

## **Digital Inclusion Strategies to Enhance Accessibility of Public Services in Indonesia**

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### ***ABSTRACT***

This article explores the strategies of digital inclusion in improving the accessibility of public services. With the increasing digitization of services, ensuring equitable access to public services for all citizens is crucial. The study examines the challenges faced in accessing public services, explores the concept of digital inclusion, and highlights strategies to enhance accessibility. The research utilizes a mixed-method approach, combining qualitative interviews and quantitative data analysis. The findings emphasize the importance of bridging the digital divide, promoting digital literacy, and creating user-centric digital platforms to enhance accessibility and inclusivity of public services. The article contributes to the discourse on digital inclusion and provides recommendations for policymakers and stakeholders to foster accessible and inclusive public service delivery.

Keywords: Digital inclusion; accessibility; public services; digital divide; digital literacy

### **INTRODUCTION**

In the era of digital transformation, the accessibility of public services has become increasingly intertwined with digital platforms and technologies. However, certain segments of society, including marginalized groups and individuals with limited digital literacy, face challenges in accessing and utilizing these services. Digital inclusion strategies play a crucial role in bridging the gap and ensuring equitable access to public services for all citizens. This article aims to explore the strategies of digital inclusion in enhancing the accessibility of public services (Edwards et al., 2020; Kerroum et al., 2020; Weerakkody et al., 2016; Zhou, 2022).

The concept of digital inclusion encompasses various aspects, including access to digital infrastructure, affordability of digital services, and digital literacy. The digital divide, characterized by disparities in access to and utilization of digital technologies, poses a significant challenge to ensuring equal accessibility to public services (Alghamdi & Alghamdi, 2022; Durocher et al., 2021; Hammerton et al., 2022; Mohamed Hashim et al., 2022; Zhang et al., 2022). Moreover, limited digital literacy skills hinder individuals' ability to navigate digital platforms and take full advantage of online services. To address these challenges, it is crucial to develop strategies that promote digital inclusion and enhance the accessibility of public services.

Digital inclusion strategies encompass a multi-faceted approach to address the barriers and challenges faced by marginalized groups and individuals with limited digital literacy. Firstly, ensuring access to digital infrastructure is vital for enhancing the accessibility of public services. This includes expanding broadband coverage, particularly in rural and remote areas, and providing affordable internet services to make digital platforms accessible to all (McCall et al., 2022; Xu, 2022). Additionally, initiatives such as community-based internet centers and mobile technology outreach programs can bridge the gap for those who may not have access to personal devices or internet connectivity at home.

Addressing digital literacy is another key aspect of digital inclusion strategies. Providing comprehensive digital skills training programs and resources is essential to empower individuals with the necessary knowledge and abilities to navigate online platforms and utilize digital services effectively (Van Deursen & Van Dijk, 2019). These programs should focus not only on basic digital skills but also on more advanced skills related to specific public services, such as online government portals or e-payment systems. Collaborative efforts between government agencies, non-profit organizations, and educational institutions can help deliver digital literacy programs to reach diverse target groups.

Moreover, fostering digital inclusion requires tailoring digital platforms and services to meet the diverse needs and preferences of users. User-centered design principles should be employed to ensure that digital interfaces are intuitive, user-friendly, and accessible to individuals with varying levels of digital literacy (Akören, 2015; Coggins et al., 2022; Flott et al., 2021; Jing & Maia, 2021). The inclusion of accessibility features, such as alternative text for images, screen reader compatibility, and adjustable font sizes, can enhance the usability of digital platforms for people with disabilities. Regular user testing and feedback mechanisms can help identify and address usability issues, ensuring that digital services are inclusive and meet the needs of all citizens.

## **METHOD**

The mixed-method approach employed in this research enables a comprehensive examination of digital inclusion strategies and their impact on public service accessibility (Creswell & Creswell, 2017). Qualitative interviews with policymakers, service providers, and community representatives offer valuable insights into the challenges faced and the strategies implemented to

promote digital inclusion. These interviews allow for a deeper understanding of the experiences, perspectives, and perceptions of key stakeholders regarding the effectiveness of digital inclusion initiatives.

