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Smart City Implementation Towards Indonesia Emas 2045

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ABSTRACT

This research aims to find out how the implementation of the Smart city concept in Indonesia towards the vision of the Golden Indonesia 2045. This concept is considered to be a solution for Indonesia in advancing all its sectors. The method used in this research is descriptive qualitative method. This research utilizes secondary data sources derived from mass media such as digital news and is processed and analyzed using Nvivo 14 software. Based on the results of this study, the application of the smart city concept in Indonesia has been effectively implemented. Stakeholders show their seriousness in realizing the vision of Indonesia Emas 2045. This is evidenced by the many innovations in each sector that support the implementation of smart cities. These innovations include the launch of applications in the government service sector, as well as innovations in the transportation sector. However, in this study, the application of the smart city concept has imbalances in each sector, such as in the government sector which has the highest index with the Environment sector which has the lowest index in its implementation. This is because the implementation of smart cities in Indonesia still has shortcomings in several sectors that must be addressed if the vision of Indonesia Emas 2045 is to be realized.

Keywords: Smart City, Sustainable Development, Indonesia, Indonesia Emas 2045

INTRODUCTION

The rapid pace of technological development, especially in the field of information and communication, currently demands all elements in this world to be able to adapt quickly. The rapid spread of information, innovation, and digitalization is something that cannot be avoided. Currently, all people in the world, including in Indonesia, have almost relied on technology in their daily lives. This also has an impact on the needs of society which continue to increase rapidly. Therefore, in order to respond to the increasingly advanced developments of the era, Indonesia is slowly adapting by implementing the concept of "Smart City" in the sectors within it such as government, society, environment, and others.

Smart city is a development concept that basically refers to the quality of its people who are increasingly advanced in terms of knowledge. Smart city is a public space that is integrated with a network for people living in the area. The application of the smart city concept innovates in terms of the distribution of information, public services, social welfare and others which are intended to make it easier for people to support their daily activities to be more effective and efficient. In its application, all stakeholders in the city such as the government, private sector, and academic sectors are required to be able to synergize with each other to create innovations that are useful for the sustainability of people's lives (Maharani Imran, 2019).

This concept is based on urban innovation in terms of utilizing technology and networks as the main support in supporting the process of communicating between the government and the community in order to align the needs of the community and the policies that will be made. This smart city concept also has the ability to increase the effectiveness and efficiency of a policy in a city because of the connectivity between parties that are integrated with the ICT concept or can be called Information and Communication Technology. ICT is a term for a concept that is based on advances in information technology. The technology referred to here is in the scope of the process, planning, use as a supporting tool, manipulation, and management of information. Currently, the implementation of smart cities assisted by ICT has been widely implemented by many countries in the world, including Indonesia (Pramesti, 2020).

In recent years, Indonesia has begun to implement the smart city concept. Its implementation is stated in Law No. 25 of 2004 which contains a national-scale development planning system that aims to build a smart and sustainable development plan. This is because the smart city concept is basically a good alternative in answering the problems that exist in urban areas in Indonesia. The smart city concept can also play a role in improving the quality and comfort of life for people who live and settle. Moreover, in this case Indonesia is still referred to as a developing country (Elanda et al., 2022).

Indonesia as a developing country continues to try to respond to the development of the times by continuing to transform all aspects comprehensively. This digital transformation is a key to maximizing the potential that is owned and adapting to global developments. The smart city aspect is one solution to transform a system that is integrated with digital technology. For this reason, the Smart city concept is in line with the vision launched by the Indonesian government, namely the Vision of Golden Indonesia in 2045. This vision is a long-term goal to realize the creation of Indonesia as an advanced, independent, and sovereign country as a country that can compete with other developed countries in 2045(Nurhanisah, 2020).

The vision of golden Indonesia is a sovereign, advanced, and sustainable archipelago. To achieve this long-term goal, the Indonesian Government is implementing an international commitment, namely sustainable development to implement sustainable and sustainable development (Arifin, 2023). Smart city is one of the concepts based on sustainable development because many of its supporting pillars contain elements of sustainability. In other words, the vision of golden Indonesia requires the government to implement city management based on the concept of smart city. In line with the statement above, this study will analyze the topic of the implementation of the Smart City program in Indonesia towards Golden Indonesia 2045 using several supporting indicators of smart city such as smart environment, smart economy, smart mobility, smart people, smart government and also smart living which refers to the theory by Boyd Cohen. Based on the author's search, scientific articles with the topic of smart city in Indonesia as one of the pillars supporting the vision of golden Indonesia are still limited. Therefore, this research topic was chosen by the author. This study aims to examine the implementation of smart city in Indonesia in order to realize golden Indonesia 2045 which is certainly in line with the development of the increasingly modern era. Therefore, this study is expected to contribute to knowledge regarding the implementation of smart city in Indonesia in the vision of Golden Indonesia 2045 for readers. Not only that, this study is expected to be a new reference for the success of the implementation of smart city in Indonesia.

