



Implementation of Smart City Dimensions to Support Governance in Kubu Raya Regency

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Abstract

Advances in information and communication technology have been the main driver of the transformation of governance towards the concept of smart cities. The implementation of smart city dimensions is crucial to improving the quality of local government governance. This study analyzes the implementation of smart city dimensions in supporting governance in Kubu Raya Regency. It uses a descriptive qualitative approach. Primary data was obtained through interviews with the Communication and Information Agency and the Regional Development Planning Agency, while secondary data was obtained from various related documents. Qualitative data analysis shows that Kubu Raya Regency is gradually implementing the dimensions of a smart city, starting with a focus on smart governance and various innovations within it. Meanwhile, other dimensions of the smart economy and smart people include several initiatives such as "SIAP PAK" and Cash System Management non-cash payments in the economic sector, and digital literacy programs in the education sector. The smart environment includes plans for renewable energy programs and technology-based waste management. Smart mobility is geared toward public transportation development plans and electric vehicle support. Smart living, telemedicine services, and technology-based public safety are planned to improve the quality of life for the community. Although the smart city dimension has not been fully implemented, Kubu Raya Regency has established 1ctionn plan for the implementation of the smart city dimension.

Key Words : Smart City, Information Technology, Kubu Raya Regency.

Introduction

The implementation of smart cities in supporting governance is a strategic step that requires the integration of information technology, intelligent data management, and collaboration between sectors. Smart cities are not only about the use of technology, but also involve the systematic application of information and communication technology to improve efficiency, effectiveness, and social inclusion in regional development. A smart city is a concept of modern city development that integrates the use of information and communication technology to manage various aspects of urban services, with the aim of improving the quality of life and living of urban communities (Ministry of Communication and Information Technology of the Republic of Indonesia, 2021). The concept of a smart city encompasses physical development as a tangible form of development itself. Successful physical development in supporting and driving community economic activities can improve the quality of life of the community (Kristiningrum & Kusumo, 2021).

Digital transformation in the modern era has encouraged many local governments to adopt the concept of smart cities as an effort to improve the quality of public services and governance. Smart cities are an approach to overcoming various obstacles by utilizing technology to improve the quality of public services (Gunartin, 2018). As stated in the article (Hasibuan & Sulaiman, 2019), the concept of smart cities as a technology-based development terminology is now increasingly in demand and being implemented by regional heads. This aims to showcase the existence of their regions as modern cities that are able to compete amid rapid technological advances in the era of the 4.0 industrial revolution.

The concept of a smart city is commonly synonymous with governance at the city level. However, the concept of a smart city is not limited to the city level of government. Smart cities can be implemented at the district level of government through regional programs, which may be adopted or serve as models for other regions. Kubu Raya Regency is one of the regencies that has begun implementing smart city initiatives in its governance. Therefore, it is important to see how each of these dimensions is applied or measured in the context of governance.

Smart cities have been discussed by several previous researchers. One of the previous studies by Anshary used the SNI ISO 37122:2019 parameter standards as indicators in analyzing the achievement of smart cities, focusing not only on inhibiting factors but also on supporting factors that contribute to sustainable development in West Sumbawa Regency (Anshary, 2023). The next study focused on a similar assessment of the maturity level of smart city implementation in Banyuwangi Regency, conducted with reference to the SNI ISO 37122 standard (Ratriyani & Roychansyah, 2022). Another interesting study to review is from (Nurdiassa & Et.al, 2021), which uses the concept of smart cities to create Makassar as a world city by utilizing information and communication technology in city management. Nurdiassa & Et.al added insight into realizing Makassar as a world city through the implementation of smart city policies with the use of integrated technology.

