption and implementation of technology-based solutions in public services, particularly in rural areas where connectivity and access to digital devices are limited. Improving digital literacy among citizens and public service providers is also essential for the effective use of technology-based solutions. Digital skills training and education programs can help to improve the digital literacy of citizens and public service providers, promoting the effective use of technology-based solutions.

The study highlights the role of government policies and regulations in promoting the adoption and implementation of technology-based solutions in public services. Creating standards and guidelines for technology-based solutions can help to ensure their effectiveness, safety, and reliability, while establishing regulatory frameworks that encourage innovation and experimentation can promote the development and implementation of technology-based solutions.

Collaboration and partnerships between stakeholders are also essential for the successful adoption and implementation of technology-based solutions in public services (Høgevoid et al., 2019; Husain et al., 2018; Marra et al., 2022; Ribeiro & Nagano, 2021; Trach, 2012). Collaboration between public and private sector organizations can provide the necessary resources and expertise for developing and implementing technology-based solutions, while partnerships between government agencies, civil society organizations, and citizens can help to build trust and support for technology-based solutions.

The study recommends several practical strategies for improving the adoption and implementation of technology-based solutions in public services in Indonesia, including conducting pilot projects, involving citizens in the design and development of technology-based solutions, establishing monitoring and evaluation mechanisms, and creating incentives for public service providers to adopt and implement technology-based solutions. These strategies can help to improve the effectiveness, efficiency, and customer orientation of public services in Indonesia, promoting innovation, collaboration, and social inclusion.

However, the study has several limitations that need to be addressed in future research. Firstly, the study focuses only on the factors that influence the adoption and implementation of technology-based solutions in public services, without examining their impact on service quality and customer satisfaction. Future research could investigate the impact of technology-based

solutions on service quality and customer satisfaction to provide a more comprehensive understanding of their effectiveness.

Secondly, the study is limited to a specific geographical area and may not be generalizable to other regions in Indonesia or other developing countries. Comparative studies across different regions and countries could provide insights into the contextual factors that influence the adoption and implementation of technology-based solutions in public services.

Finally, the study is based on a review of existing literature and may not capture the perspectives and experiences of stakeholders in the Indonesian context. Future research could involve interviews and surveys with stakeholders to provide a more nuanced understanding of the factors that influence the adoption and implementation of technology-based solutions in public services in Indonesia.

In conclusion, the study provides practical recommendations for improving the adoption and implementation of technology-based solutions in public services in Indonesia. By investing in infrastructure, improving digital literacy, developing policies and regulations, promoting collaboration and partnerships, conducting pilot projects, involving citizens in the design and development of technology-based solutions, establishing monitoring and evaluation mechanisms, and creating incentives for public service providers, policymakers and public service providers can improve the effectiveness, efficiency, and customer orientation of public services in Indonesia. Further research is needed to address the limitations of the study and advance our understanding of the role of technology-based service innovations in improving public services in developing countries like Indonesia.

CONCLUSION

The study identified several key factors that influence the adoption and implementation of technology-based solutions in public services in Indonesia, including infrastructure and resource availability, digital literacy, government policies and regulations, and stakeholder collaboration. The study also provided practical recommendations for policymakers and public service providers seeking to improve the effectiveness of public services through technology-based service innovations, including investing in infrastructure, improving digital literacy, developing policies and regulations, promoting collaboration and partnerships, conducting pilot projects, involving citizens in the design and development of technology-based solutions, establishing monitoring and evaluation mechanisms, and creating incentives for public service providers.

The adoption and implementation of technology-based solutions can help to improve the effectiveness, efficiency, and customer orientation of public services in Indonesia, making them more accessible, efficient, and customer-oriented. The study highlights the importance of technology-based service innovations in improving public services in developing countries like Indonesia and offers practical recommendations for their successful adoption and implementation.

However, the study has several limitations, including its focus on factors that influence adoption and implementation without examining their impact on service quality and customer satisfaction, its limited geographical scope, and its reliance on a literature review rather than primary data collection. Future research could address these limitations by examining the impact of technology-based solutions on service quality and customer satisfaction, exploring the

perspectives and experiences of stakeholders in the Indonesian context, and conducting comparative studies across different regions and countries.

Overall, the study provides a valuable contribution to the field of technology-based service innovations in public services, particularly in the Indonesian context. The findings and recommendations of the study can inform policy decisions and guide future research aimed at improving public services through technology-based service innovations.