After selecting several previous studies, the author analyzed the output of Vosviwers to find the topics with the highest frequency. This method is used to organize the map of smart city development in Indonesia. The author uses Vosviwers software to analyze the relationship between smart city development and smart economy, smart living, smart people, smart mobility and other indicators. The data sources processed refer to 64 scientific articles taken from Scopus. Then, the data is processed through Vosviwers and produces a network visualization as follows:

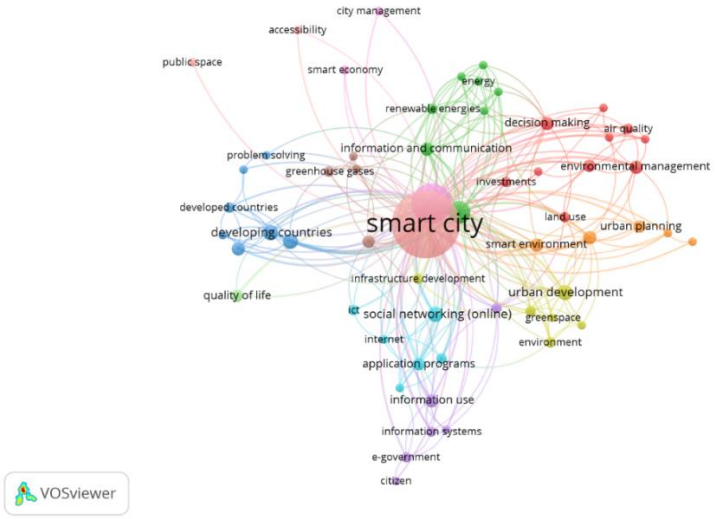

Figure 1. Network Visualization in Vosviewers Analysis
Source : Vosviewers 2024

It can be seen in Figure 1 showing the Network Visualization of search results with the keywords "smart city" "Indonesia" the results of Vosviewer data show that research with the keywords "smart city", then "Indonesia" visualization from Vosviewers analysis shows that research with the keyword smart city is focused on aspects of developing countries, smart environment, information and communication, infrastructure development. While smart city research associated with Indonesia's Vision in achieving Indonesia's golden age 2045, especially in terms of its implementation, is still limited. Therefore, this study aims to cover this gap by examining the implementation of smart cities in realizing Indonesia's golden age 2045..

The concept of sustainable development was introduced through the Stockholm Declaration in 1972 and Rio De Jeneiro in 1992, which emphasized development that not only pays attention to technology, but also requires environmental studies (Safudin, 2019). According to Hardjasoemantri in Safudin (2019), development means a major change that includes changes in economic structure, physical appearance of the region, acceleration of consumption patterns, natural resource and environmental models, technology, and changes in value systems. Meanwhile, the meaning of sustainability is the sustainability of human needs in the long term (Rassanjani, 2018).

Sustainable development is development that harmonizes resource development and the environment (Althunibat et al., 2021). Sustainable development focuses on equality and justice between generations, which have different pillars, but all of them have the same correlation (Surya et al., 2022). The community plays an important role in implementing sustainable development (Lestari et al., 2023). Many countries have implemented sustainable development, including Indonesia, which has a commitment to realizing this (Ratnasari et al., 2023).

According to Heal in (Hapsoro & Bangun, 2020), There are at least two dimensions contained in the concept of sustainable development. First, the time dimension because sustainability involves the future. Second, the interaction between the economic system and the natural resource and environmental systems. There are 3 pillars in implementing sustainable development, namely social, economic, and environmental (Rassanjani et al., 2023). The social pillar ensures the distribution of wealth and social justice, the economic pillar ensures stable economic growth by overhauling the system to save energy and resources, and the environmental pillar protects the rights of the environment to live and as a place for humans to live (Hapsoro & Bangun, 2020). These three pillars of sustainable development, if implemented properly and consistently, will achieve sustainable goals (Yanto et al., 2024). In the three pillars of sustainable development, increasing social capacity is the main focus in sustainable development (Rachmawati et al., 2024). Because one of the functions of sustainable development is to improve education for the community (Thamrin et al., 2023). Meanwhile, in research by (Pusung et al., 2024), Sustainable development also focuses on balancing socio-economic and environmental aspects.

The term smart city in general is city management by utilizing ICT in order to create a city with an advanced economy, improving the quality of life and good and participatory resource management (Hasmawaty et al., 2022). Smart City is a concept that has been applied in various countries in the world (Herdiansyah, 2023). At the beginning of its emergence, the concept of a smart city was created by the International Business Machine Corporation (IBM) in a study (Fefta et al., 2023) which stated that a smart city is a city where every instrument in it is interconnected and functions efficiently. This smart city concept began in Rio De Janeiro through the IBM program (Wahyuddin et al., 2023). This concept prioritizes improving networks and services to the community to be more efficient with the use of digital technology (Anugraha et al., 2022). Smart city is based on the application of the Internet Of things (IoT) which uses big data analysis when collecting real-time data from the city (Putriani et al., 2023).

