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Smart City Policies in Realizing the Quality of Public Services in Yogyakarta City

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A B S T R A C T

Major cities around the world believe in the concept of "smart cities" or "intelligent cities." This concept encourages people to participate in city management through a citizen-centered approach with the aim of maximizing interaction and bringing the government closer to the people. This paper examines how the Yogyakarta City government can utilize e-government to transform into a smart city, enhancing its public services through the implementation of smart government, smart mobility, and smart living policies. Cities worldwide are actively promoting this concept as a central government initiative to tackle diverse issues in different regions. The analysis employs a qualitative approach, prioritizing data from digital mass media coverage regarding the implementation of smart cities. Next, we conducted the analysis using Nvivo 14 software. This paper reveals that (1) Smart Government, with its online procedures, has begun to function effectively; (2) Smart Mobility excels in traffic control; and (3) Smart Living is more prominent in security indicators. The application of smart city theory can facilitate the implementation of smart government, smart mobility, and smart living, thereby enhancing the quality of public services.

Key word: *Implementation of Smart Government, Smart Mobility, Smart Living, Smart City*

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1. INTRODUCTION

Smart cities are cities that use digital technologies to improve performance and well-being, reduce costs and resource consumption, and engage with their residents more actively and effectively. The key sectors of smart cities are energy, transportation, health, water and waste. The types of digital technologies that can be used to build smart cities are diverse and broad, and can be used to improve quality of life, reduce costs and resource consumption, and enhance active interaction between residents and cities. In addition, these technologies have very diverse applications and can be applied in various fields as long as the ultimate goal is achieved (Syahbudin, 2018).

Smart city is one of the most popular public management concepts today (Orłowski & Szczerbicki, 2019). The term Smart City has become very popular in the community, both in print and social media (Krisnadi, 2016). According to Yang (2012) Smart cities improve governance, economy, quality of life, environment, human resources, and transportation resulting in sustainable economic development and quality of life for their residents. This is achieved through a strong communications and IT infrastructure (Serpil, 2017). However, a smart city according to Griffinger et al (2007), is a future-oriented city by prioritizing society, economy, governance, environment, mobility, and life (Vety Jayanti et al., 2020). The development of cities into Smart Cities begins with the use of information and communication technology, which is usually limited to key issues. The smart city concept is being implemented in various regions in Indonesia, including Yogyakarta. It is very important to realize Smart City Yogyakarta so that Yogyakarta can survive and compete with other cities in Indonesia (PSPPR UGM, 2016). Smart city is an idea of city development that combines physical, economic, and social infrastructure in an innovative, effective, and efficient way (Negara & Emanuel, 2019).

With the advent of the industrial revolution 4.0, technology, information and communication (ICT) has changed the way management is done around the world, from governments to businesses. The ability to solve problems effectively and efficiently is called communication technology. From an economic perspective, market players must develop new marketing strategies, keep up with technology to make various products, and improve services through the development of technology-based systems. This also applies to business, government, and others (Izzuddin, 2022).

A smart city is a green city where ICT can improve the quality, performance and interactive services of the community. ICT can also improve the relationship between citizens and city government and reduce spending and resource use. Cohen (2014) states that a smart city is a city that uses information technology (ICT) wisely and efficiently in using various resources, resulting in cost and energy savings, improved quality of life and services, and a reduced environmental footprint. These all encourage creativity and an environmentally friendly economy. (Riadi, 2020).

As one of the major cities in Indonesia with high historical and cultural values, Yogyakarta faces complex challenges in the delivery of public services. With an ever-increasing population growth, the need for efficient, fast, and precise public services is increasingly urgent. To address this issue, the city government has started to implement the Smart City concept, which includes Smart Government, Smart Mobility, and Smart Smart City.

The development and construction of Yogyakarta Smart City can be achieved through the commitment and agreement of all its components. It also involves mapping and analyzing the potential of smart cities. It also involves implementing Enterprise Architecture (business processes, systems, technology, applications, data, human resources, and organization); smart resource management (brainware, software, and hardware); and business and IT governance (human resources and information management). The Yogyakarta Smart City Living Lab is evidence of the commitment, participation, and dedication of universities in Yogyakarta, both public and private, to the utilization of information technology (ICT) in an effort to realize a Smart City. It is hoped that this will improve the management of the Yogyakarta City Government and provide excellent services in the areas of government, society, and development. (PSPPR UGM, 2016)

The smart city concept is considered to be an innovative solution to local urban development problems with the aim of increasing human productivity, so that information and digital technology can be used in all aspects of life, such as infrastructure management, resources, environment, and public services. The city will continue to develop into a developed city that has a healthy, productive, and prosperous population.