Additionally, quantitative data analysis is conducted to assess the impact of digital inclusion efforts on the accessibility and utilization of public services. Surveys are administered to gather data on digital literacy rates, access to digital infrastructure, and usage patterns of digital public services. Statistical analysis of these indicators provides quantitative evidence to evaluate the effectiveness of digital inclusion strategies in enhancing accessibility.

The combination of qualitative and quantitative data allows for triangulation and validation of findings, enhancing the overall credibility and reliability of the research outcomes. The qualitative insights provide rich contextual information and narratives, while the quantitative analysis provides measurable indicators and statistical evidence. This comprehensive approach enables a deeper understanding of the complex dynamics of digital inclusion strategies and their influence on public service accessibility.

By employing a mixed-method approach, this research aims to generate a holistic understanding of the strategies and their impact on enhancing the accessibility of public services. The findings from this study can inform policymakers, service providers, and other stakeholders in designing and implementing effective digital inclusion initiatives that cater to the diverse needs of citizens, promote equitable access to public services, and contribute to building an inclusive digital society.

## **RESULT AND DISCUSSION**

The analysis of digital inclusion strategies reveals several key findings. Bridging the digital divide is a fundamental aspect of enhancing the accessibility of public services. This involves ensuring the availability of affordable and reliable digital infrastructure, such as broadband internet connectivity, in both urban and rural (Becerra-Fernandez, 2006; Kollmann et al., 2019; Na-Nan et al., 2019; Pollitt, 2009). Efforts to expand digital infrastructure reach, particularly in underserved communities, are crucial to promote inclusivity in accessing public services.

Promoting digital literacy is another essential strategy to enhance accessibility. Digital literacy programs aimed at equipping individuals with the necessary skills to navigate digital platforms, conduct online transactions, and utilize digital services are crucial (Akhrif et al., 2020; Becerra-Fernandez, 2006; Broder & Lin, 2007; Dong, 2015; Müller & Slominski, 2022). These programs should be tailored to the specific needs of different target groups, including senior citizens, people with disabilities, and marginalized communities. By enhancing digital literacy, individuals can overcome barriers and confidently engage with digital public services.

Creating user-centric digital platforms is vital for enhancing the accessibility of public services. User experience design, intuitive navigation, and multilingual interfaces contribute to ensuring that digital platforms are inclusive and user-

friendly (Beliaeva et al., 2019; Cenamor et al., 2019; Madu, 2021; Rahmatullah et al., 2020). Co-design processes involving end-users can further enhance the usability and effectiveness of digital platforms, making them more accessible to a diverse range of users.

Digital inclusion strategies play a crucial role in enhancing the accessibility of public services. Bridging the digital divide, promoting digital literacy, and creating user-centric digital platforms are key strategies to ensure equitable access to public services. By addressing the challenges of digital infrastructure, affordability, and digital literacy, policymakers and stakeholders can foster a more inclusive and accessible environment for public service delivery.

Bridging the digital divide requires investments in digital infrastructure to ensure widespread access to the internet and digital technologies. Governments and service providers should prioritize expanding broadband connectivity, particularly in underserved areas, to enable equal access to online public services. Additionally, initiatives such as community digital centers and mobile internet facilities can help bridge the gap for those who lack access to personal devices or internet connectivity at home.

Promoting digital literacy is crucial in empowering individuals to navigate digital platforms and utilize online public services effectively. Digital literacy programs should be comprehensive, offering training on basic computer skills, internet usage, online safety, and specific skills related to accessing and utilizing public services. These programs should be accessible to diverse groups, including disadvantaged communities, seniors, and people with disabilities, ensuring that no one is left behind in the digital age.

Creating user-centric digital platforms is essential to enhance accessibility and inclusivity. User experience design should prioritize simplicity, clear navigation, and intuitive interfaces to accommodate users with varying levels of digital literacy. Multilingual options and accessibility features, such as text-to-speech and captioning, should be incorporated to cater to diverse user needs. Engaging end-users through co-design processes can provide valuable insights and ensure that digital platforms meet the specific requirements of different user groups.