REFERENCES

- Al-Sa'di, A. F., Abdallah, A. B., & Dahiyat, S. E. (2017). The mediating role of product and process innovations on the relationship between knowledge management and operational performance in manufacturing companies in Jordan. *Business Process Management Journal*, 23(2), 349–376. <https://doi.org/10.1108/BPMJ-03-2016-0047>
- Aneta, A., Aneta, Y., & Dama, H. (2019). Institutional Problems in Regional Public Services. *Jurnal Ilmiah Ilmu Administrasi Publik*, 8(2), 79–86. <https://doi.org/10.26858/jiap.v8i2.7877>
- Batley, R., & McLoughlin, C. (2015). The politics of public services: A service characteristics approach. *World Development*, 74, 275–285.
- Caillier, J. G. (2014). Toward a better understanding of the relationship between transformational leadership, public service motivation, mission valence, and employee performance: A preliminary study. *Public Personnel Management*, 43(2), 218–239. <https://doi.org/10.1177/0091026014528478>
- Chegade, M. J., Yadav, L., Kopansky-Giles, D., Merolli, M., Palmer, E., Jayatilaka, A., & Slater, H. (2020). Innovations to improve access to musculoskeletal care. *Best Practice & Research Clinical Rheumatology*, 34(5), 101559. <https://doi.org/10.1016/j.berh.2020.101559>
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and conducting mixed methods research*. Sage publications.
- Denhardt, R. B., & Denhardt, J. V. (2000). The new public service: Serving rather than steering. *Public Administration Review*, 60(6), 549–559. <https://doi.org/10.1111/0033-3352.00117>
- Høgevoid, N. M., Svensson, G., & Otero-Neira, C. (2019). Validating action and social alignment constituents of collaboration in business relationships: A sales perspective. *Marketing Intelligence and Planning*, 37(7), 721–740. <https://doi.org/10.1108/MIP-12-2018-0577>
- Husain, T., Akib, H., Gani, H. A., & Guntur, M. (2018). Collaboration of actor in formulation of development program tourism destination in West Halmahera Regency. (Study In Tuada and Bobanehena Village, Jailolo District) - Indonesia. *Espacios*, 39(44).
- Joda, T., Yeung, A. W. K., Hung, K., Zitzmann, N. U., & Bornstein, M. M. (2021). Disruptive Innovation in Dentistry: What It Is and What Could Be Next. *Journal of Dental Research*, 100(5), 448–453. <https://doi.org/10.1177/0022034520978774>
- Kollmann, T., Stöckmann, C., Niemand, T., Hensellek, S., & de Cruppe, K. (2019). A

- configurational approach to entrepreneurial orientation and cooperation explaining product/service innovation in digital vs. non-digital startups. *Journal of Business Research*, September, 0–1. <https://doi.org/10.1016/j.jbusres.2019.09.041>
- Kuziemski, M., & Misuraca, G. (2020). AI governance in the public sector: Three tales from the frontiers of automated decision-making in democratic settings. *Telecommunications Policy*, 44(6), 101976. <https://doi.org/10.1016/j.telpol.2020.101976>
- Marra, M., Alfano, V., & Celentano, R. M. (2022). Assessing university-business collaborations for moderate innovators: Implications for university-led innovation policy evaluation. *Evaluation and Program Planning*, 95, 102170. <https://doi.org/10.1016/j.evalprogplan.2022.102170>
- Nahimana, E., Iyer, H., Manzi, A., Uwingabiye, A., Gupta, N., Uwilingiyemungu, N., Drobac, P., & Hirschhorn, L. (2015). The race to the top initiative: towards excellence in health-care service delivery. *The Lancet Global Health*, 3, S16. [https://doi.org/https://doi.org/10.1016/S2214-109X\(15\)70135-X](https://doi.org/https://doi.org/10.1016/S2214-109X(15)70135-X)
- Rengifurwarin, Z. A., Akib, H., Jasruddin, & Salam, R. (2018). Snapshot of public service quality in the center for integrated business service (CIBS), cooperative micro small and medium enterprises (CMSME), Maluku province, Indonesia. *Journal of Entrepreneurship Education*, 21(3).
- Ribeiro, S. X., & Nagano, M. S. (2021). On the relation between knowledge management and university-industry-government collaboration in Brazilian national institutes of science and technology. *VINE Journal of Information and Knowledge Management Systems*, 306075. <https://doi.org/10.1108/VJIKMS-01-2020-0002>
- Sarmah, B., Kamboj, S., & Kandampully, J. (2018). Social media and co-creative service innovation: an empirical study. *Online Information Review*, 42(7), 1146–1179. <https://doi.org/10.1108/OIR-03-2017-0079>
- Tangi, L., Benedetti, M., Gastaldi, L., Noci, G., & Russo, C. (2020). Mandatory provisioning of digital public services as a feasible service delivery strategy: Evidence from Italian local governments. *Government Information Quarterly*, 101543. <https://doi.org/https://doi.org/10.1016/j.giq.2020.101543>
- Trach, J. S. (2012). Degree of Collaboration for Successful Transition Outcomes. *Journal of Rehabilitation*, 78(2).