To improve the intelligence level of their citizens, many countries around the world are embarking on smart governance programs. However, for successful implementation, many potential initiatives and challenges must be overcome. However, sufficient comparative research is needed to demonstrate the key characteristics or qualities of a smart citizen as well as the services that governments can provide to educate their citizens to become smart citizens. This research aims to shed light on the characteristics and services that distinguish any municipal government as a smart citizen to educate its citizens to become smart citizens. In short, this research will concentrate on the "quality of public services" and the parameters and indicators that a smart government can use to improve the intelligence of its citizens. I made three main points as the basis of my research because according to my literature review, there is still a lack of research in certain areas in defining the quality of public services that can help citizens. Therefore, I will only discuss the quality of good public services in my opinion.

A smart city is seen as a good performance for a city because it is expected to have a positive impact on the governance and social life of people around the world. The goal of smart city development is to improve services and enhance the quality of life. Cities in developing countries still face many important problems. (Roychansyah & Felasari, 2018). To facilitate public services, all activities will be

digitized (Izzuddin, 2022). One solution for regional development is smart cities, which can develop and thrive by working together and using Information and Communication technology (ICT). (Suherningtyas et al., 2021). In general, the Smart City concept can be defined as an idea that has been improved from previous ideas by fixing existing shortcomings and considering elements that may not have been present in previous ICT-based ideas (Sitna et al., 2021). Ultimately, this idea looks at city management and development from a technological perspective as well as from a human and institutional perspective (Krisnadi, 2016). Many areas of urban policy have engaged with the smart city discourse, but local contextualization remains important (Maharika et al., 2021). Along with the smart city development program in Yogyakarta, sustainable regional planning and development is required. The three main components of sustainable regional development are economic, ecological and social. Ecology is the most important component, which includes the interaction of living things with each other and with their environment. (Suherningtyas et al., 2021).

Smart Government

(L. G. Anthopoulos & Reddick, 2016) explains that Smart Government is an aspect of Smart City that addresses how local governments run services to the community. It addresses how the local government organizes its performance using its principles, elements, and capacities as an apparatus of the State. A smart government must use networked information and communication techniques to enable certain governmental and administrative processes (Addas, 2023). Smart governance also helps local economic actors make policies and plan for better governance. By collecting, connecting, and analyzing the enormous amount of data generated and processed in near real-time, smart government is the idea of a new generation in the use of information technology (IT) in the public sector (Melati & Janissek-Muniz, 2020). Smart government is built as the next stage of open government and aims to make government more approachable, successful, and attractive to its citizens (L. Anthopoulos et al., 2021). With the advent of potable devices and the widespread deployment of broadband wireless networks, the Smart Government era has brought government "online" from desktops to mobile devices. All this happens without changing process specifications or other service logic (Schedler et al., 2019). This Smart Government shows that local governments have provided public services both in the form of SPBE and regional innovation(Rachmawati et al., 2022).

Smart government, or smart government, also uses information and communication technology (ICT) in government processes to improve efficiency, transparency, and public participation. The goal of Smart Government implementation in Yogyakarta City is to improve government responsiveness and accountability through digital innovations such as e-Government, open data, and application-based public services. A practical example is the implementation of an online-based integrated administration system that improves public access to public services, enhances data management, and increases the transparency of decision-making processes.

Smart Mobility

Smart Mobility is an idea that focuses on using advanced technology to improve the efficiency of transportation systems. An integrated public transportation system, IoT (Internet of Things) based traffic management, and real-time transportation information are all part of the Smart Mobility development in Yogyakarta. The goal is to reduce congestion, make people safer, and make mobility in the city more convenient and sustainable.

Smart Mobility is related to infrastructure and transportation, and the development of IT-based transportation and renewable data management using ICT (Rohmah & Rachmawati, 2019). Public transportation is one of the parameters of SmartMobility. Public transportation should be the core of a city's transportation system. There are many benefits for residents and tourists, the most important of which are road safety, friendliness, and economic efficiency (Bakogiannis et al., 2019). As part of the Smart City concept, Smart Mobility is an urban development concept that focuses on transportation development based on information and communication technology. It is expected that public transportation will become easy, safe, convenient, fast, and affordable by using this technology (Walker, 2023). Smart Mobility is a system that allows immediate fulfillment of needs (Habibullah et al., 2019). Basically, this smart mobility has its own application which is shown by various services and management information system applications created to help citizens and local government employees improve their performance. These applications are designed to make it easier for citizens to obtain government services, such as school enrollment, business licensing, and CCTV traffic monitoring (Dewi & Saputro, 2023). Available resources have improved the quality of life around the world thanks to recent advances in information and communication technology (ICT).

