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OPTIMIZATION OF LOCAL POTENTIAL IN DIGITAL-BASED SMART CITY DEVELOPMENT: AN INNOVATIVE APPROACH IN COMMUNICATION AND TECHNOLOGY

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Abstract

With the rapid advancement of digital technology, the Smart City concept has become a key solution for addressing urbanization challenges and improving the quality of life in major cities. However, Smart City development is often hindered by a lack of utilization of local potential that can drive innovation and sustainability. Cities that have successfully implemented Smart Cities based on local potentials, such as Barcelona and Amsterdam, demonstrate that the success of a smart city is not solely determined by technology but also by the ability to integrate local resources, culture, and community participation in decision-making. By leveraging digital technology, cities can optimize local resources such as tourism, creative economy, agriculture, and small and medium enterprises (SMEs) to create economic sustainability and social well-being. Optimizing local potential is crucial for creating more relevant and effective solutions in a local context. This article aims to explore and develop innovative approaches in communication and technology to optimize local potential in digital-based Smart City development. The primary focus of this article is on how strategic communication and technology can be integrated to empower local communities, maximize existing resources, and create solutions that meet the city's specific needs. Hopefully, this article will provide guide for policymakers, technology practitioners, and stakeholders in designing and implementing more inclusive and sustainable Smart City initiatives. By emphasizing the importance of effective communication and the application of technology suited to local potential, this article is expected to promote best practices that enhance efficiency, diversity, and participation in Smart City development.

***Keywords**: Smart City, Local Potential, Communication, Digital Technology, Innovative Approach*

INTRODUCTION

As digital technology has been emerging nowadays, several cities worldwide have implemented Smart City ways to enhance residents' quality and public service productivity (Moreno et al., 2020). A Smart City here not only refers to the technology-based 'solutions, featuring IoT (Internet of Things), big data artificial intelligence, etc., but also utilizes its own as much potential corresponding with localized characters in each city. The creation of a digitalized Smart City that is built upon regional potential, allows cities not simply to district the global necessity but also which may grow solutions honoring needs and resource strengths on-site locality (Hollands, 2019).

The experiences from other cities, such as Barcelona or Amsterdam which have effectively utilized Smart City ideas according to local potential show that the success of a smart city depends not only on technologies but also on the capacity to ground them in their own opportunities and particular assets within it: cultural patterns, social habitus, and community engagement mechanisms (Vanolo 2018). In cities that digital technology on local resources, such tools could optimize tourism, creative economy, agriculture, and small and medium enterprises (SMEs) to achieve economic sustainability and social welfare levels (Batty et al. 2018).

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In Indonesia, the complicated Smart City program itself has various shades ranging from infrastructure to technology and community. The Purpose and Requirements of a Smart City Program in Indonesia The realization of the smart city concept implemented in Indonesia has several factors that must be taken into account, which can also affect whether the program runs effectively or even not successful.

Susanto, H., Putra, H., & Handayani, P. (2021) mentioned that one of the biggest problems is limited quality infrastructure Basic infrastructure, for example currently still a problem in many parts of Indonesia is not connected to clean internet networks, and the energy that has not fully efficient. As stated by Susanto et al. (2021) also state that insufficient infrastructure could interrupt the implementation of Smart City technology due to its process which demands high connectivity and integrated systems.

Local Technology Readiness Levels Complexity also arises from the varying levels of local technology readiness throughout Indonesia, in Hadi, S., Amin, A., & Setiawan, S. (2022). Challenges and Opportunities in Smart City Development in Indonesia: A Regional Analysis. Some areas may have more advanced technology, while others are still in the early stages of technology adoption. This creates unevenness in the implementation of Smart Cities. An article by Hadi et al. (2022) explains that differences in technology readiness in different regions affect the effectiveness of Smart City programs and require an approach tailored to the local context.

Community Involvement and Readiness in Wahyudi, D., & Rahayu, T. (2020). "Community Involvement in Smart City Projects: Insights from Indonesian Cities Community involvement in Smart City programs is also an important factor that affects the success of implementation. These challenges include a lack of understanding and support from the community as well as limitations in technology education. Research by Wahyudi and Rahayu (2020) shows that low awareness and community involvement can be an obstacle to the implementation of the Smart City program in Indonesia.