The aforementioned previous studies have examined the implementation of smart cities using specific indicators, such as the SNI ISO 37122:2019 standard, to measure progress in smart city development and assess the maturity level of implementation across various regions. Other studies have also highlighted the use of technology to support public services through integrated digital platforms. Nevertheless, these studies tend to treat the smart city as the ultimate goal of development, rather than as an instrument to be critically analyzed within the context of governance. Consequently, there remain limitations in understanding how each

dimension of the smart city contributes to improving the quality of governance, particularly in regions that are still in the early stages of development. Given these circumstances, there is a research gap that warrants attention: specifically, there has been insufficient research that comprehensively links the implementation of smart city dimensions with the dynamics of government governance to make it more effective and responsive, particularly in the context of district-level government.

Kubu Raya Regency, as one of the regions that has begun to adopt the smart city concept, provides a relevant context for examining this phenomenon. The implementation of the smart city concept in this region demonstrates the existence of various initiatives across each dimension, although they have not yet been fully integrated. This situation provides an opportunity for analysis to understand how the implementation process unfolds, as well as the extent to which it contributes to local government governance. Therefore, this study aims not only to describe the implementation of the smart city dimensions in Kubu Raya Regency but also to analyze how each of these dimensions plays a role in supporting government governance.

This study aims to contribute by using the smart city framework as an analytical tool for understanding the transformation of local government governance. As such, this study is expected to enrich the literature on smart cities, particularly from a public administration perspective, and to provide a deeper understanding of the relationship between technology-based innovation and the quality of governance.

Method

This study employs a descriptive qualitative approach to examine the implementation of smart city dimensions in support of governance in Kubu Raya Regency. The data used in this study consist of primary data obtained through in-depth interviews with informants selected through purposive sampling based on their roles and involvement in the planning and implementation of the smart city program in Kubu Raya Regency. The number of informants in this study was 6 (six), consisting of 5 (five) informants from the Regional Development Planning Agency of Kubu Raya Regency and 1 (one) informant from the Communication and Information Technology Office of Kubu Raya Regency. The selection of informants was based on the consideration that both agencies play a role in policy formulation, cross-sectoral coordination, and the implementation of smart city programs. In addition to interviews, data collection was also conducted through direct observation of the implementation of smart city-related programs within the government's governance framework. Secondary data was obtained through a literature review of reliable sources, including Google Scholar and ScienceDirect, as well as relevant official government documents. Both source triangulation and methodological triangulation were employed to ensure the validity of the data. The data analysis techniques used in this study follow the interactive analysis model (Miles, Matthew B, 2014), which comprises three main stages: The data reduction stage involves the researcher selecting and grouping data based on the research focus, namely the six dimensions of a smart city. The data presentation stage involves organizing the data into an analytical narrative to identify patterns, relationships, and trends in implementation. The conclusion-drawing stage involves linking empirical findings to the conceptual framework used, thereby yielding a more in-depth interpretation.

Results and Discussion

A. Implementation of Smart City Dimensions to Support Governance in Kubu Raya Regency

The implementation referred to here is the application of a policy or program. A policy or program will have no impact if it is not realized, as a manifestation of the objectives to be achieved by the policy or program (Handayani, 2023). Van Meter and Van Horn in (Syahrudin, 2020) state that policy implementation is a process involving a series of actions by individuals or groups from the government or the private sector, with the aim of achieving the targets set out in previous policy decisions. Daniel A. Mazmanian and Paul A. Sabatier in (Pramono, 2020) provide insight into policy implementation as knowing what actually happens after a program is formulated and declared effective. Policy implementation focuses on activities that occur after a policy is passed, including administrative efforts and efforts to produce tangible impacts on the community or related situations. Thus, policy implementation is a crucial stage that determines the success of a program, because it is at this stage that policies are tested in practice and have a tangible impact on the community.

A smart city is urban management that uses technology and networks to support innovation and facilitate communication between the government and the community (Pramesti & Et.all, 2020). This can help community activities and facilitate access to information. Currently, the concept of a smart city is not only applied in city governance, but several regencies have also begun to implement this concept. According to (Cohen, 2010), the characteristics of a smart city can be identified through smart government, smart economy, smart society, smart mobility, smart environment, and quality of life. This concept is in line with what is being implemented in Indonesia through the six pillars of smart cities Ministry of Communication and Information Technology of the Republic of Indonesia.

