

HEALTH ENTREPRENEURS' PERCEPTIONS OF DIGITAL INNOVATION IN HEALTHCARE SERVICE DEVELOPMENT IN INDONESIA

Meyta Minggar Kusumasari¹, Rayhana Azkiya², Rian Andriani³

¹ Lecturer in the Faculty of Medicine, Universitas 17 Agustus 1945 Surabaya, Indonesia

^{2,3}ARS University, Indonesia

E-mail: r meytakusumasari@untag-sby.ac.id; rayhanaazkiya23@gmail.com; rian_andriani@ars.ac.id;

ABSTRACT

The development of digital technology has had a significant impact on improving the quality of healthcare services in Indonesia. This study aims to analyze the perceptions of healthcare entrepreneurs regarding the role of digital innovation in healthcare development. The method used was a literature review with a qualitative approach, through analysis of various sources related to digital healthcare innovation. The results show that digital innovation can improve service accessibility, operational effectiveness, and the quality of healthcare services, for example through the implementation of telemedicine, electronic medical records, and mobile-based healthcare applications. However, its implementation still faces several obstacles, including limited infrastructure in remote areas, low digital literacy among the public, limited healthcare workers skilled in using technology, and data security risks. On the other hand, healthcare digitalization also opens up significant opportunities for equitable healthcare services, public education, and the development of technology-based healthcare businesses. Therefore, healthcare entrepreneurs play a strategic role in encouraging the implementation of digital innovation and acting as a driving force for the creation of more effective, inclusive, and high-quality healthcare services in Indonesia.

Key words: digital innovation; healthcare services; healthcare entrepreneurs; telemedicine; digital literacy

INTRODUCTION

Health services are all forms of activities and/or a series of service activities provided directly to individuals or communities to maintain and improve the health status of the community in the form of promotive, preventive, curative, rehabilitative, and/or palliative, (Menteri Kesehatan Republik Indonesia, 2024) as time goes by health services must follow the era of modernization and the digital era, in this era technology is increasingly important in the health sector and, innovation in this sector is becoming a basic need so that it can follow the demands of the community for faster, more transparent and quality services. (Ade Amallia, 2024a; Pengembangan, Kesehatan Digital, & Dewi, 2024)

Several factors influence healthcare services in Indonesia, including accessibility. A person's willingness to utilize healthcare services is determined by supporting factors, one of which is distance or accessibility. Difficulty accessing healthcare facilities can discourage individuals from using them. The closer the distance to a healthcare facility, the greater the likelihood of using it. (Alim, Indar, & Harniati, 2023; Limna, 2023)

Another factor is the availability of health facilities and infrastructure. The availability of complete health facilities has a greater opportunity to make the community more active in utilizing health services. Good and attentive treatment can increase patient motivation to utilize the services provided. In addition, the ability and skills of health workers can also influence public trust in seeking treatment. Another factor is employee work discipline. Field conditions indicate that health center employees still lack integrity. This is indicated by discipline in arriving late, minimal innovation from employees, and a lack of responsiveness in the service process. Motivation can be increased by improving it by establishing a clear reward and punishment system. (Hariyoko, Dolfianto Jehaut, Susiantoro, & Id, 2021; Susilawati & Azzahra, 2023)

Some of the impacts that can be caused by digital innovation in health services are, increasing the accessibility of health services such as easy access to obtain health information, patients are facilitated by the development of health applications that can be accessed via *mobile* or via *the web*, with these applications, patients can access promotive and preventive efforts for diseases and patients can also obtain information about broader and more reliable health, in addition, digital innovation can also minimize geographical disparities, with the existence of digital technology can provide convenience to be accessed by many levels of society in urban areas and in remote areas. (Alim et al., 2023; Stoumpos, Kitsios, & Talias, 2023)