The smart city concept has been widely applied in the world, including Indonesia. This concept is used because it is considered to be able to solve various problems in urban areas such as the lack of availability of digital services, the availability of public services, waste management processes, and policies approved by the government (Syah et al., 2023). The smart city concept focuses on developing solutions to make it easier for people to carry out their lives (Pinem et al., 2023). The smart city concept can be adopted in various types of public services (Nilam Sari, 2023). In its implementation, a smart city must adapt to the characteristics and original features of the city to be targeted (Rachmawati et al., 2023). Because the innovation of the smart city concept affects the efficiency and effectiveness of the performance of a region (Saputra, 2023). In research by (Dyah & Herman, 2023), the implementation of the smart city concept cannot be separated from the role of social media which functions as an intermediary for the spread of information to the public.

The implementation of Smart City is used to overcome the negative impacts of modern urban development (Pratama & Imawan, 2019). To overcome the negative impacts of smart city, collaboration between stakeholders is needed so that there are no problems in the process (Schedler et al., 2019). In reality, to realize the concept of smart city, there are several assessment processes, innovations & actions that must be taken. Because the impact of implementing smart city must be considered carefully according to the target city (Anam et al., 2023). In the case of smart city prospects in the new capital city of Indonesia, there is a big challenge to rethink the prospects of smart city and the potential for smart city development, especially the problems of human resources, budget capacity, infrastructure, and government bureaucratic adaptation patterns (Rifaid et al., 2023). Therefore, the strategy for implementing the smart city concept must be based on a broad perspective and must be seen from 6 important aspects according to Cohen which underlie the theory of smart city itself such as Smart Economy, Smart Environment, Smart Government, Smart Living, Smart People & Smart Mobility (Atmabrata & Tresani, 2020). In addition, smart cities have become part of a development strategy that emphasizes investment in human resources, transportation, and ICT in creating more sustainable economic growth and improving the quality of life (Rachmawati et al., 2021).

As in the six (6) pillars of smart city in Cohen's theory in research (Insani, 2017), one of which is the implementation of smart Living. In research (Nariratih & Rahmawati, 2019), it is stated that in Indonesia, especially Surabaya. The city of Surabaya implements smart living by launching the "Sikampung" application which is useful for supporting community activities starting from the lower classes who need government services in real time. While in (Sholeh et al., 2019), the concept of smart mobility is implemented in the city of Bandung with the use of smart transportation to provide safe, efficient, comfortable, affordable, and environmentally friendly transportation facilities. The concept of a smart city also requires having a smart government. Smart government is a very important pillar in the implementation of a smart city. In research (Arief et al., 2020), it is stated that in 2018 the Indonesian government implemented government regulation no. 95 concerning electronic-based government or what can be called SPBE.

Smart economy is one pillar in a smart city that plays an important role in the sustainability of its implementation. In research (Tyas et al., 2019) it is stated that Indonesia is a developing country that has used digital technology in its economic activities. Smart environment is a support for the success of smart city implementation in Indonesia because this aspect is directly related to the environment. As in research by (Hanif et al., 2024), it is stated that the Indonesian Government provides various waste management facilities in the form of Final Production Sites (TPA). Waste recycling technology, and Smart people waste banks are also an important part of implementing the smart city concept. As in research (Godwin et al., 2023), Indonesia is very serious about implementing one of these pillars. The government collaborates with the Ministry of Education and Culture to create the "Independent Learning - Independent Campus" policy. The policy provides opportunities for students to improve their knowledge and competence in the real world by facilitating interaction between students and the community and industry.

Method

The method used in this study is a qualitative method. This method is basically the collection of data and previous literature sourced from the internet, books, and previous research. Researchers use qualitative methods because this method can provide detailed focus on the implementation process and the obstacles that occur. This is because the goal of the golden Indonesia vision is a long-term vision for the country of Indonesia. This method can also provide broader insight into the key aspects that support the implementation of smart cities in Indonesia. Sources of this study include official mass media news in 2020-2024 and research studies relevant to the topic of smart cities in Indonesia. The author chose the period 2020-2024 because this period was a period when the world experienced the Covid-19 phenomenon which caused a decrease in the productivity level of a country, so this period became relevant for the period in this study. The data will eventually be described comprehensively according to the research topic.

This study also utilizes big data management software in the form of Nvivo 14. This software is used to describe the visualization of the analysis sourced from news including Kompas, Detik, Liputan, Republika, and Tribun. The author chose these five mass media because these media have high popularity in Indonesia, where Indonesia is the main focus in this research topic. The data obtained was then analyzed by utilizing the Ncapture feature on Nvivo 14. The author uses Nvivo 14 software because this software provides visualization features such as word clouds, crosstab queries, and matrices. This visualization functions to present data more attractively and makes it easier for readers more widely to understand the research results.

No.	Mass Media	Amount
1.	Kompas	**10 News**
2.	Detik	**10 News**
3.	Liputan	**10 News**
4.	Republika	**10 News**
5.	**Tribun**	**10 News**

Source : Author (2024)

The author uses 50 news from 5 different media because the author selectively chooses from 5 credible media sources in Indonesia. By only choosing 10 news per media, researchers can ensure that the news sample remains representative and accurate to the research topic. The focus of this study is to analyze the implementation of the smart city concept according to Boyd Cohen's theory which explains that in the implementation of a smart city there are 6 indicators that support its success. The scope of this study is the implementation of smart cities in Indonesia.