Travel and bus arrival time prediction has been an important subject studied in the past, and the most used dataset is the existing bus location data in Yogyakarta (Ashwini et al., 2022). At the medium city level, congestion occurs almost every day in Yogyakarta. This is especially true during office hours and weekends. With the increasing population of private vehicles and congestion in Yogyakarta, there is a need for adequate public transportation facilities. It can be exemplified that the G0-Jek transportation service began operating in Yogyakarta by offering fast, practical, safe, comfortable, and cheap services (Dwijoko & Sterya, 2017). Modern transportation must not only meet the basic needs of movement, but also be sustainable, accessible and connected to urban ICT. (Turoń et al., 2022).

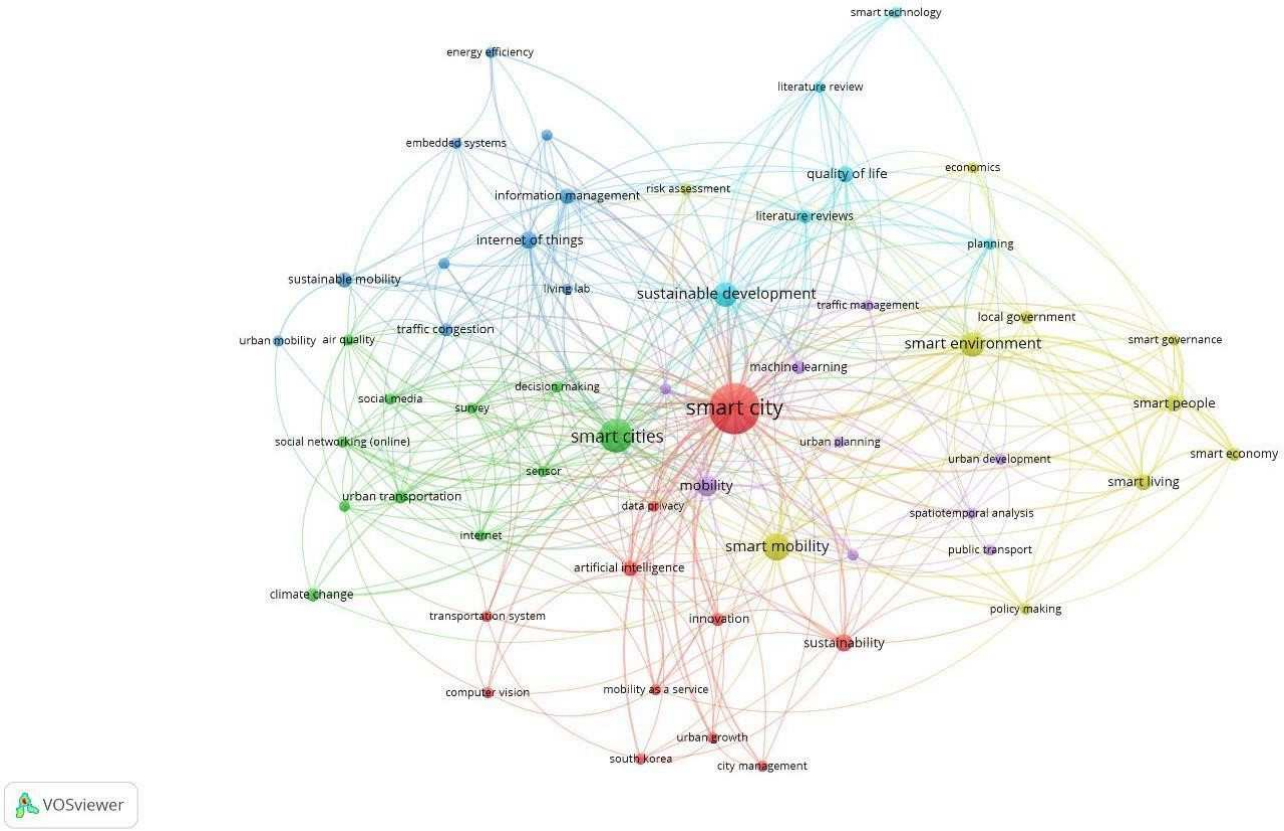
Smart Living

Smart living refers to the way people can improve their quality of life by using technology in various aspects of their daily lives. Smart Living is implemented in Yogyakarta in various projects, including the development of smart residential areas equipped with strong digital infrastructure, and the use of technology to improve health, education, and security services. In addition, it also includes

improved environmental management through technology-based air, water, and waste management systems.