Another impact is increasing service effectiveness, digital innovation can improve operational efficiency such as fast waiting times by implementing an *online registration system*, the use of mobile applications for patient registration and medical consultations has reduced the workload of administrative staff. They can now focus more on medical services, in addition to the presence of electronic medical records and health information management systems are strategic steps in improving health services, providing orderly access to patient health data information between health service providers, where the process of storing and reporting data is more structured so that decision-making regarding medical actions can be done more quickly. (Ashar, Kamariyah, Pramudiana, & Dwijo, 2025; Stoumpos et al., 2023)

Improving the quality of healthcare services can also be achieved through technological innovation. Various existing innovations can improve quality, such as systematic and secure patient data accuracy and more effective services. To provide superior healthcare services, a structured and systematic management model is required. A shared demand is the need to develop a healthcare system that emphasizes patient care, by optimizing advances in digital technology to optimize the quality of healthcare services in each available healthcare facility. In its implementation, digital innovation inevitably faces several obstacles or challenges. Some of these challenges include limited technological infrastructure, especially in remote areas. Limited internet access hinders digital innovation in healthcare services. Furthermore, low digital literacy can hinder digital innovation. Low levels of digital literacy among rural communities are a barrier to the use of this technology. Many people are not yet accustomed to using digital devices to access healthcare services. (Ashar et al., 2025; Hariyoko et al., 2021)

Another obstacle is the low level of public literacy which is a factor in the suboptimal implementation of digitalization, considering the lack of readiness in the community to accept existing updates, the importance of providing education about health digitalization, is the first step in increasing understanding and good acceptance from the public's perspective. Based on research by Sari et al, several challenges to digital innovation in health services include, inadequate infrastructure preparation, limited internet access, limited workforce trained in the use of technology, in addition to data security issues such as data leaks can also be obstacles. (Ashar et al., 2025; Pengembangan et al., 2024; Stoumpos et al., 2023)

Some opportunities in health innovation include: Digitalization of health care presents opportunities to increase the accessibility of health services. The development of *telemedicine* is one treatment option that can be developed in areas that are still difficult to reach with access to health services. There will be many digital technology developments as an effort to optimize the distribution of health services facilitated by the government, to monitor public health graphs. As a preventative measure, the development of *mobile-based health applications* make it easier for health stakeholders to provide health education to the public. One such opportunity lies in the field of *entrepreneurship*, where the characteristics of an entrepreneur can generally be seen when communicating to disseminate information, when running a business and establishing relationships with business partners. Therefore, in establishing a business relationship with someone, we must understand their characteristics. Because without paying attention to their character, we could end up losing out if we establish a business relationship with someone with a bad character. (Dewi, n.d.; Novita, Rini, Rindu, Lisca, & Hayatullah, 2024; Nudji & Sutha, 2024)

METHOD

The method applied in this study is a *literature review*. A *literature review* is an approach or concept used to analyze and classify information that has been combined in research. Reference sources used, such as books, journals, and magazines, should be relevant and up-to-date (*state of the art*), and in accordance with the reference literature used. The purpose of *the literature review* is to obtain a theoretical basis that can support solutions to the problem being investigated. Through this theory, researchers can gain a deeper understanding of the problem being investigated in accordance with the natural framework of thinking. This research was conducted for 1 month, starting from October 2025 - November 2025. The research procedure used the *literature review method*. The qualitative research approach focuses on an in-depth understanding of a problem rather than seeking generalizable conclusions. This method tends to apply in-depth analysis, examining problems individually and based on cases.