This article is the result of descriptive qualitative research that is studied using secondary data or secondary data is a research source that is obtained indirectly (Syafnidawaty, 2020). Research using secondary data has several advantages such as the time and cost required when conducting research is relatively less when compared to using primary data as a research source, then the data sources sought are relatively easier because they are already available on the internet, books, or government and non-government agencies (UMA, 2022). In this study, the author uses secondary data in this study because the data sources needed in this study such as government reports, previous research, and official mass media news regarding the

implementation of smart cities in Indonesia are already available and can be easily obtained, so it does not require research using primary data. The data obtained is then processed and visualized using Nvivo 14 software.

Results And Discussion

The concept of a smart city is a concept that is believed to be able to provide innovative solutions to development problems in all countries in the world. Not only that, the concept of a smart city was formed to increase productivity in humans, so that information and digital technology can be utilized in terms of aspects of human life, starting from the availability of digital services, the availability of public services, waste management processes, and policies approved by the government. from a city will be developed into a developed city with a healthy, productive society (Izzuddin, 2022).

Word Cloud Analysis related to Smart City Topic

Data in the form of news from 5 mass media concerning the topic of smart city is entered into the word cloud program in Nvivo 14. This is done to analyze the tendency of a topic as a whole. Word cloud analysis is done to determine the tendency of keywords in the scope of smart city based on the size of the words in the word cloud display. The following is a word cloud analysis with the topic of smart city.

Based on the word cloud processed using Nvivo 14, the highest frequency of words that appear are the words “smart”, “kota”, “jakarta”, and “masyarakat”. The word size shows the frequency of the most frequently used words in the news that is searched. The word “smart” means the ability in the form of intelligence. The word “kota” is defined as an administrative area that is the center of population activities with the characteristics of an urban area. The word “smart” refers to the concept of a smart city which is also related to the word “kota” or city, so it can be defined as an urban area with the support of smart components in terms of resources, management, and technology. The word “Jakarta” is the capital city of the DKI Jakarta province which is the center of government and the economy of the province. The word “masyarakat” refers to community involvement in the implementation of a smart city. The word Indonesia Emas 2045 does not appear in the word cloud to analyze smart cities in Indonesia. This is because the

data sources processed to analyze the frequency of smart city topics are dominated by topics about society and government. In other words, the topic of smart cities revolves a lot around the community and its government.

Crosstab Query Analysis On Smart City Indicator

There are six indicators that support the smart city concept. The six indicators are analyzed in percentage using crosstab query in Nvivo 14 with bar chart display. The following are the results of crosstab query analysis regarding the percentage of six smart city indicators.

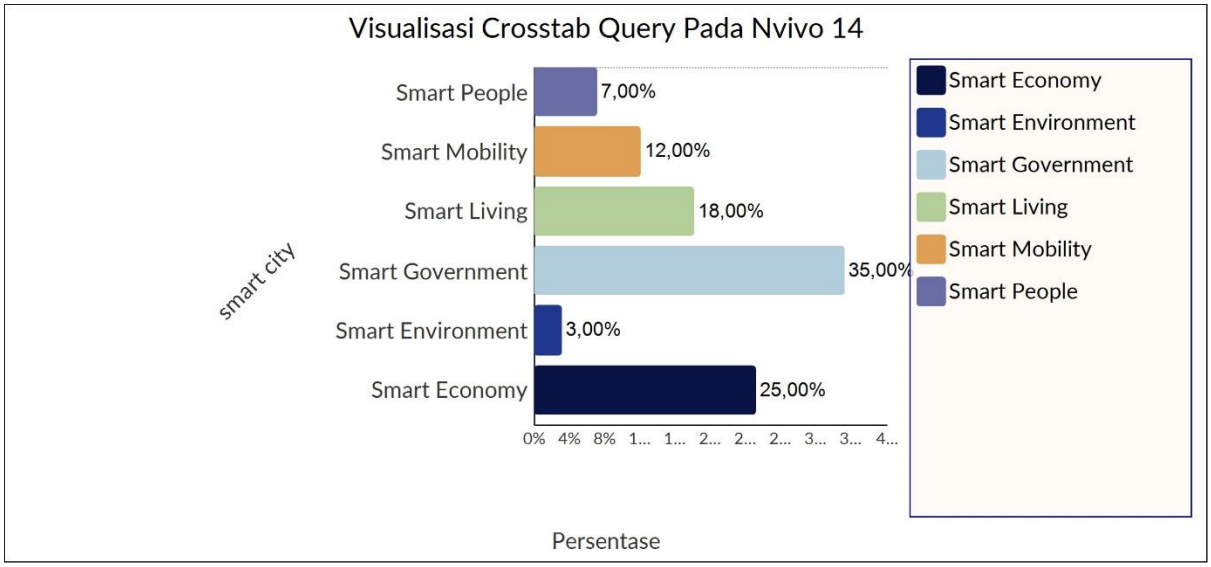

Figure 3. Smart city implementation indicators.

Source: Nvivo 14 2024.