After counting the number of citations, I analyzed the software output into VOSviewer to find the most frequently used keywords. Bibliometric maps can be visualized with Vosviewer. This method is used to produce a map of smart city development in Indonesia. The author uses Vosviewer to analyze smart city development maps related to smart cities, smart mobility, smart environment, smart living, and many more indicators. Furthermore, the data is processed to visualize the results of the analysis using the VOSviewer application. The existence of this gap on smart cities was analyzed using bibliometric VOSViewers with reference to 57 documents from Scopus. The results of the analysis can be seen below:

Figure 1. VOSviewer analysis



Smart Living is a dimension of a smart city that ensures the feasibility of people's living standards. The Smart Living concept is an important component of Smart City development. Numerous studies have shown that improving the quality of life of urban residents can be achieved through the application of ICT. Smart Living prioritizes people's quality of life, such as easy access to education, security, health services, and health and life insurance. Regions that have digitally transformed health services usually implement the Smart City concept. This shows that the implementation of smart cities, especially in the Smart Living dimension at the local level, provides a foundation for capability development and the ability to innovate. One of the results is the transformation of digital health services in every province

of Indonesia. Various kinds and types of digital health services are available along with the success of the Smart City concept (Khoirunisah et al., 2024). There are several parameters to smart living. It can be exemplified that clean water is very important for people's quality of life because it can affect the quality of daily water activities such as cooking, drinking, and others. This is important to prevent diseases caused by poor water quality (Kusmawati & Rachmawati, 2022). To keep the water in the environment clean, everyone must use clean water because it can prevent unwanted diseases, and if using clean water can make the body safe and not get sick (Rahmawati et al., 2023). Smart Living can achieve things such as safety, good health, and social interaction because it connects most of Indonesia and reduces the number of accidents (Alqahtani et al., 2021).

Based on the figure 1, it is known that research on smart cities tends to emphasize aspects of smart cities, smart environments, and smart mobility. However, these clusters are also still related or intersect with other indicators that still have a connection with smart cities. This research should build a government system with good governance. Public services such as infrastructure and transportation have undergone various improvements. Communication between the government and the people remains limited and passive as there is no direct communication. Therefore, a mobile-based Smart City application system should be created by utilizing big data technology for public services.

2. METHOD

This research used descriptive qualitative methodology. I chose this method because it allows for the collection of thorough data on the topic, case or issue addressed in the research. This research collected data qualitatively and used secondary data sources. These sources included official media reports from 2014-2023 as well as previous research relevant to the issue.

Table 1. Data sources from online news

Online Mass	**Media Intensity**
Kompas	6 News
Tribun Jogja	20 News
Antara News	9 News
Detik.com	6 News
Republika	9 News

Source: Author (2024)

However, this research covers more about online procedures, electronic payments, security, health, traffic monitoring, and public transportation. Although it has achieved a lot of progress, the Smart City Yogyakarta research still has some limitations that need to be considered to improve its quality and effectiveness. Explanatory qualitative research with secondary data resulted in this article. The data consisted of reports, files, documents, reports, as well as articles, journals, and books. Furthermore, the data was analyzed using Nvivo 14 and divided into three indicators, namely smart government, smart living, and smart mobility. Smart city, according to Cohen (2014), is a city that uses Information and Communication Technology (ICT) in a smart and efficient way in using various

resources, which results in cost and energy savings, improved quality of life and services, and a reduced environmental footprint. All of this supports innovation and a green economy. Services provided by the government as an organizer to the people of the country with the aim of improving public welfare are known as public services (Wibisono & Handoko, 2020).

3. FINDINGS AND DISCUSSION

A Smart City is a city that can use technology and information flows to effectively and efficiently integrate public services and infrastructure into society. These services can include education, health, transportation, economy, and energy resources. By working together, it is hoped that all components can improve city development and management (Nuzulia, 1967).