The Regional Development Planning Agency explained that the development of smart city dimensions can be carried out simultaneously without having to wait for one dimension to be completed first. This is because each Regional Work Unit or Agency in Kubu Raya Regency can carry out their respective roles and functions in developing the smart city dimension in Kubu Raya Regency. However, to date, there are still specific dimensions of smart city implementation in Kubu Raya Regency that have not been developed.

The following is a smart city concept designed by the Kubu Raya Regency government based on the dimensions that define the smart city concept. From a policy implementation perspective, this situation can be analyzed using the approach proposed by George C. Edward III, which emphasizes the importance of key variables such as resources, communication, and bureaucratic structure in determining the success of implementation.

1. Smart Governance

To support smart governance, innovation in the form of e-government or digital platforms that facilitate public access and interaction with the government is needed. In other words, the e-government system will shorten the distance between the public as service recipients and the government as service providers. This will make it easier for the public to access all necessary government services through e-government

innovations or digital platforms. The implementation of smart cities can greatly support the government's performance in meeting the public's various needs for public services (Wahyuningsih & Et.all, 2024).

At the beginning of the implementation of the smart city, the Kubu Raya Regency government promoted the dimension of smart governance. "For now, our priority is to make the government smart first, then we will move on to other dimensions" (Interview with the Communication and Information Agency). This is because the government plays a major role as a pioneer in the development of a city (Enceng, And, & Hidayat, 2016). In terms of smart governance, there are three main areas of focus for the Kubu Raya Regency government, namely:

- a) E-Government is the development of digital-based government services to facilitate access and transparency in public services.
- b) Open data by implementing open data policies that allow citizens to easily access government information.
- c) Data-driven decision-making using data analytics to support strategic decision-making in government.

In the dimension of smart governance, technological innovation plays a major role in supporting transparent, efficient, and responsive governance. Kubu Raya Regency's innovations to support smart governance include the Kubu Raya Geospatial Portal, which won the Bhumandala Award in 2022, and "WebGIS Kepong Bakul", both of which are examples of the implementation of spatial data-based technology to improve public services and information disclosure. The Kubu Raya Geospatial Portal and "Kepong Bakul WebGIS" contribute to the digital transformation process of governance in relation to the use of geospatial data by integrating various thematic geospatial data from all Regional Work Units into a single system with norms, standards, and guidelines regulated by the Kubu Raya Regency Geospatial Information Network Node. Through the process and integration of accurate, integrated, easy, fast, and up-to-date geospatial data, it can improve the quality of plans or policies taken in implementing regional development in Kubu Raya Regency, which aims to resolve regional development issues.

WebGIS Kepong Bakul is a Geographic Information System (GIS)-based system that enables access to spatial information related to public services and specific regional data. WebGIS Kepong Bakul is designed so that the community and government of Kubu Raya Regency can access spatial data more easily, including the location of public facilities, environmental data, and regional planning requirements. With interactive and easy-to-use access, WebGIS Kepong Bakul helps the government provide more targeted and relevant information to the community.

Another innovation is the "SELEDRI" (Done in a Day) innovation program, which is a program from the Population and Civil Registration Office of Kubu Raya Regency. This effort aims to improve the quality of public services through fast and efficient processing of population documents. This innovation is designed to respond to the community's need for responsive and timely administrative services,

particularly in the processing of important documents such as identity cards, family cards, birth certificates, and other civil registration documents. With the slogan “Done in a Day,” the SELEDRI program makes administrative services available in a relatively short time, even in just a few hours. This is a solution so that people no longer experience difficulties in accessing population services or have to wait a long time to obtain the necessary documents. The SELEDRI innovation program simplifies administrative processes and increases the capacity of service officers to work more effectively and efficiently.