In Figure 3 above is the result of the crosstab query analysis of the Smart City indicator using Nvivo 14 software. There are 6 indicators used in this analysis, here are Figure 3 above is the result of the crosstab query analysis of the Smart City indicator using Nvivo 14 software. There are 6 indicators used in this analysis, here are Smart People, Smart Mobility, Smart Living, Smart Government, Smart Environment, and Smart Economy. These 6 indicators are used in analyzing the implementation of smart cities in Indonesia. In the analysis based on the mass media in Indonesia, the aspect that has the highest predicate is smart government with a percentage of 35%, followed by smart economy with a percentage of 25%, then smart living with a percentage of 18%, followed by smart mobility with a percentage of 12%, after that there are smart people and smart environment which have the lowest percentages, namely with a percentage of 7% and 3%.

The explanation of the parameters and indicators below will use crosstab analysis. Crosstab analysis is also known as cross tabulation or tabulation analysis, which is a method used to examine the relationship between variable categories. Crosstab analysis is displayed in the form of a bar chart. The types of diagrams displayed include qrosstab query analysis on smart city parameters, crosstab query on parameters in smart government indicators, and crosstab query on parameters in smart environment indicators.

Crosstab Query Analysis On Smart City Parameters

The six smart city indicators have several parameters in them that function as determining factors for the fulfillment of each indicator. Crosstab query analysis is used to analyze each smart city parameter based on data. Crosstab query analysis is displayed in the form of a bar chart. The results of the crosstab query analysis regarding the smart city implementation parameters are shown in the following figure.

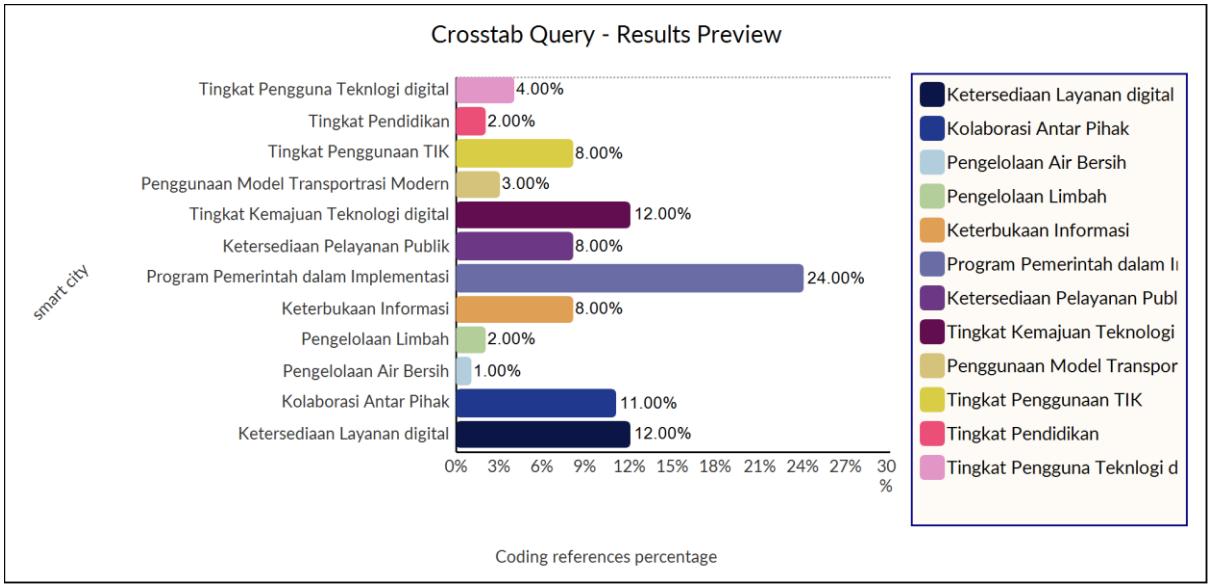

Figure 4. Smart City Implementation Parameters in Indonesia.
Source: Nvivo 14 2024

It can be seen in Figure 4 above, based on the results of the analysis using Nvivo 14, referring to Boyd Cohen's theory, this analysis uses several parameters that are the reference for the implementation of smart cities in Indonesia. Producing data in the form of a chart that shows the parameters that the government program in implementing Smart City is superior to the parameters used during this analysis. It can be seen that the government program ranks first by obtaining 24% in topics that are widely discussed in the mass media such as Kompas, detik.com, liputan6.com, republika.com, and Tribun.com. Compared to other parameters such as the level of digital technology progress only getting 12%, then the availability of digital services that have the same percentage, the government program is far superior by more than 12%.

Based on the crosstab query analysis in Figure 4, this study will review two indicators with the highest and lowest parameter percentages. The highest program parameter, namely the government program in implementation, is one of the parameters of the smart government indicator. Meanwhile, the wastewater management parameter is a parameter of the smart environment indicator. Therefore, this study will review two smart city indicators, namely smart government and smart environment to reveal other findings that cause the high and low percentages of the two indicators.

The parameter with the highest percentage (as much as 24%) is the government program parameter in implementation. With the highest percentage, it shows that based on mass media-based data, aspects of government programs in implementation are most often the topic of discussion. Local governments throughout Indonesia are competing to implement smart city programs with adjustments and strong influence of technology. The Banyuasin Regency Government launched the SI-EMAS (Smart City Evaluation System) application as a tool to facilitate all regional devices, especially in documenting, monitoring, evaluating, and optimizing the implementation of smart city programs in Banyuasin Regency (Bodok, 2024). This program is used to monitor the progress of the implementation of smart city programs. The implementation of programmed supervision and evaluation from the Banyuasin Government is a commitment to realizing a smart city in the area.