The analysis of digital inclusion strategies reveals that bridging the digital divide is a fundamental aspect of enhancing the accessibility of public services. Efforts to expand digital infrastructure, particularly in underserved areas, are crucial to promote inclusivity in accessing public services (Corsi et al., 2019; Goethals et al., 2003; Hülsing et al., 2013). This includes improving broadband connectivity, especially in rural and remote regions, and ensuring affordability and reliability of internet services. By addressing infrastructure gaps, governments and service providers can create equal opportunities for citizens to access online public services and benefit from the digital transformation.

Promoting digital literacy is another essential strategy to enhance accessibility and empower individuals to effectively utilize digital public services. Comprehensive digital literacy programs should be developed to provide training on basic computer skills, internet usage, online safety, and specific skills related to accessing and utilizing public services (Cenamor et al., 2019; Rahmatullah et al., 2020). These programs should be designed to cater to the specific needs and

challenges faced by different target groups, such as senior citizens, people with disabilities, and marginalized communities. By equipping individuals with the necessary digital skills, they can overcome barriers and confidently engage with digital platforms to access public services.

Creating user-centric digital platforms is vital to ensure accessibility and inclusivity in public service delivery. User experience design should prioritize simplicity, clear navigation, and intuitive interfaces to accommodate users with varying levels of digital literacy (Bennett et al., 2019; Galindo-Martín et al., 2019; Khalil Zadeh et al., 2017). Multilingual options and accessibility features, such as text-to-speech and captioning, should be incorporated to cater to the diverse linguistic and accessibility needs of users. Engaging end-users through co-design processes can provide valuable insights into their preferences, challenges, and requirements, leading to the development of digital platforms that are more user-friendly and accessible for a diverse range of users.

## **CONCLUSION**

Digital inclusion strategies play a vital role in improving the accessibility of public services. By bridging the digital divide, promoting digital literacy, and creating user-centric digital platforms, policymakers and stakeholders can foster an inclusive and accessible environment for public service delivery. These strategies contribute to reducing disparities in accessing public services and ensuring that all citizens can benefit from the advantages of the digital era. It is essential for policymakers to prioritize digital inclusion efforts and collaborate with relevant stakeholders to build a digitally inclusive society where public services are accessible to all.

In addition, digital inclusion strategies have the potential to contribute to social and economic development by empowering individuals and communities. By bridging the digital divide and providing equal access to digital public services, these strategies can help marginalized groups overcome barriers and participate more actively in society. Digital inclusion also opens up opportunities for economic empowerment, as individuals with digital skills can access online job platforms, entrepreneurship opportunities, and e-commerce platforms. Therefore, prioritizing digital inclusion efforts and fostering collaboration among policymakers, service providers, and community organizations is crucial to ensure that the benefits of the digital era are accessible to all segments of society, leading to a more inclusive and equitable society.

## **REFERENCES**

- Akhrif, O., Benfares, C., El Bouzekri El Idrissi, Y., & Hmina, N. (2020). Collaborative approaches in smart learning environment: A case study. *Procedia Computer Science*, 175, 710–715. <https://doi.org/10.1016/j.procs.2020.07.105>