Thus, several electronic-based innovation programs have been created by the Kubu Raya Regency government to support smart governance. As stated by the Regional Development Planning Agency, *“Of course, we need an electronic-based government system to shorten or simplify government affairs.”* Another example is the electronic-based Budget Control, Evaluation, and Reporting application, which is used by all Regional Work Units to facilitate the input of financial and physical work realizations. Implementation of the Electronic-Based Government System to familiarize the public with receiving public services digitally and gaining experience in using these services.

The dimension of smart governance is a key focus in the implementation of the smart city initiative in Kubu Raya Regency. Various innovations, such as the Geoportal, WebGIS, and the SELEDRI program, demonstrate efforts to improve service efficiency and information transparency. However, when measured against indicators of data openness, system integration, and the use of data in decision-making, this implementation is still in its early stages. The existence of digital platforms has not yet been fully accompanied by cross-regional integration. The available data remains sector-specific and has not yet been optimally utilized as the basis for evidence-based decision-making. This suggests that the full potential of smart governance has not yet been realized. This situation points to limitations in inter-organizational coordination and institutional capacity, which have prevented existing innovations from generating systemic impacts on public governance.

2. Smart Economy

From an economic perspective, a smart city is a city that has a strong economy through the optimization of its resources and potential, including the use of information and communication technology, good management, and active involvement of human resources (Conoras & Hikmawati, 2018). The smart economy, as one dimension of the smart city in facing the rapid development of information technology, requires society to be adaptive, creative, and innovative in order to achieve economic prosperity (Satwika et al., 2023). An economic system that integrates digital technology and innovation to improve efficiency, productivity, and economic competitiveness in a sustainable manner. Smart economy The Kubu Raya Regency Government strives to create a more adaptive and innovative economic ecosystem by utilizing digital technology and appropriate infrastructure support. In particular, it

focuses on strengthening the capacity of micro, small, and medium enterprises, including:

- a) Encouraging local startups through business incubators and providing access to capital and networks. One of the main focuses of the smart economy dimension in Kubu Raya Regency is the development of a business ecosystem that supports the growth of local startups. The Kubu Raya Regency Government strives to encourage innovation among young entrepreneurs and micro, small, and medium enterprises by establishing business incubators that serve as a forum for guidance and development.
- b) Introducing e-commerce platforms and digital payment systems for micro, small, and medium enterprises. The development of the smart economy in Kubu Raya Regency also focuses on empowering micro, small, and medium enterprises through digital technology, particularly by introducing e-commerce platforms and digital payment systems. This allows micro, small, and medium enterprises that still operate conventionally to expand their market reach and become more flexible in facing competition. Especially through the Kubu Raya Regency Marketing Business Center, which helps micro, small, and medium-sized businesses market their products.

The Synergy Innovation in Tourism and Creative Economy Event Management Services (SIAP PAK) is part of Kubu Raya Regency's efforts to support the smart economy dimension, which is one of the pillars of a smart city. "SIAP PAK" is a development of the tourism and creative economy sector by enhancing synergy between various government agencies and business actors. This innovation aims to accelerate the licensing process and coordination in organizing events, thereby strengthening the appeal of local tourism and promoting the growth of the creative economy.

In addition to the "SIAP PAK" innovation, there is also a non-cash Cash Management System (CMS) innovation that was initially implemented in 28 pioneer villages and has since been implemented by all villages in Kubu Raya Regency. This non-cash CMS innovation aims to manage village finances in a more transparent, efficient, and accountable manner in various village government transactions. The Regional Development Planning Agency also added that with the implementation of Regional Government Transaction Electronification, regional tax payments can be made using Qris. The implementation of this non-cash system also reflects the local government's efforts to promote digital financial inclusion at the local level, strengthen village financial management, and reduce the potential for savings in village fund management.