Figure 2. Word Cloud analysis related to Smart City Yogyakarta

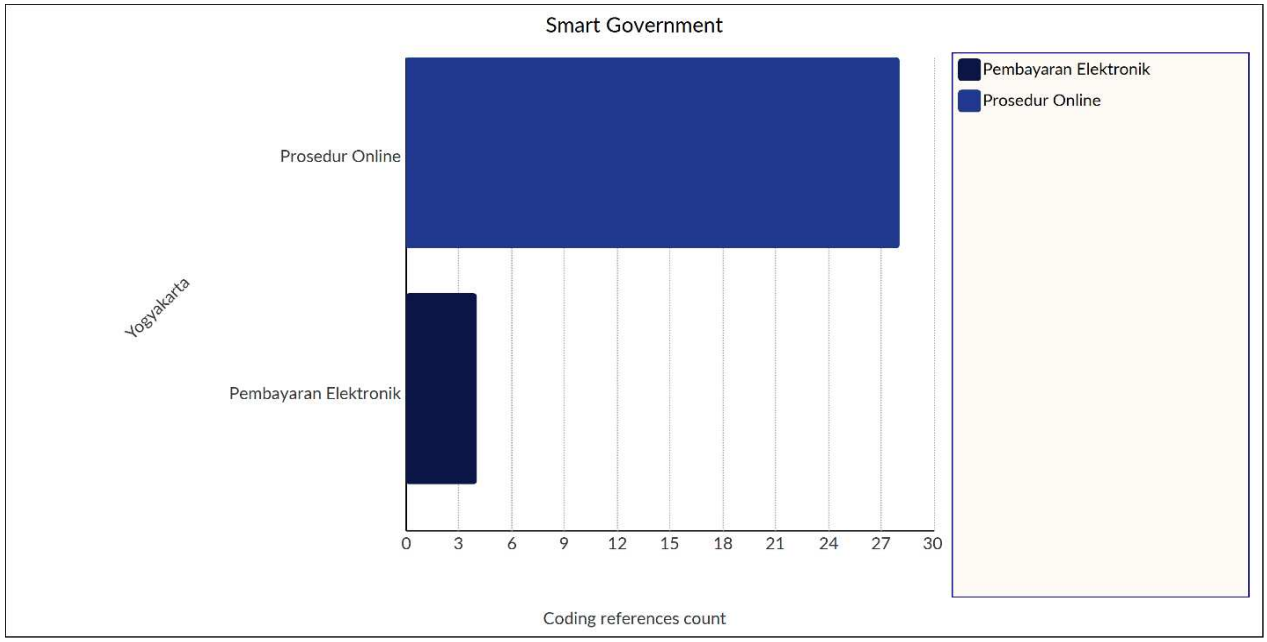
Source: processed using Nvivo 14 by the author

My research is related to Smart City, according to the Word Cloud or word cloud that has been processed using the Nvivo 14 tool, word frequency or frequency of words on the topic of Smart City shows that the words "Yogyakarta", "Smart", "Society", and "City" have the highest number of references. The size of the word that appears most often shows the word that is most often used by the author in the news that has been searched. The word Yogyakarta that appears shows in the news content that Yogyakarta is an area that is the capital city as well as the center of government and economy of the

Special Region of Yogyakarta province, Indonesia. The word Smart related to the news content is smart. Smart in this context is usually combined with smart city which is a city area that uses IT and communication in daily life. The word community related to the news content is that the community must be able to take part. The word city that appears in the news content is a center of population activity that has administrative boundaries governed by laws and regulations and the characteristics of urban life.

Smart Government

Figure 3. Smart Government Analysis



Source: Processed Research Using Nvivo 14 with Crosstab feature

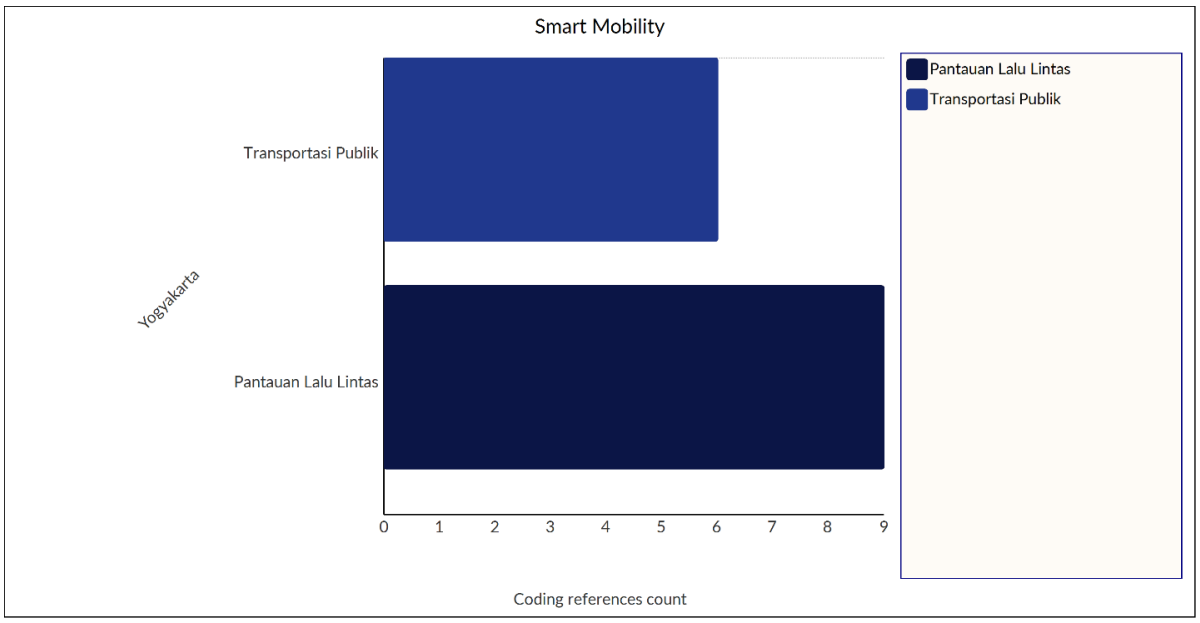
Yogyakarta is a city that will be rich in history and culture, now turning into a smart and sustainable city. This vision can be achieved through Yogyakarta's Smart Government initiative. Smart Government in Yogyakarta is an important step towards the vision of a smart, cultured and sustainable city. By continuing to innovate and work together, the city can become an example for other cities in Indonesia to implement good governance and improve the quality of public services. It turns out that the best part of the news in Yogyakarta is in the Smart Government section, which is about online procedures that have started to run well than others, for example electronic payments in this context.