RESULTS AND DISCUSSION

Benefits of Digital Innovation in Developing Healthcare Services

Based on several studies, the benefits obtained due to digital innovation in the development of health services include, an increase in service *output*, cost efficiency, and service time, in addition to that, several other benefits are increasing the accessibility of health services such as easy access to obtain health information, patients are facilitated by the development of health applications that can be accessed via *mobile* or via *the web*, with these applications, patients can access promotive and preventive efforts of diseases and patients can also obtain information about broader and more reliable health, in addition, digital innovation can also minimize geographical disparities, with the existence of digital technology can provide convenience to be accessed by many levels of society in urban areas and in remote areas. Another benefit is an increase in the quality of health services as a whole can occur with technological innovation, with various existing innovations can improve quality such as the accuracy of systematic and maintained patient data and more effective services. As an effort to provide superior health services, a systematic structured management pattern is needed. The importance of technopreneurship is related to its connection to science and technology. When a country uses a technological capability enhancement approach as a driver of increased national production and, in many countries, as a competitive advantage strategy, technopreneurship is a program that is included as an integral part of enhancing entrepreneurial culture. Technopreneurship needs to collaborate on culture and concepts, namely the culture of innovation, entrepreneurship, and creativity, as well as the concepts of business incubators, research, and development. (Ade Amallia, 2024; Dwi, Sari, & Purba, 2020; Febriyan Eprilianto, Oktariyanda2, Eka, & Sari, n.d.; Manajemen & Kesehatan, n.d.; Nudji & Sutha, 2024; Sarwoyo, Wahidin, & Prayudhi, 2024)

Challenges of Digital Innovation in Healthcare Development

Some challenges in digital innovation in healthcare services include data security and management within healthcare institutions, as well as the speed of infrastructure development to support digital innovation. Furthermore, differences in digital literacy levels in the community require further assistance. Sustainable technology use also requires government commitment to ensure equitable distribution of technology across Indonesian society. Complex regulations and compliance hinder data use and protection. Cultural and attitudinal challenges toward technology also pose challenges. Financial challenges, such as hardware procurement, application development, and media staff training, hinder the expansion of technology utilization. System integration and interoperability challenges arise in complex healthcare environments. Different systems and applications need to be able to communicate and share information effectively to achieve coordinated data management and integrated services. Inequality of access and technological gaps: Implementation of digital technology must address the gaps in access and technological gaps that exist within the community. These challenges include limited access to digital devices and the internet, especially for vulnerable groups such as rural populations, the elderly, and the economically disadvantaged. Acceptance and adoption by healthcare professionals: The success of digital technology implementation in healthcare also depends on the acceptance and adoption of the technology by healthcare professionals. This challenge involves a shift in mindset and adequate training support. (Ade Amallia, 2024b; Alvianty, Arvian, et al., 2025; Ashar et al., 2025; Febriyan Eprilianto et al., 2022; Nugroho et al., 2023; Stoumpos et al., 2023)

CONCLUSION

Digital innovation in healthcare in Indonesia plays a crucial role in improving the accessibility, efficiency, and quality of healthcare services through the application of technologies such as telemedicine, electronic medical records, and mobile-based health applications. However, the implementation of these innovations still faces various challenges, such as limited infrastructure in remote areas, low digital literacy among the public and medical personnel, financial constraints, and patient data security issues. Therefore, strong collaboration between the government, healthcare professionals, and healthcare entrepreneurs is needed to develop technopreneurship and strengthen policies, training, and digital infrastructure to achieve more effective, efficient, and equitable healthcare services throughout Indonesia.