The lowest parameter is clean water management (1%). This shows that the government's sensitivity to managing clean water as a community need is not as high as the previous aspect. In other words, government programs in implementation are a part that has been running well in Indonesia compared to other parameters, while clean water management is an issue that tends to be ignored. For example, in early 2024, there were 42 complaints regarding environmental pollution in Tangerang district. Environmental pollution in Tangerang occurs in the residential, river, and air sectors (Faqihah Muharroroh Itsnaini, 2024). This means that waste management as one of the elements of a smart environment has not been applied properly.

Crosstab Query Analysis on Smart Government Parameters

Smart government indicators have parameters that are analyzed using crosstab queries via Nvivo 14. The results of the analysis are in the form of bar charts and display the percentage of parameters that dominate and those that do not. The following are the results of the crosstab query analysis of the parameters in the smart government indicator.

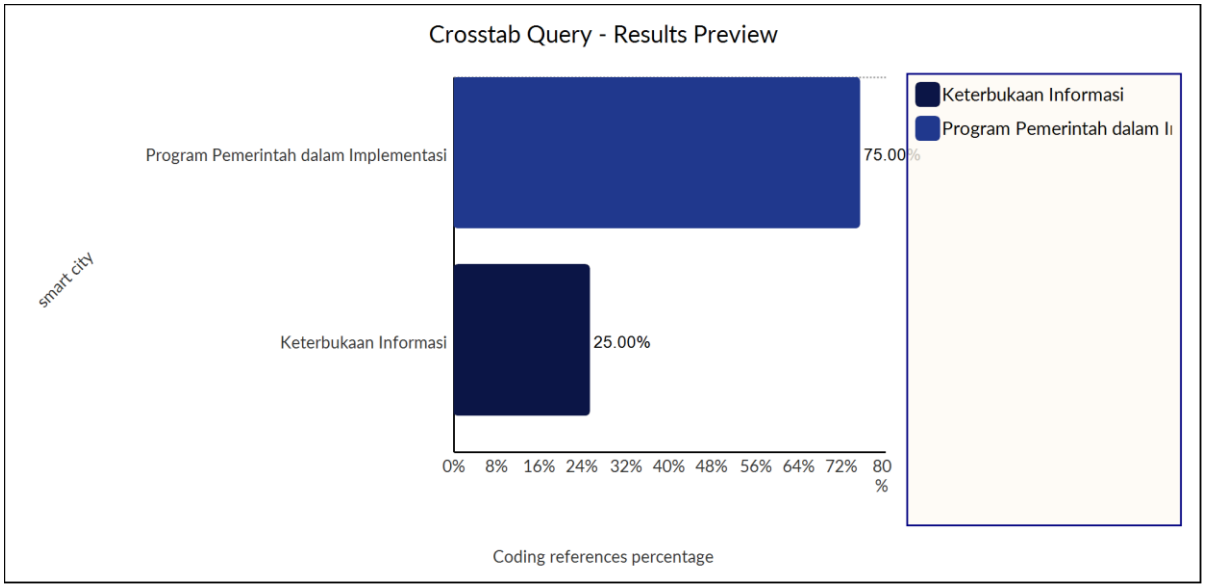

Figure 5. Crosstab Query Results on Smart Government Parameters in Indonesia. Source: Nvivo 14 2024.

Based on the data in Figure 5 processed in the Nvivo software above, the Crosstab Results above show that in terms of parameters, smart city indicators in Indonesia are still superior in

terms of government programs in their implementation compared to parameters regarding information openness in terms of smart government. Overall, the implementation of smart government in Indonesia has been proven to be good, as evidenced by the large number of mass media reporting on innovations in its government programs. The program is like the use of an internet platform in its services. However, in implementing the program, information openness is something that needs to be fixed because this is also an important aspect.

In the implementation of smart government in Indonesia, there have been many innovations made by the government, both in terms of services, programs, and digitalization that have been created, such as the "JAKI" application. With this application, Jakarta residents can find out the latest traffic news, prices of basic foodstuffs, and pay taxes. Residents can also actively participate in building one of the largest cities in Indonesia by sending reports and complaints to the government through this application so that these reports and complaints can be handled immediately (Samodra, 2023).

Of the many innovations created by the government, there are other facts that are inversely proportional to the positive results of the government. It is stated in (Ombudsman, 2023), there is an assessment that groups the criteria of a government agency. These criteria are the red zone for low compliance, the yellow zone for medium compliance and the green zone for high compliance. It was found that in 2021, the number of government agencies included in the green zone was 179 agencies, increasing to 272 agencies in 2022. However, the yellow zone decreased from 316 agencies in 2021 to 250 agencies in 2022. Likewise, the red zone also decreased, from 92 agencies in 2021 to 64 agencies in 2022. The results of the assessment carried out by the Indonesian Ombudsman illustrate that the provision of public services for the ministry/institution level and regional governments at the provincial and district/city levels has not touched the basic services expected by the community. If the data has emerged as an assessment, then the government should carry out an evaluation as appropriate in order to realize the concept of a sustainable smart city in Indonesia.