Smart Mobility

Yogyakarta, is a rich city in culture and tradition, and undergoing a transformation towards a smarter, more convenient, and sustainable transportation system through the Smart Mobility concept. The aim of this initiative is to overcome various existing transportation problems, such as congestion, lack of integration between modes of transportation, and others. However, it can be seen from the data above that Smart Mobility in Yogyakarta is more prominent in the direction of traffic monitoring. There

is an application that provides navigation that can help people to choose the best route and avoid congestion.

Figure 4. Smart Mobility Analysis

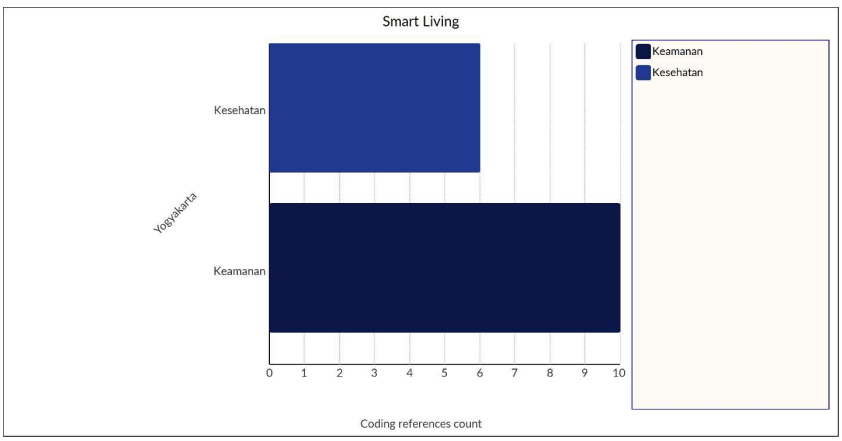


Source: Nvivo 14 with Crosstab feature

Smart Living

Yogyakarta, known for its rich culture and traditions, is undergoing a transformation towards smarter and more sustainable living through the concept of Smart Living. The aim of this initiative is to improve people's quality of life through the application of technology and innovation in various aspects of life. Smart Living in Yogyakarta offers a smart home concept that uses technology to improve comfort, safety and efficiency. It focuses not only on technology within the home but also on various aspects of people's lives, such as smart healtcare, and others. But apparently, in the data above, Smart Living in Yogyakarta in the security section is superior to the health section.

Figure 5. Smart Living Analysis



Source: Nvivo 14 with Crosstab feature

4. CONCLUSION

Smart cities use digital technologies to improve performance and health, reduce spending and resource use, and interact more actively and effectively with their residents. The key sectors of smart cities are energy, transportation, health, water and waste. The types of digital technologies that can be used to build smart cities are diverse and broad, and can be used to improve quality of life, reduce costs and resource consumption, and enhance active interaction between residents and cities. In addition, these technologies have very diverse applications and can be applied in various fields as long as the ultimate goal is achieved.

A strategic step to improve the quality of public services is the implementation of Smart Government, Smart Mobility, and Smart Living policies in Yogyakarta City. By utilizing technology as an enabler, it is expected that Yogyakarta City can provide more efficient, transparent, and accountable services, and improve the overall quality of life of the community. Despite some obstacles, this transformation opens up great opportunities to build a greener and more competitive city. To realize the idea of smart city, careful preparation is needed, such as adequate infrastructure, qualified human resources, and effective integration of technology systems in supporting city governance. Optimizing the implementation of smart city ideas will benefit the political leaders of the city or region in the future, and will encourage public participation to achieve sustainable development.

Overall, the implementation of Smart Government, Smart Mobility, and Smart Living policies in Yogyakarta City improves public services, administrative efficiency, and quality of life. However, the success of this implementation depends on the government's commitment, cross-sectoral cooperation, and active participation of the community in the transformation towards a more modern and responsive government.