According to an article by Kusuma and Wijaya (2019), a lack of funding can hinder the ability of cities in Indonesia to effectively implement Smart City solutions. Funding and Resources Limited funding and resource allocation are also a problem. Smart City programs require significant investments in technology and infrastructure, as well as sustainability of funding to ensure long-term success.

The complexity of Smart City programs in Indonesia involves a variety of factors that need to be considered, ranging from infrastructure and local technology readiness to community engagement and funding. Each city must adapt its Smart City strategy to local conditions to ensure effective and sustainable implementation.

The sources mentioned provide an in-depth picture of the challenges and opportunities in Smart City development in Indonesia and can be a reference in designing policies and strategies to address existing complexities. In addition, Indonesia as a country rich in cultural diversity and natural resources has great potential in developing Smart Cities based on local wisdom. Smart City development rooted in local potential can be a solution to urban challenges, such as congestion, pollution, and social inequality (Bappenas, 2022). Therefore, a more in-depth study is needed on how optimizing local potential can support the development of innovative, adaptive, and sustainable Smart Cities in the digital era.

Smart City management in the digital era is becoming increasingly important because it faces various challenges of urbanization, climate change, and the need to improve

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people's quality of life. Here are the reasons why smart city management in the digital era with innovation and optimization of local potential is crucial :

1. Facing the Challenges of Urbanization
   Population growth in urban areas leads to an increased need for better infrastructure, public services, transportation, and housing. Innovative Smart City management allows local governments to address these issues by leveraging digital technologies such as the Internet of Things (IoT), big data, and artificial intelligence (AI) to efficiently monitor, manage, and improve public services. By tapping into local potential, each city can find a solution that suits its specific needs. For example, a city with tourism potential can optimize technology to strengthen the sector through smart branding, digital promotion, and local community engagement.

2. Sustainable Development
   Smart City is not only about technology but also about sustainability. By using smart technology, cities can manage resources such as energy, water, and transportation more efficiently. This management is the key to maintaining a balance between development and environmental conservation. This development is in line with local potential, such as how regions with natural resources can use technology to monitor and conserve these natural resources, or how innovations in the renewable energy sector can be optimized. For example, harnessing local resources such as waterfalls or wind to create clean energy, or turning challenges such as floods into resources through technology-based water management projects.

3. Improving the Quality of Life of the Community
   Smart city management aims to improve the quality of life of citizens by providing easier access to public services, health, education, and transportation. By integrating technology into city management, public services can be faster, more transparent, and more responsive to the needs of citizens. Local potential plays an important role in building inclusive communities. Each city has local wisdom that can be optimized to create a closer relationship between citizens and technology. For example, cities with cultural and creative economic potential can use technology to develop local industries, introduce smart economies, and create jobs in the digital sector involving residents.

4. Increasing the Competitiveness of Cities
   Cities that successfully manage local potential and take advantage of digital innovation will be more competitive at the national and global levels. They will be more attractive to investors, tourists, and local talents who want to participate in the development of the city. Smart Cities with strategies that optimize local potential can create strong branding, which distinguishes them from other cities. Digital innovation also allows these cities to create new sustainable economic models, which can balance economic growth with the preservation of local culture and environment.

5. Collaboration and Public Participation
   Successful Smart City management requires close collaboration between the government, the community, and the private sector. By harnessing local

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potential, city governments can encourage community participation in innovation and technology application. Residents of the city who are involved in this process will feel more owned and involved in the development of the city. The initiative also encourages cross-sector collaboration, where innovations from the private sector or local communities can provide solutions to complex urban problems. For example, local communities can develop solutions to transportation problems that are based on the unique conditions of their area.

RESEARCH OBJECTIVE (S)

Smart City management in the digital era is essential because it helps cities face modern challenges such as urbanization, sustainability, and improving the quality of life. Using innovation and optimizing local potential provides solutions that are appropriate and relevant to the characteristics of each city. This not only increases the competitiveness of the city but also ensures that sustainable development can be achieved by actively and collaboratively involving all stakeholders. This thoughtful management combines smart technology with local wisdom to create a more inclusive, efficient, and sustainable city. Here are some of the regions that have implemented the Smart City program:

National Level:

