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The Role of Information Technology in Improving Urban Governance

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ABSTRACT

The rapid development of information technology has a significant impact on various fields of human life, including urban governance. In the context of urban governance, information technology can be used to improve efficiency, transparency, and community participation in the decision-making process that has an impact on the quality of life of city residents. The purpose of this research is to explain the role of information technology in improving urban governance because it is important in the context of increasingly complex urban development and requires appropriate and efficient decision-making. The focus of this research is qualitative. Methods for gathering information included paying close attention and taking detailed notes, with subsequent analysis including data reduction, visualisation, and inference. The study arrived at the conclusion that the role of information technology in improving urban governance is crucial and requires special attention from the government and relevant stakeholders. By improving access and quality of information technology services, enhancing digital literacy and information technology skills, increasing community participation in urban governance, and improving data security and privacy, the application of information technology in urban governance can become more effective and efficient in improving urban governance.

Kata Kunci: Information Technology, Governance, Urban

INTRODUCTION

The rapid development of information technology has a significant impact on various fields of human life (Ausat, 2023) and (Kamar et al., 2022), including urban governance. In the context of urban governance, information technology can be used to improve efficiency, transparency, and public participation in decision-making processes that have an impact on the quality of life of city residents (Bastos et al., 2022) and (Tejedo-Romero et al., 2022). Good urban governance is becoming increasingly important in the face of increasingly complex urban challenges such as rapid population growth, urbanisation, climate change, and high population density (Rustiadi et al., 2021) and (Aliyu & Amadu, 2017). Improving urban governance through the use of information technology is an attractive alternative because it can accelerate the decision-making process and





provide easier and faster access to information (Verhoef et al., 2021) and (Mondejar et al., 2021).

Geographic information systems (GIS), big data analytics, smart cities, and blockchain are just a few examples of the types of information technology that could be utilized to make improvements to the way cities are governed (Abdalla et al., 2022); (Lv et al., 2018) and (Al Nuaimi et al., 2015). It is possible to use GIS to collect, process, and analyze geographical data in order to arrive at decisions on city management that are more informed (Breunig et al., 2020). Analyzing massive amounts of data with big data analytics allows for the identification of patterns and trends that are helpful in decision-making. A "smart city" is a notion for a city that makes use of information technology to improve the quality of life of its residents in a number of different domains, including transportation, energy, and the environment (Ismagilova et al., 2019); (Neirotti et al., 2014); (Camero & Alba, 2019) and (Almihat et al., 2022). In the meantime, blockchain technology has the potential to be utilized in the administration of city finances and resources in order to enhance transparency and accountability (Gad et al., 2022); (Rejeb et al., 2022) and (Kitsantas & Chytis, 2022).

Numerous academics and researchers have been conducting studies to investigate the impact that advances in information technology can have on the quality of urban governance (Verhoef et al., 2021); (He et al., 2021) and (Chen & Xiao, 2022). Several studies that looked at the application of GIS to the decision-making process of urban planning came to positive conclusions, such as an increase in the effectiveness and efficiency of decision-making (Odongo & Ma, 2021); (Sternad Zabukovšek et al., 2022); (Khashoggi & Murad, 2020); (Ahasan et al., 2022); (Alnsour & Meaton, 2015) and (Thondoo et al., 2020). The research that has been done on smart cities has also demonstrated that it can improve the quality of life of city residents by doing things like increasing the efficiency of public transportation and better managing garbage. In addition, a number of studies came to the conclusion that the implementation of information technology in urban governance has a number of obstacles and barriers. These challenges and barriers include things like the high cost, inadequate infrastructure, and lack of community participation.

Referring to the previous explanation, research on the role of information technology in improving urban governance is very important in the context of increasingly complex urban development and requires appropriate and efficient decision making. The research can provide recommendations and solutions for the government, community, and private sector in the utilisation of information technology to improve urban governance.

LITERATURE REVIEW

Information Technology

Information Technology is a field related to the use of computers, software, networks, and technology infrastructure to collect, store, process, analyse, and disseminate information (Alter, 2008). Information Technology includes various types of technology such as software, hardware, databases, networks, and information systems. It also deals with the way people interact with information and technology. It has changed the way we live, learn, work and interact with others around the world. Examples of commonly used information technology include the internet, social media, email, mobile applications, management information systems, and business software.

Information technology has a very important role in the world of business, government, education, and daily life (Fauzi et al., 2023) and (Ausat, Suherlan, et al., 2023). In the business world, information technology is used to improve efficiency, productivity, and innovation in various aspects of business such as marketing, finance, and human resource management (Hopia et al., 2023) and (Muhamad et al., 2023). In government, information technology is used to improve the efficiency of public services, collect and analyse data, and increase transparency and accountability. While in education, information technology is used to improve the quality of learning and provide wider access to information and educational resources. However, with the advantages offered by information technology, there are also challenges and risks to be faced, such as information security, privacy, and unethical use. Therefore, it is important to develop appropriate policies and practices to address these issues and ensure that information technology is used responsibly and in accordance with ethical values. At its core, information technology is constantly





evolving and playing an increasingly important role in our lives. This requires us to continue to learn and keep up with information technology in order to benefit from it and deal with the challenges and risks that arise.