In the dimension of the smart economy, local governments have launched various programs such as SIAP PAK and the implementation of cashless payment systems. These programs demonstrate efforts to promote the digitalization of the local economy and enhance financial transparency. However, its effectiveness remains difficult to measure concretely because there are no clear indicators regarding

increased Micro, Small, and Medium-Sized Enterprises productivity, expanded market access, or higher community income.

Current implementation tends to remain at the initial stage of infrastructure development and has not yet reached the stage of digital-based economic transformation. This situation suggests that the presence of innovation does not automatically lead to significant economic impacts, indicating a gap between the policies designed and the expected outcomes. The public's limited digital literacy and the lack of adequate infrastructure support are factors contributing to the low effectiveness of implementation.

3. Smart living

The smart living dimension is intended to improve the quality of life of the community through the provision of services and infrastructure that support health, safety, and welfare. In general, the Kubu Raya Regency Government's focus on smart living includes the following:

- a) Health services, improving health services through telemedicine and electronic medical records. To improve access to and quality of healthcare services, Kubu Raya Regency plans to utilize telemedicine and electronic medical records technology. Telemedicine allows people, especially those in remote areas, to obtain healthcare consultation services without having to visit healthcare facilities in person. This reduces transportation time and costs and makes it easier for patients to access medical services. Of course, to achieve this, the government must first ensure that internet access is available in remote areas.
- b) Public safety, using smart surveillance systems and security reporting applications to improve citizen safety. The Kubu Raya Regency Government plans to use smart surveillance systems and security reporting applications to improve public safety.
- c) Housing and infrastructure, building energy-efficient housing and infrastructure that supports healthy and sustainable lifestyles.

Kubu Raya Regency continues to improve to achieve the above goals by constantly thinking about what innovations can be used to realize smart living, even though specific programs have not yet been fully implemented. The Regional Development Planning Agency also added in an interview quote, *"The Youth, Sports, and Tourism Office already has plans to create a system that makes it easier for people to come to Kubu Raya for recreation, namely a barcode system placed in hotels to obtain references for tourist attractions, restaurants, etc. in Kubu Raya."* Recreation is also one of the indicators in the smart living dimension. Overall, smart living aims to create a safe, healthy, and comfortable environment for the community to ensure that the quality of life of the community remains decent and is maintained, with the hope that the quality of life of the community can improve.

The smart living dimension in Kubu Raya Regency is still in the planning stages and has not yet been fully implemented. Programs such as telemedicine and technology-based security systems are still only at the conceptual stage or in the form of policy proposals. When considered in terms of quality of life indicators, access to

healthcare, and public safety, this dimension has not yet made a tangible contribution to improving the well-being of the community. Consequently, the implementation of smart living cannot yet be deemed effective, as it has not yet produced measurable outputs or outcomes. This indicates a gap between policy planning and implementation capacity on the ground, which, from the perspective of implementation theory, may be attributed to resource constraints as well as the absence of clear policy priorities in this dimension.

4. Smart Mobility

In terms of smart mobility, the Kubu Raya Regency government is committed to improving a more efficient, safe, and environmentally friendly transportation system. Although specific programs have not yet been widely implemented, several initiatives form the basis for the Kubu Raya Regency Government in developing smart mobility, including:

- a) Public transportation, developing an integrated public transportation system with mobile applications to facilitate access and payment. It is hoped that this will improve public accessibility to public transportation and simplify the payment process.
- b) Road infrastructure, introducing an IoT-based traffic management system to reduce congestion and improve safety.
- c) Environmentally friendly transportation, facilitating the use of electric vehicles by adding charging stations and incentives for users.

Overall, the above initiatives indicate that Kubu Raya Regency is moving towards smart mobility that can support sustainable transportation development. Although it will take time, these initiatives are expected to improve transportation efficiency and encourage the public to switch to more environmentally friendly vehicles, thereby contributing to more modern and sustainable governance.