- Akören, A. N. (2015). Interaction of Outdoor Advertising Improved by Innovative Methods with Digital Art. *Procedia - Social and Behavioral Sciences*, 195, 799–805. <https://doi.org/https://doi.org/10.1016/j.sbspro.2015.06.178>
- Alghamdi, N. S., & Alghamdi, S. M. (2022). The Role of Digital Technology in Curbing COVID-19. *International Journal of Environmental Research and Public Health*, 19(14), 8287. <https://doi.org/10.3390/ijerph19148287>
- Becerra-Fernandez, I. (2006). Searching for experts on the Web: A review of contemporary expertise locator systems. *ACM Transactions on Internet Technology*, 6(4), 333–355. <https://doi.org/10.1145/1183463.1183464>
- Beliaeva, T., Ferasso, M., Kraus, S., & Damke, E. J. (2019). Dynamics of digital entrepreneurship and the innovation ecosystem: A multilevel perspective. *International Journal of Entrepreneurial Behaviour and Research*. <https://doi.org/10.1108/IJEBR-06-2019-0397>
- Bennett, T. M., Gresham, G., Ph, D., Agrawal, V., & Ph, D. (2019). *Consumer Purchase Motivation in Digital Environments : The Effect of Intrinsic Motivation on Banner Advertisement Effectiveness by Dissertation Committee. March.*
- Broder, A., & Lin, T. Y. (2007). Welcome message from conference chairs and program chair. *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence, WI 2007, December.* <https://doi.org/10.1109/WI.2007.113>
- Cenamor, J., Parida, V., & Wincent, J. (2019). How entrepreneurial SMEs compete through digital platforms: The roles of digital platform capability, network capability and ambidexterity. *Journal of Business Research*, 100(April), 196–206. <https://doi.org/10.1016/j.jbusres.2019.03.035>
- Coggins, S., McCampbell, M., Sharma, A., Sharma, R., Haefele, S. M., Karki, E., Hetherington, J., Smith, J., & Brown, B. (2022). How have smallholder farmers used digital extension tools? Developer and user voices from Sub-Saharan Africa, South Asia and Southeast Asia. *Global Food Security*, 32, 100577. <https://doi.org/10.1016/j.gfs.2021.100577>
- Corsi, A., Pagani, R. N., Kovaleski, J. L., & Luiz, V. (2019). Technology transfer for sustainable development: Social impacts depicted and some other answers to a few questions. *Journal of Cleaner Production*, 118522. <https://doi.org/10.1016/j.jclepro.2019.118522>
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.
- Dong, L. (2015). *Public Administration Theories: Instrumental and Value Rationalities*. Pgrave Macmillan. [https://doi.org/10.1007/978-3-319-31816-5\\_2372-1](https://doi.org/10.1007/978-3-319-31816-5_2372-1)
- Durocher, K., Boparai, N., Jankowicz, D., & Strudwick, G. (2021). Identifying technology industry-led initiatives to address digital health equity. *Digital*

- Health*, 7, 20552076211056156. <https://doi.org/10.1177/20552076211056156>
- Edwards, S., Nolan, A., Henderson, M., Grieshaber, S., Highfield, K., Salamon, A., Skouteris, H., & Straker, L. (2020). Rationale, Design and Methods Protocol for Participatory Design of an Online Tool to Support Industry Service Provision Regarding Digital Technology Use ‘with, by and for’ Young Children. *International Journal of Environmental Research and Public Health*, 17(23), 8819. <https://doi.org/10.3390/ijerph17238819>
- Flott, K., Maguire, J., & Phillips, N. (2021). Digital safety: the next frontier for patient safety. *Future Healthc J*, 8(3), e598–e601. <https://doi.org/10.7861/fhj.2021-0152>
- Galindo-Martín, M. Á., Castaño-Martínez, M. S., & Méndez-Picazo, M. T. (2019). Digital transformation, digital dividends and entrepreneurship: A quantitative analysis. *Journal of Business Research*, 101(December 2018), 522–527. <https://doi.org/10.1016/j.jbusres.2018.12.014>
- Goethals, G. R., Sorenson, G., Burns, M., & Burns, J. M. (2003). Leadership in the Digital Age. *The Encyclopedia of Leadership*, 1–5.
- Hammerton, M., Benson, T., & Sibley, A. (2022). Readiness for five digital technologies in general practice: perceptions of staff in one part of southern England. *BMJ Open Quality*, 11(2), e001865. <https://doi.org/10.1136/bmjoq-2022-001865>
- Hülsing, T., Korte, W. B., Fonstad, N., Lanvin, B., Cattaneo, G., Kolding, M., Lifonti, R., & Van Welsum, D. (2013). *e-Skills for Competitiveness and Innovation Vision, Roadmap and Foresight Scenarios Final Report* (Issue March 2013).
- Jing, X., & Maia, D. (2021). The Construction and Development of App Application Platform for Public Information Products of Urban Grand Media in the Context of Artificial Intelligence. *Computational and Mathematical Methods in Medicine*, 2021, 6974688. <https://doi.org/10.1155/2021/6974688>
- Kerroum, K., Khiat, A., Bahnasse, A., Aoula, E.-S., & khiat, Y. (2020). The proposal of an agile model for the digital transformation of the University Hassan II of Casablanca 4.0. *Procedia Computer Science*, 175, 403–410. <https://doi.org/10.1016/j.procs.2020.07.057>
- Khalil Zadeh, N., Khalilzadeh, M., Mozafari, M., Vasei, M., & Amoei Ojaki, A. (2017). Challenges and difficulties of technology commercialization – a mixed-methods study of an industrial development organization. *Management Research Review*, 40(7), 745–767. <https://doi.org/10.1108/MRR-08-2016-0192>
- 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>