Crosstab Query Analysis on Smart Environment Parameters

The smart environment indicator has parameters that are analyzed using crosstab queries via Nvivo 14. The results of the analysis are in the form of bar charts and display the percentage of dominant and non-dominant parameters. The following are the results of the crosstab query analysis of the parameters in the smart environment indicator.

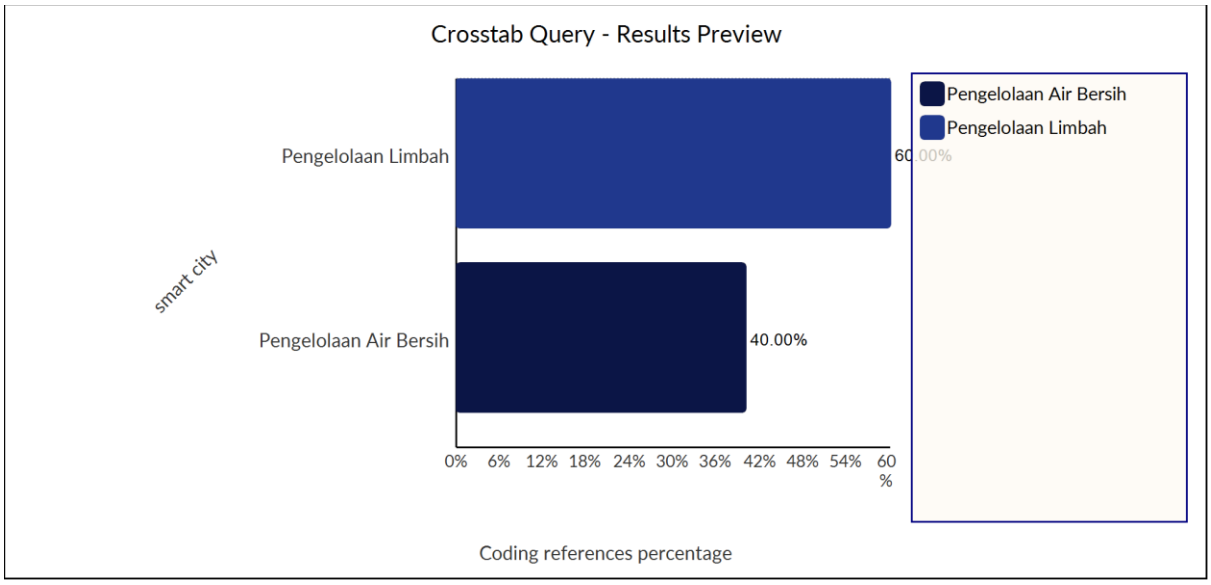

Figure 6. Crosstab Query Results on Smart Environment Parameters in Indonesia. Source: Nvivo 14 2024

Figure 6 above is the result of the analysis of one of the indicators of a smart city, namely Smart Environment. It can be seen that the smart environment is ranked lowest out of 6 indicators of a smart city with a percentage of only 3%. The parameters in the smart environment analysis this time are waste management and clean water management. This percentage is very small considering that in Indonesia itself there are currently many innovations in waste and clean water management. An example can be taken from one of the waste management innovations, namely "waste4change". Waste4change is a company engaged in modern waste management. But in reality, in the analysis carried out using sources from the mass media, the implementation of the smart environment in Indonesia still needs to be improved considering that quoted from (Yanuar, 2023), Indonesia is in the top 5 as the dirtiest country in the world. After analyzing the two indicators above which are the most superior smart government indicators and the lowest environment, the application of the smart city concept according to Boyd Cohen is also supported by 4 other indicators. In this analysis, the four indicators have their own roles.

Like the Smart economy which has a percentage of 25%. In the analysis of the implementation of smart cities in Indonesia this time, the parameters of the smart economy are measured from collaboration between parties, then the availability of digital services. Collaboration between parties here can be interpreted as cooperation between the government and the private sector, or vice versa in order to support the implementation of a smart economy in Indonesia. Such as the collaboration between Telkomsel and Gojek to strengthen Indonesia's digital economy (Rahajeng, 2021). With the collaboration between Gojek and Telkomsel which offers affordable data packages to Gojek driver partners since 2018.

Followed by smart living which has a percentage of 18% of supporting parameters measured by the level of digital technology progress and the availability of public services. The

implementation of the smart living concept in Indonesia is currently a concern for parties involved in the smart city concept. The implementation of smart living has achieved a good index, as evidenced by the implementation of the Internet of Things (IoT) concept in Indonesia.

The next aspect in the analysis of the implementation of smart cities in Indonesia is Smart Mobility. Not too many people talk about this indicator, in line with the order of smart mobility which only occupies the 4th position in the analysis using Nvivo software which takes sources from the mass media. In fact, the implementation of smart mobility in Indonesia can be said to be very massive. This is because currently, one of the parameters in Smart Mobility, namely the use of modern transportation, has been implemented very well. This is proven by the increasing development of applications that support the Indonesian people to get transportation services, such as MyKai, Gojek, Grab, Maxim and others. Even in big cities like Jakarta, it has been integrated with transportation in the form of MRT, LRT, KRL, and Commuter Line.