1. Surakarta City (Solo): Surakarta has developed the "Solo Destination" application as part of the Smart Branding program. This application facilitates information on tourist attractions, culinary, tax payments, and permits. Surakarta is also famous for various international events such as Solo City Jazz and Java Fashion Week, which contribute to the development of the technology-based tourism sector (Smartcityindo, 2023).
2. Semarang City: As one of the recipients of the Smart Economy award, Semarang uses technology to support economic growth, especially for the MSME sector. They utilize marketplaces and digital data integration to accelerate economic recovery after the pandemic (Smartcityindo, 2023).
3. Surabaya City: The City of Surabaya is leveraging data transparency as part of its Smart City initiative. With information disclosure, such as data on poor families and the number of school children, the government increases public trust and builds collaboration between citizens and the government (National Geographic Indonesia, 2023).
4. Gunungkidul Regency: Gunungkidul has succeeded in increasing tourist visits by utilizing the existing digital ecosystem. They also integrate digital literacy in the community in activities such as KKN and research (National Geographic Indonesia, 2023).

International Level:

1. Amsterdam, Netherlands: Amsterdam has been developing the Amsterdam Smart City program since 2009, which focuses on the use of technology to improve the quality of life of its citizens. One of the main focuses is the implementation of efficient energy solutions and environmentally friendly transportation.
2. Barcelona, Spain: Barcelona is one of the leading cities in the implementation of Smart City. They use Internet of Things (IoT) technology to monitor energy consumption, traffic management, and the implementation

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of efficient digital public services. Barcelona began to implement the Smart City concept in 2011. The program leverages Internet of Things (IoT) technology to monitor energy consumption, manage traffic, and provide more efficient digital public services. The Smart City initiative in Barcelona continues to grow today, with various innovations focused on improving the quality of life of its citizens through smarter and more sustainable resource management. One of the well-known major projects is the application of sensors for transportation systems and municipal waste management. Caragliu, A., Del Bo, C., & Nijkamp, P. (2011).

These areas have shown success in implementing Smart City technology, ranging from developing the digital economy to improving the quality of life of residents through various technology-based innovations. The problems faced by Barcelona in the implementation of Smart City and the programs they created based on sources Caragliu, A., Del Bo, C., & Nijkamp, P. (2011). The problems faced by Barcelona in the implementation of Smart City are as follows:

1. Energy Management and Resource Consumption: One of the main challenges is efficiency in energy management. Barcelona faces problems with high energy consumption and the need to optimize the use of resources to be more sustainable. The application of IoT technology is intended to monitor and manage energy consumption in real time to reduce waste and increase efficiency.
2. Traffic Congestion: Barcelona, like many other major cities, faces traffic congestion problems that impact air quality and productivity. Efficient traffic management is a major challenge, with the need to reduce congestion and make it easier for vehicles and pedestrians to move.
3. Waste Management: Municipal waste management is an important issue in Smart Cities. Barcelona needs to ensure an efficient waste management system to reduce environmental impact and improve the cleanliness of the city.
4. Quality of Public Services: Providing efficient and responsive public services to the needs of citizens is another challenge. This includes the application of technology to make it easier to access services and increase public involvement in decision-making.

LITERATURE REVIEW

Karen S. Mishra and Aneil K. Mishra (2020), in developing a communication strategy to optimize local potential in the development of digital-based smart cities, communication strategy theory. Mishra emphasized the importance of an interactive and participatory approach in digital communication strategies. They argue that in the digital era, communication strategies must be based on collaboration between the government, local business actors, and the community. Some of the important elements in the communication strategy they mention are:

1. Dialogue and collaboration: in the context of smart cities, communication should not be one-way. The city government and developers need to establish two-way communication with local communities to ensure that local potential is optimized. Communities must be involved in the planning and development process.
2. Use of digital technology: digital technologies such as social media, location-based apps, and geographic

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information systems (GIS) can be used to strengthen citizen engagement. Mishra also emphasized the importance of building a digital platform that allows citizens to participate in decision-making.

3. Local contextualization: for local potential to be optimized, communication strategies must be adapted to local socio-cultural characteristics. This involves identifying local resources such as community skills, cultural heritage, and economic infrastructure that can be harnessed.
4. Measurement and evaluation: communication strategies need to have clear measurement mechanisms to evaluate their effectiveness, especially concerning to the impact on increasing local potential and the integration of digital technologies.

This communication strategy based on collaboration, technology, and community involvement is relevant to the concept of a digital-based smart city, especially in bringing out local potential optimally.