REFERENCES

- Ade Amallia. (2024). Digitalisasi Kesehatan Dalam Peningkatan Kualitas Layanan Kesehatan. *Medical Journal Of Nusantara*, 3(3), 151–158. <https://doi.org/10.55080/Mjn.V3i3.1103>
- Alim, M. C., Indar, & Harniati. (2023). Faktor-Faktor Yang Mempengaruhi Pemanfaatan Pelayanan Kesehatan Di Klinik Engsar Polewali Mandar. *Jurnal Ners Universitas Pahlawan*, (2), 830–836. Retrieved From [Http://journal.universitaspahlawan.ac.id/index.php/ners](http://journal.universitaspahlawan.ac.id/index.php/ners)
- Ashar, M. R., Kamariyah, S., Pramudiana, I. D., & Dwijo, K. (2025). Inovasi Pelayanan Publik di Dinas Kesehatan Kabupaten Banyuwangi Program Smart Health. *Jurnal Niara*, (17), 43–52.
- Nugroho, R., Hidayat, M., Devi, E., Rianti, D., Luh, N., Citra Mutiarahati, A., & Rosyid, A. F. (2023). Pemanfaatan Teknologi Digital dalam Pelayanan Kesehatan Publik: Sebuah Tinjauan Analisis Kebijakan. *Jurnal Birokrasi & Pemerintahan Daerah*, 5(2), 277–285.
- Dwi, W., Sari, C., & Purba, H. (20204). Transformasi Digital dalam Kesehatan: Tinjauan Literatur tentang Inovasi, Tantangan, dan Dampak Teknologi Kesehatan Digital. *Jurnal Pendidikan Tambusai*, 8(3), 45195–45201.
- Febriyan Eprilianto, D., Oktariyanda, T. A., Eka, Y., & Sari, K. (2022). Inovasi Digital Dalam Sektor Publik: Studi Deskriptif Tentang Value Added Inovasi Pelayanan Kesehatan. *Jurnal El-Riyasah*, 13(1), 33–49.
- Hariyoko, Y., Dolfianto Jehaut, Y., Susiantoro, A., & Id, A. (2021). Efektivitas Pelayanan Kesehatan Masyarakat Oleh Puskesmas Di Kabupaten Manggarai. In *Jurnal Good Governance* (Vol. 17).
- Limna, P. (2023). The Digital Transformation of Healthcare in The Digital Economy: A Systematic Review. *International Journal of Advanced Health Science and Technology*, 3(2), 127–132. <https://doi.org/10.35882/ijahst.v3i2.244>
- Alvianty, R. A., Arvian, S. R., & Wasir, R. (2025). Literature Review: Analisis Transformasi Digital Layanan Kesehatan Di Indonesia Terhadap Peran Sektor Publik Dan Swasta. *Jurnal Manajemen Pelayanan Kesehatan*, 28, 56–60.

- Menteri Kesehatan Republik Indonesia. (2024). *Peraturan Menteri Kesehatan Republik Indonesia Nomor 19 Tahun 2024 Tentang Penyelenggaraan Pusat Kesehatan Masyarakat*.
- Novita, A., Rini, A. S., Rindu, Lisca, S. M., & Hayatullah, M. M. (2024). Membangun Karakter Technopreneurship Dalam Bidang Kesehatan. *Journal of Human And Education*, 4(5), 619–625.
- Nudji, B., & Sutha, D. W. (2024). Pendampingan Pengelolaan Inovasi, Peluang, dan Tantangan Usaha di Bidang Kesehatan. *Jurnal Penelitian Dan Pengabdian Masyarakat*, 2(4), 407–414. <https://doi.org/10.61231/jp2m.v2i4.288>
- Pengembangan, D., Kesehatan Digital, L., & Dewi, M. P. (2024). Analisis Manajemen Inovasi. *Public Health and Safety International Journal*, 4(1), 2715–5854. <https://doi.org/10.55642>
- Sarwoyo, V., Wahidin, A. J., & Prayudhi, R. (2024). Inovasi Edukasi Kesehatan Masyarakat dengan Media Digital di Posyandu Seruni RW 01 Buaran Indah. 7(2). <https://doi.org/10.33476/iac>
- Stoumpos, A. I., Kitsios, F., & Talias, M. A. (2023). Digital Transformation in Healthcare: Technology Acceptance and Its Applications. *International Journal of Environmental Research and Public Health*, 20(4). <https://doi.org/10.3390/ijerph20043407>
- Susilawati, & Azzahra, D. (2023). Faktor Yang Mempengaruhi Pemanfaatan Pelayanan Kesehatan Di Wilayah Pesisir. *Zahra: Journal Of Health And Medical Research*, 3(3), 262–272.