Urban Governance

Urban governance is a city management concept that focuses on developing effective and efficient policies and management practices in managing cities (Meyer & Auriacombe, 2019). It emphasises the importance of collaboration and public participation in making decisions related to city development and ensures sustainable, inclusive and people-oriented decision-making. Urban governance involves coordination between various parties, including city government, the private sector, and civil society, in ensuring that urban development policies and programmes are well implemented and provide benefits to the community at large (Smit, 2018). This includes coordination between various sectors, such as infrastructure, environment, health, education, security, and transport, and ensuring that each sector contributes optimally to the development of the city. In addition, urban governance also involves the use of technology and data in making decisions and monitoring the city's performance on a regular basis (Jiang et al., 2022). This enables faster and more informed decision-making, and ensures that city development is sustainable and takes into account the environmental and social impacts of every policy and programme implemented.

The ultimate goal of urban governance is to create better and more sustainable cities for people, where everyone has equal access to public facilities and services, a healthy and clean environment, and opportunities for economic and social development. Urban governance is therefore critical in addressing urban challenges such as congestion, pollution, poverty, and injustice, and ensuring that cities can develop sustainably and benefit society at large (Khan et al., 2020).

RESEARCH METHOD

This research utilises a methodology known as a desk study, where researchers do not collect primary data by conducting direct field research. To guarantee that the research would run smoothly, the researcher consulted a number of different reference materials. Relevant materials for this research were obtained from online media and scientific repositories by conducting searches with keywords related to the topics discussed in the report. These topics include the role of information technology in improving urban governance. The research approach used by the authors was adaptive, which paved the way for the selection of relevant reference materials without requiring the authors to limit their search to specific journals or digital platforms. Our argument is backed up by scholarly articles from respected publishers like Elsevier, ResearchGate, and Emerald Insight. In this study, we examine how the use of IT might enhance municipal administration. The author uses keyword emphasis to define the scope of the discussion and lend credibility to the argument. To accomplish this, we employ qualifying terms. The research mostly looked at scholarly articles, essays, and books published between 2015 and the present day. We utilised keyword searches across a variety of publication channels to narrow our results. The papers, journals, and publications featured here were carefully selected because of their high relevance to the topic of information technology's role in fostering better urban governance. No other articles, journals, or magazines were considered relevant to include. There are a total of 54 scholarly sources cited in this extensive article.

The investigation that is now taking place was categorized as a type of qualitative study. The process of collecting data included the application of a number of different approaches, such as attentive listening and the detailed documentation of all pertinent information. The aforementioned approaches were utilized as a means of facilitating the inspection of the data, which was carried out by way of a process that involved the reduction of the data, the presentation of the data, and the drawing of conclusions. The primary objective of this study was to achieve a more indepth comprehension of the literature review that was carried out as a component of this research endeavor. During the phase known as "data reduction," the obtained information was methodically





organized, categorized, and culled in order to simplify the process of coming to meaningful conclusions and make the development of significant results more manageable. Because the data were so complex and varied, conducting an analysis of them was required even during the phase where they were being reduced. The purpose of the reduction phase was to ascertain whether or not the information was pertinent to the ultimate objective. At the outset, a total of 77 different sources were collected. The initial method resulted in the value of the numerical variable being changed to 54. In addition to that, the data will be provided via graphical illustrations. The current stage is the next step in the process of data reduction, and it is the stage in which the data set is carefully organized in a structured manner in order to promote comprehension and simplify the process of drawing conclusions. Written discourse, more especially in the form of field notes, is the kind of data representation that is utilized in this particular setting. Utilizing this approach to the presentation of data can result in increased productivity when it comes to organizing and arranging data in relational patterns. The process is not complete until the final stage, which is the development of conclusions based on the data acquired. This step marks the completion of the technique that we applied to the analysis of qualitative data. During this stage, we checked the outcomes of data reduction and data presentation to ensure that they were consistent with the intended goal of the research. The objective of this stage is to derive meaning from the obtained data by identifying correlations, similarities, or dissimilarities, in order to build solutions to preexisting problems that have been identified. The results that were drawn from the sources that were used are deemed to be reliable. The objective of this endeavor is to collect facts that are trustworthy and accurate, with the goal of enhancing comprehension as a result.

RESULTS AND DISCUSSION

In discussing the role of information technology in improving urban governance, there are several things to note, namely:

- 1. Benefits of Information Technology in Improving Urban governance: The utilisation of information technology can provide various benefits in improving urban governance, such as increased efficiency, transparency, and community participation (Bertot et al., 2010) and (Gil et al., 2019). Through the utilisation of information technology, decision-making processes can be carried out more quickly and precisely by utilising available data. In addition, information technology can also increase transparency in the management of city finances and resources, thereby minimising corruption and abuse of authority. In terms of public participation, information technology can provide easier and faster access to information so that people can participate in the decision-making process (Higgs et al., 2008).
- 2. Challenges in the Application of Information Technology in Urban governance: While information technology has significant benefits in improving urban governance, there are also challenges that need to be considered in its implementation. Some of these challenges are cost, limited infrastructure, and lack of community participation. High costs can be a barrier to the implementation of information technology as it requires large investments in infrastructure development and human resources (Ali Quaosar & Rahman, 2021); (Ausat & Suherlan, 2021); (Cugno et al., 2021) and (Ausat, Al Bana, et al., 2023). In addition, infrastructure limitations such as uneven internet access and electricity can be an obstacle in the application of information technology in remote areas or areas with weak economic conditions. Lack of community participation can also be a challenge in the application of information technology because the community needs to be involved in the decision-making process (Haricharan et al., 2021).