The smart city concept promises high economic added value due to how efficient the processes are. In addition, smart cities offer social connectedness that supports social integration, making it the highest level of social interaction. Lastly, the concept also ensures environmental sustainability. And also that the development of information and communication technology is considered more effective in improving information disclosure of local public services. The Yogyakarta City Government still has to evaluate how the implementation of smart city policies in Yogyakarta in realizing the quality of public services in the city.

REFERENCES

Addas, A. (2023). The concept of smart cities: a sustainability aspect for future urban development based on different cities. *Frontiers in Environmental Science*, *11*(August), 1–18. https://doi.org/10.3389/fenvs.2023.1241593

Alqahtani, F. K., El Qasaby, A. R., & Abotaleb, I. S. (2021). Urban development and sustainable utilization: Challenges and solutions. *Sustainability (Switzerland)*, *13*(14), 1–16. https://doi.org/10.3390/su13147902

Anthopoulos, L. G., & Reddick, C. G. (2016). Smart City and Smart Government: Synonymous or Complementary? *WWW 2016 Companion - Proceedings of the 25th International Conference on World Wide Web*, 351–355. https://doi.org/10.1145/2872518.2888615

Anthopoulos, L., Sirakoulis, K., & Reddick, C. G. (2021). Conceptualizing Smart Government: Interrelations and Reciprocities with Smart City. *Digital Government: Research and Practice*, *2*(4), 1–28. https://doi.org/10.1145/3465061

Ashwini, B. P., Sumathi, R., & Sudhira, H. S. (2022). A Dynamic Model for Bus Arrival Time Estimation based on Spatial Patterns using Machine Learning. *International Journal of Engineering Trends and Technology*, *70*(9), 185–193. https://doi.org/10.14445/22315381/IJETT-V70I9P219

Bakogiannis, E., Siti, M., Tsigdinos, S., Christodoulopoulou, G., & Karolemeas, C. (2019). The challenge of smart mobility integration in the evolving smart city context; the paradigm of heraklion. *Multi Conference on Computer Science and Information Systems, MCCSIS 2019 - Proceedings of the International Conferences on ICT, Society and Human Beings 2019, Connected Smart Cities 2019 and Web Based Communities and Social Media 2019*, *6*, 217–225. https://doi.org/10.33965/csc2019_201908l027

Dewi, A. S., & Saputro, A. (2023). Smart City Dan (Re)Produksi Ruang: Analisis Implementasi Smart City Di Bali Dan Yogyakarta. *Jurnal Analisa Sosiologi*, *12*(4), 792–812. https://doi.org/10.20961/jas.v12i4.78848

Dwijoko, A., & Sterya, H. (2017). Motorcycles as public transport service based on smart phone android applications. *MATEC Web of Conferences*, *138*. https://doi.org/10.1051/matecconf/201713807001

Habibullah, A., Mutiarin, D., & Sarofah, R. (2019). The Challenges of Smart City Implementation in Indonesia: Case Study of Sleman Regency, Special Region of Yogyakarta, Indonesia. *Journal of Governance and Development*, *15*(1), 1–18.

Izzuddin, F. N. (2022). Konsep Smart City Dalam Pembangunan Berkelanjutan. *Citizen : Jurnal Ilmiah Multidisiplin Indonesia*, *2*(3), 376–382. https://doi.org/10.53866/jimi.v2i3.96

Khoirunisah, F., Zhafirah, N., & Handoko, T. W. (2024). Analisis Layanan Kesehatan Digital Dalam Mewujudkan Smart City di Indonesia. *INNOVATIVE: Journal of Social Science Research*, *4*(2), 6328–6342.

Krisnadi, I. (2016). Menuju Konsep Smart City. *ResearchGate*, *February 2016*, 1–9.

Kusmawati, A. D., & Rachmawati, R. (2022). The Utilization of "Jogja Pass" Mobile Application as an Effort to Prevent the Spread of COVID-19 in Special Region of Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, *1039*(1). https://doi.org/10.1088/1755-1315/1039/1/012060

Maharika, I. F., Permana, S. A., Nugraheni, F., & Böhlen, M. (2021). Outlining Smart Kampung Indicators: Preference Study in Kampung Terban Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, *933*(1). https://doi.org/10.1088/1755-1315/933/1/012025

Melati, C., & Janissek-Muniz, R. (2020). Smart government: Analysis of dimensions from the perspective of public managers. *Revista de Administracao Publica*, *54*(3), 400–415. https://doi.org/10.1590/0034-761220190226

Negara, J. G. P., & Emanuel, A. W. R. (2019). A conceptual smart city framework for future industrial city in Indonesia. *International Journal of Advanced Computer Science and Applications*, *10*(7), 453–457. https://doi.org/10.14569/ijacsa.2019.0100762

Nuzulia, A. (1967). PENGEMBANGAN KONSEP SMART CITY MELALUI APLIKASI JOGJA SMART SERVICES DI PEMERINTAH KOTA YOGYAKARTA. *Angewandte Chemie International Edition,*

6(11), 951–952., *20170520217*, 5–24.