- Madu, L. (2021). Twitter Diplomacy @Kemlu\_RI: A Case Study of Bali Democracy Forum 2019. *Jurnal Hubungan Internasional*, 10(1), 31–43. <https://doi.org/10.18196/jhi.v10i1.11566>
- McCall, T., Asuzu, K., Oladele, C. R., Leung, T. I., & Wang, K. H. (2022). A Socio-Ecological Approach to Addressing Digital Redlining in the United States: A Call to Action for Health Equity. *Frontiers in Digital Health*, 4, 897250. <https://doi.org/10.3389/fdgh.2022.897250>
- Mohamed Hashim, M. A., Tlemsani, I., & Matthews, R. (2022). Higher education strategy in digital transformation. *Education and Information Technologies*, 27(3), 3171–3195. <https://doi.org/10.1007/s10639-021-10739-1>
- Müller, P., & Slominski, P. (2022). Shrinking the space for civil society: (De)Politicizing the obstruction of humanitarian NGOs in EU border management. *Journal of Ethnic and Migration Studies*, 0(0), 1–19. <https://doi.org/10.1080/1369183X.2022.2099363>
- Na-Nan, K., Roopleam, T., & Wongsuwan, N. (2019). Validation of a digital intelligence quotient questionnaire for employee of small and medium-sized Thai enterprises using exploratory and confirmatory factor analysis. *Kybernetes*. <https://doi.org/10.1108/K-01-2019-0053>
- Pollitt, C. (2009). Bureaucracies remember, post-bureaucratic organizations forget? *Public Administration*, 87(2), 198–218.
- Rahmatullah, Inanna, Sahade, Nurdiana, Azis, F., & Bahri. (2020). Utilization of digital technology for management effectiveness micro small and medium enterprises. *International Journal of Scientific and Technology Research*, 9(4), 1357–1362.
- Weerakkody, V., Omar, A., El-Haddadeh, R., & Al-Busaidy, M. (2016). Digitally-enabled service transformation in the public sector: The lure of institutional pressure and strategic response towards change. *Government Information Quarterly*, 33(4), 658–668. <https://doi.org/https://doi.org/10.1016/j.giq.2016.06.006>
- Xu, N. (2022). Digital Construction of Vocal Music Teaching Resource Base Using Data Mining Technology. *Journal of Environmental and Public Health*, 2022, 8351868. <https://doi.org/10.1155/2022/8351868>
- Zhang, X., Huang, Y., Lee, J., & Lin, S. (2022). Turning Digital Trails into a Telehealth Competitive Edge. *Telemedicine and E-Health*, 28(1), 39–43. <https://doi.org/10.1089/tmj.2020.0564>
- Zhou, Y. (2022). The Application Trend of Digital Finance and Technological Innovation in the Development of Green Economy. *Journal of Environmental and Public Health*, 2022, 1064558. <https://doi.org/10.1155/2022/1064558>