The last indicator is Smart People. In this study, the smart people indicator is measured by the level of education and the level of digital technology users. Indeed, there is not much discussion about this indicator, but smart people play an important role in the implementation of this smart city concept, Smart People have a role to develop human resources from all circles in order to make this concept a success. Such as the implementation of smart people in Jakarta in (Simorangkir, 2024), namely the "JAKI" application.

Of the 6 indicators used in analyzing the implementation of smart cities in Indonesia, of course there are many shortcomings and advantages in its implementation. Like the smart government aspect which has the highest index in the implementation of smart cities in Indonesia. Indonesia itself as a developing country in Southeast Asia continues to strive to improve the implementation of the smart city concept. With all the indicators used in analyzing the implementation of smart cities, all indicators have their own roles that support each other.

Vision And Mission Of Indonesia Emas 2045 In The Framework Of Smart City

In accordance with the discussion this time, the concept that has been going on since 2017 is in line with Indonesia's vision and mission as a developed, prosperous, and influential country in the global order. The vision is named "Indonesia Emas 2045". Through this movement, local governments are guided to carry out innovations that touch all aspects of people's lives. Starting from improving the quality of services, strengthening the economy, improving human resources to environmental sustainability. The Vision of Golden Indonesia 2045 has four pillars of development in it, including 1) human development (mastery of science and technology), 2) sustainable economic development, 3) equitable development, 4) strengthening national resilience and governance. (Sudoyo, 2023).

The indicators used to analyze the implementation of smart cities in Indonesia found similarities in concepts that could be met with the development pillars of the vision of Golden Indonesia 2045. First, smart government can be measured from public services and innovation through government programs that utilize technology. This concept is in line with the pillars of governance, which in Indonesia is getting better day by day with a wealth of innovation. Other indicators have direct and indirect links to the pillars of development, such as human development with smart people, sustainable economic development with smart economy, and others.

The smart city program in Indonesia is an initial step towards realizing "Golden Indonesia 2045". The government has a major role and contribution in making this program a success towards prosperity and progress. In this analysis, the government has the highest index in implementing smart cities in Indonesia. This is certainly a reflection of the assessment in the eyes of the public. The goals of the golden Indonesia vision will also be achieved if smart government in Indonesia continues to be developed. It is proven in (Irfansyah, 2022), that Indonesia is ranked 77th in the results of the e-government survey "The Future of Digital Government" released by the United Nations (UN). Indonesia rose from 88th to 77th. This proves that the government is serious about developing SPBE or an electronic-based government system in Indonesia. Of course, from this seriousness, the implementation of smart government has been carried out well, but it needs to be improved again because until now according to data from (Pambudi, 2023), there are still many assessments of government service performance that show a less than satisfactory index.

In terms of Smart Environment, when compared to smart government, there are certainly more improvements if we want to realize the vision of Golden Indonesia 2045". It can be seen that the analysis of Smart Environment has the lowest index in this analysis. Smart Environment is the management of environmental governance in city development in a smart way by paying attention to environmental factors in order to realize good, responsible, and sustainable environmental governance (Sintania et al., 2022). It is stated on the page (Widi, 2023), Data from the Ministry of Environment and Forestry reports that the Waste Management Performance Index (IKPS) score in Indonesia was 50.25 points in 2022. This value has increased by 0.38 percent compared to the previous year which was 50.06 points. IKPS is calculated based on the reduction and handling of household waste and waste similar to household waste. The assessment was conducted in 145 districts/cities in 2022. The data proves that environmental management in Indonesia still needs to be improved for the future, especially the Vision of Golden Indonesia 2045 will be implemented well if supported by sustainable environmental management. This is certainly a separate note for stakeholders involved in the implementation of smart cities in Indonesia.

CONCLUSION

The implementation of smart cities in Indonesia proves the seriousness of stakeholders to realize the vision of Indonesia Emas 2045. The wealth of innovation programs by the Indonesian government, drives the success of the fourth pillar in building the vision of Indonesia Emas 2045. The pillar of strengthening national resilience and governance is getting closer to the development of the government which continues to design a smart city formula to encourage better governance. The concept of smart cities in Indonesia has been running well, as evidenced by the many innovations, changes, and digitalization in all sectors that support the success of the implementation of smart cities. These innovations are like the presence of digital applications in government services, then the creation of innovations in the transportation sector such as the MRT, LRT, KRL, and Commuter Line. However, in the vision of Indonesia Emas 2045, the implementation of smart cities in Indonesia still has quite a lot of homework. As we can see, this concept is still relatively young, there are still many sectors that need to be fixed. Like the smart environment sector in Indonesia which still has many shortcomings in its implementation. The vision of Indonesia Emas 2045 will be realized if all elements of the management of the Indonesian state can collaborate and have the same vision. This study has limitations in data collection that only uses secondary data. Therefore, researchers recommend that further research be carried out comprehensively using direct data or primary data.

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