Orłowski, A., & Szczerbicki, E. (2019). *Europa XXI 36 (2019), Smart Blue Cities*. *36*, 77–88.

PSPPR UGM. (2016). Road Map Kota Yogyakarta Menuju Smart City. *Jurnal Online Universitas Gadjah Mada*, *1*, 1–27.

Rachmawati, R., Anjani, D. F., Rohmah, A. A., Nurwidiani, T., & Almasari, H. (2022). Electronically-based governance system for public services: implementation in the Special Region of Yogyakarta, Indonesia. *Human Geographies*, *16*(1), 71–86. https://doi.org/10.5719/hgeo.2022.161.5

Rahmawati, O. N., Fadillah, D., Sukron, A., Nasution, M. Z., Romadon, I., Kurniawan, I. A., Studi, P., Negara, I. A., Sosial, I., & Politik, I. (2023). Optimalisasi Pengelolaan Air Bersih Di Kota Tangerang Dan Tangerang Selatan Dalam Perspektif Smart City. *Jurnal Pendidikan Sejarah Dan Riset Sosial Humaniora*, *3*(1), 83–88.

Riadi, M. (2020). *Smart City (Pengertian, Karakteristik, Indikator dan Penerapan) - KajianPustaka*. https://www.kajianpustaka.com/2020/01/smart-city-pengertian-karakteristik-indikator-dan-penerapan.html

Rohmah, A. 'Ainur, & Rachmawati, R. (2019). *Indonesian Journal of Science & Technology Utilization and Quality of Information System for Administration Services Based on ICT In Patehan ,*. *4*(1), 55–63.

Roychansyah, M. S., & Felasari, S. (2018). Does ICT make city compactness higher? Evidences from compact city attributes in Yogyakarta City's districts. *IOP Conference Series: Earth and Environmental Science*, *213*(1). https://doi.org/10.1088/1755-1315/213/1/012035

Schedler, K., Guenduez, A. A., & Frischknecht, R. (2019). How smart can government be? Exploring barriers to the adoption of smart government. *Information Polity*, *24*(1), 3–20. https://doi.org/10.3233/IP-180095

Serpil, Y. (2017). Investigating Students' Self-Efficacy and Attitudes Towards the Use of Mobile Learning. *Journal of Education and Practice*, *8*(6), 181–185.

Sitna, H. H., Assaf, A., & Asyarif, L. L. (2021). The Level of Achievement for Assessment of Smart City in Smart Technology: A Literature Review. *E3S Web of Conferences*, *328*, 4–9. https://doi.org/10.1051/e3sconf/202132804013

Suherningtyas, I. A., Permatasari, A. L., Wiguna, P. P. K., & Adninda, G. B. (2021). Assisting smart disaster management for smart city program, case study: Pringgokusuman village, Yogyakarta. *IOP Conference Series: Earth and Environmental Science*, *683*(1). https://doi.org/10.1088/1755-1315/683/1/012068

Syahbudin, S. K. (2018). Analisis Penerapan Smart City Dan Internet of Things (Iot) Di Indonesia. *Academia.Edu*, *November*. http://facebook.com/syahbudinT

Turoń, K., Kubik, A., Ševčovič, M., Tóth, J., & Lakatos, A. (2022). Visual Communication in Shared Mobility Systems as an Opportunity for Recognition and Competitiveness in Smart Cities. *Smart Cities*, *5*(3), 802–818. https://doi.org/10.3390/smartcities5030041

Vety Jayanti, A., Priyo Purnomo, E., & Nurkasiwi, A. (2020). Vertical Garden : Penghijauan Untuk Mendukung Smart Living Di Kota Yogyakarta. *Al Imarah : Jurnal Pemerintahan Dan Politik Islam*, *5*(1), 41. https://doi.org/10.29300/imr.v5i1.2916

Walker, J. (2023). *Smart Mobility – Current State , Challenges and Prospect of Success SMART MOBILITY – CURRENT STATE , CHALLENGES AND PROSPECT OF SUCCESS MASTER OF ARTS IN TRANSPORT POLICY AND PLANNING DISSERTATION*. *January*.

Wibisono, B., & Handoko, S. (2020). Implementasi Program Jogja Smart City Di Kota Yogyakarta Dalam Meningkatkan Pelayanan Publik Berbasis Sosio-Kultural. *Jurnal Kewarganegaraan*, *4*(1), 66–74. https://doi.org/10.31316/jk.v4i1.880

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