In the dimension of smart mobility, the Kubu Raya Regency government has established policy guidelines aimed at developing technology-based and environmentally friendly transportation. However, concrete implementation on the ground remains very limited. The lack of an integrated public transportation system and the absence of technology in traffic management indicate that this aspect is still in the planning stage. Indicators such as transportation efficiency, accessibility, and congestion reduction have not yet been achieved. This situation reflects suboptimal resource allocation and the lack of adequate infrastructure to support program implementation.

5. Smart Environment

Aiming to support sustainable development. Although smart cities rely heavily on technology, attention to the environment remains important and cannot be ignored. The balance between the environment and urban development must be maintained. The smart environment dimension in Kubu Raya Regency includes various initiatives aimed at creating a clean and sustainable environment. One important initiative is the implementation of technology-based waste management systems, such as technology-

based waste reporting applications, illegal waste reporting applications, and automatic recycling systems. Another initiative is the use of renewable energy, such as solar panels in public facilities and solar-powered street lighting. Air and water quality sensors are used to monitor and control pollution.

The implementation of a smart city environment is characterized by plans for the use of renewable energy and technology-based waste management. However, these initiatives are not yet supported by a clear monitoring system, such as measurements of environmental quality or waste reduction rates. Without measurable performance indicators, it is difficult to assess the extent to which the program contributes to sustainable development. This indicates that implementation remains largely normative and is not yet based on systematic performance evaluation.

6. Smart People

The initiative that forms the basis of the smart people dimension in Kubu Raya Regency is to improve the quality of education through e-learning and digital training programs. Conducting training to improve the digital literacy of the community. This program aims to integrate technology into the teaching and learning process and improve digital literacy among the community, thereby supporting the community's ability to cope with the digital era. In addition, providing equitable access to technology for all community groups, including those in remote areas and low-income communities, is an important step in reducing the digital divide. Equitable access enables people from various socioeconomic backgrounds to obtain equal information, knowledge, and digital skills. These initiatives will certainly support the development of smart people in Kubu Raya Regency.

The smart people dimension indicates efforts to improve digital literacy through technology-based training and educational programs. However, the effectiveness of these programs is still affected by the digital divide, particularly in remote areas. When measured by indicators of digital literacy and public participation in the use of digital services, progress in this area remains uneven. This indicates that human resource development has not yet fully kept pace with the technological advancements being implemented.

There are six levels of smart city implementation (Hasibuan & Sulaiman, 2019), namely: Level 0, which is the initial stage of smart city concept implementation, characterized by a city that is still ordinary but has the potential to develop into a smart city. Level 1 is the initial stage of a city or region's transformation towards the smart city concept, characterized by equal access to the internet throughout the city. Level 2 is a continuation of the previous stage, where cities begin to integrate with other city networks through the implementation of the Metropolitan Area Network (MAN) concept. Level 3 is the stage of information openness where a city has established online openness with other cities to share data and information. Level 4 is the stage where a city has the ability to process information data with a reliable security system, so that the value and confidentiality of each piece of data accessed is maintained. Level 5 is the stage of optimal integration, both within cities and between cities, as a result of the combination of achievements at levels 2, 3, and 4.

Based on the overall findings, the implementation of the smart city initiative in Kubu Raya Regency is still in its early stages. This is evidenced by the fact that planning takes precedence over implementation, and there is a lack of integration across different dimensions. If classified according to the stages of smart city development. This situation indicates that Kubu Raya Regency is still in the early stages of transformation, where basic infrastructure and initial initiatives are in place but have not yet developed into an integrated and sustainable system. Conversely, regions that have reached a higher level generally already have cross-sectoral data integration, inter-agency data-sharing policies, and the use of data analytics in strategic decision-making.

It is also worth noting that Kubu Raya Regency's current status—still in the early stages of smart city implementation—is due not only to technological limitations but also to various interrelated structural challenges. Limitations in institutional capacity, human resource readiness, data integration, and budget sustainability indicate that the implementation of smart cities requires a systemic and sustainable approach. Therefore, strengthening structural aspects is a key prerequisite for ensuring that the various smart city initiatives already underway can evolve into an integrated system and have a tangible impact on government governance.