A. Solutions to Overcoming Challenges in the Application of Information Technology in Urban governance

To overcome the challenges in the application of information technology in urban governance, there are several solutions that can be done, such as:

1. The government needs to increase investment in information technology infrastructure





and human resources skilled in information technology. The government can expand internet and electricity access to remote areas or areas with weak economic conditions through an infrastructure equity programme.

- 2. The government needs to increase public participation in the decision-making process through the provision of easily accessible information and direct participation in discussion and consultation forums.
- 3. The government, communities, and the private sector need to collaborate in the utilisation of information technology to improve urban governance by taking into account mutual interests.

B. Research as a Basis for Decision Making

Research on the role of information technology in improving urban governance is very important as a basis for decision-making for the government and related stakeholders in the development of better urban governance in the future (Romanelli, 2020); (Meijer & Bolívar, 2016); (Quoc Toan & Thi Nhu, 2020) and (Masik et al., 2021). Research can provide insights and a deeper understanding of the benefits, challenges, and solutions in the application of information technology in improving urban governance (Oliveira et al., 2020) and (Brunetti et al., 2020). In addition, the research can also provide an overview of the conditions and needs of information technology in various regions and related sectors in urban governance. The results of the research can serve as a basis for the government in making decisions related to investment in information technology infrastructure, providing internet access and electricity, as well as developing skilled human resources in the field of information technology. Ultimately, research on the role of information technology in improving urban governance can help the government and relevant stakeholders in improving urban governance and building better and more sustainable cities (Miah & Amin, 2020) and (Clement et al., 2022). The development of information technology can increase effectiveness, efficiency, and community participation in city management, thereby creating a more inclusive city and providing greater benefits to society as a whole (Nižetić et al., 2020) and (Mouratidis, 2021). Therefore, research on the role of information technology in improving urban governance needs to be continuously conducted and improved in order to make a greater contribution to the development of cities in the future.

There are several suggestions that can be taken from the results of research on the role of information technology in improving urban governance, among others:

- 1. *Improving access and quality of information technology services:* The government needs to take steps to improve the access and quality of information technology services in the regions, especially in areas that are still marginalised. This can be done by increasing investment in information technology infrastructure, such as building better internet and electricity networks, and providing free internet access for the community. In addition, the government also needs to improve the quality of information technology services, such as increasing internet speed and providing more secure and reliable services.
- 2. *Improving digital literacy and information technology skills:* The government needs to take steps to improve digital literacy and information technology skills for the community, especially in marginalised areas. This can be done by providing training and education on information technology to the community, especially for those who are less skilled in using information technology. In addition, the government also needs to pay attention to the availability and quality of information technology education in schools and universities, so as to produce human resources who are skilled in information technology.
- 3. *Increased public participation in urban governance:* The application of information technology can increase public participation in decision-making and city management. Therefore, the government needs to take steps to increase citizen participation in urban governance, such as providing digital platforms for the collection of citizen aspirations and increasing transparency and accountability in decision-making. Thus, community participation can be more effective and efficient in improving urban governance.





4. *Improved data security and privacy:* The implementation of information technology in municipal administration calls for further focus on the protection of personal information and sensitive data. As a result, the government needs to take action in order to enhance data security and privacy in the context of the use of information technology in urban governance. This can be accomplished by strengthening both the legislation and standards governing data privacy and security, as well as by enhancing both the capacity for, and the technological expertise in, data management.

CONCLUSION

In conclusion, the role of information technology in improving urban governance is very important and requires special attention from the government and relevant stakeholders. By improving access and quality of information technology services, increasing digital literacy and information technology skills, increasing community participation in urban governance, and improving data security and privacy, the application of information technology in urban governance can be more effective and efficient in improving urban governance. In addition, the government also needs to pay attention to the challenges and risks in implementing information technology in urban governance, such as the risk of data security and privacy, the risk of shortage of human resources skilled in information technology. Therefore, the government needs to take strategic steps in overcoming these challenges and risks, so that the application of information technology in urban governance can provide optimal benefits for the community.

There hasn't been a lot of research done in the Indonesian context on the part that information technology plays in bettering urban governance. For this reason, additional research is required to develop a deeper knowledge of the role that information technology plays in improving urban government in Indonesia, as well as the factors that determine the successful implementation of information technology in urban governance. Additional research could also provide policy recommendations that are more specific and measurable for the government and relevant stakeholders in the effort to improve urban governance by making use of information technology.

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