B. Supporting factors for realizing a smart city in Kubu Raya Regency

The implementation of a smart city is not merely a technological transformation, but rather a systematic change that requires a comprehensive and sustainable strategy. The various initiatives that form the basis for the Kubu Raya government to develop a smart city certainly cannot be realized without the support of several factors, including:

1. Commitment of regional leaders to developing digital innovation to support smart cities. The commitment of regional leaders to digital innovation is the cornerstone of smart city implementation. This commitment can be realized by creating policies that enable digital innovation to flourish, allocating budgets, and directing human and technological
2. Innovation workshops or training. Workshops or innovation training to improve understanding of the latest technologies, innovative methods, and skills needed to deliver digital-based public services. In Kubu Raya Regency, this training serves as a means to facilitate technology adoption across all sectors of government and society, which ultimately supports the successful implementation of a smart city. In addition, innovation training can develop the competence of government officials in managing technology and data related to smart city initiatives. This competence is important so that officials are not only able to run the system, but also understand how to optimize technology to improve the efficiency of public services. Workshops or innovation training also help participants understand how innovation can be developed in line with the characteristics and needs of the local community. Each region has different challenges and needs, so it is important for the Kubu Raya Regency government to ensure that smart city programs are developed in a relevant manner and are capable of addressing local issues.

3. Improvement of ICT (Information and Communication Technology) infrastructure.
The Kubu Raya Regency Government is committed to improving its Information and Communication Technology infrastructure so that all regional agencies can use the internet services provided by the local government, from the regency to the sub-district level. By utilizing technology, a city can more easily create effective and sustainable plans (Suciawathi et al., 2018).
4. Implementation of an Electronic-Based Government System
“Of course, we use Electronic-based Government System to shorten or simplify government affairs” (Interview with Regional Development Planning Agency). Electronic-based Government System is one of the components of smart governance (Wahyudi et al., 2022). Therefore, the Kubu Raya Regency government encourages the development of digital-based governance innovations to make work more effective, efficient, and transparent.
5. Electronification of Local Government Transactions
The Kubu Raya Regency Government encourages the community to conduct electronic or digital transactions.

Conclusion

This study shows that the implementation of smart city dimensions in Kubu Raya Regency does not yet fully reflect an integrated, performance-based governance system. Although various initiatives have been developed in each dimension, Research findings indicate that implementation remains partial and is not yet supported by systematically measured performance indicators. This is evident from the disparities among the dimensions, with smart governance being the most advanced, while other dimensions—such as smart mobility, smart living, and smart environment—are still in the planning or early implementation stages.

The presence of various technology-based innovations has not automatically led to improvements in the quality of governance. Limitations in data integration, suboptimal coordination among local government agencies, and insufficient use of data in decision-making indicate that the implementation of the smart city initiative in Kubu Raya Regency still faces challenges in terms of institutional capacity and governance. As a result, the digital transformation efforts undertaken have tended to focus on platform provision, but have not yet fully evolved into a data-driven governance system. Thus, Kubu Raya Regency’s progress in implementing a smart city remains in its early stages, characterized by the predominance of sectoral initiatives and the lack of cross-sectoral integration.

These findings confirm that the success of a smart city is determined not only by the presence of technological innovations, but also by the ability of local governments to manage system integration, strengthen institutional coordination, and develop evaluation mechanisms based on performance indicators. This study contributes by demonstrating that the implementation of smart cities at the district level tends to develop gradually across various dimensions, beginning with the strengthening of governance aspects as the initial foundation for transformation. Therefore, a more comprehensive approach is needed—one that not only emphasizes technological development but also institutional capacity building, cross-sectoral

policy integration, and the establishment of clear performance indicators to ensure that every dimension of the smart city can make a tangible contribution to improving the quality of governance.

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