For example, the city of Surakarta (Solo) in Smartcityindo (2023). Smart City Program in Surakarta City: Increasing Tourism Through the "Solo Destination" Application. Smartcityindo Publishing. He explained that the City of Surakarta (Solo) has developed a smart city program that focuses on strengthening the tourism sector and city branding through digital technology. One of its key initiatives is the launch of the "Solo Destination" app. This application is designed to provide tourists with complete information about tourist attractions, local cuisine, and public services, including tax payment and licensing arrangements. This program is part of the Smart Branding concept which aims to advance the image and attractiveness of the city digitally. Through this application, Surakarta has succeeded in improving the tourist experience and supporting the development of the local economy. Not only that, the city is also actively holding various international-scale events such as Solo City Jazz and Java Fashion Week, which utilize technology as a means of promotion and implementation, strengthening Surakarta's position as a technology-based tourist destination.

As for Sulistiowati, R., Atika, D. B., & Saputra, D. A. (2023). The combination of City branding and ecocity: A critical review of opportunities and challenges in Indonesia. The study aims to evaluate the combination of city branding and ecocity in Indonesia and critically examine the opportunities and challenges in developing the two concepts. That increasing attention to sustainable city development in Indonesia and the importance of city branding in increasing the competitiveness of a city. However, there are concerns that city branding may overlook aspects of environmental sustainability, which has prompted the development of the concept of eco-city as an alternative to improving the sustainability of cities. The results of the study show that the development of a combination of City Branding and Ecocity has several opportunities and challenges that must be faced in Indonesia. Opportunities that arise include improving the positive image of cities in Indonesia, improving the quality of the environment in densely populated cities, and increasing the competitiveness of cities in terms of investment and tourism. However, the challenges faced include limited resources, both in terms of financial and human resources, as well as obstacles in the implementation of sustainable policies and regulations. Nonetheless, Indonesia has a significant opportunity to combine the concepts of City Branding and Ecocity.

In Sutresno, S. A., & Singgalen, Y. A. (2023). With the title Analysis and Design of Morotai Tourism Village Information System

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(SIDEWITA) Based on Local Wisdom of Tokuwela and Babari Tradition. This study focuses on optimizing the tourism village management system in Indonesia through the development of a contextual and relevant information system that suits the needs of users. Specifically, the study targets Morotai Island Regency, where the management of tourist villages requires a web-based system capable of providing complete information on tourist attractions, accessibility, accommodation, and additional services to a wider market. The study uses the Software Development Life Cycle (SDLC) with the Waterfall approach to design the system, focusing on the actors involved in the system, including tourists and prospective tourists (users as tourists), managers and community members (users as communities), as well as stakeholders such as entrepreneurs and formal organizations that support tourism (users as stakeholders). The resulting system, SIDEWITA, is expected to optimize the management of tourist villages in Morotai Island Regency. However, this study is limited to the design phase using the Waterfall approach.

METHODOLOGY

The methodology used in this literature review aims to explore the optimization of local potential in the development of digital-based smart cities, with a focus on the role of communication and technology. The process begins with setting specific research questions, such as current trends in smart city development, how communication technologies facilitate such initiatives, and what local potential can be optimized through digital strategies. To achieve this goal, we will use academic databases such as Google Scholar, JSTOR, and Scopus as relevant sources of literature.

In a literature search, we will use related keywords and phrases, including "smart city development," "digital communication," "optimization of local potential," and "technology in urban planning." The inclusion criteria will be focused on peer-reviewed articles, conference papers, and reports published in the last ten years to ensure the relevance of the information. Conversely, non-English publications and articles that do not directly answer the research question will be excluded from this review.

The data extracted from the literature will be categorized based on important themes, such as technological innovation in smart cities, successful implementation case studies, and challenges faced by local governments. Each finding will be summarized by highlighting the methodology used, the results obtained, and the implications for practice. Furthermore, thematic analysis will be carried out to identify patterns and themes that emerge from the literature, as well as comparative analysis to compare different approaches to smart city development in different regions.

The results of this literature review will be compiled in a coherent structure that includes an introduction to the topic, a review of the methodology, the results of the literature analysis, as well as a discussion of the implications for future research and practice. The conclusions of this review are expected to provide a comprehensive understanding of how digital technologies can enhance local potential in smart city development as well as provide recommendations for policymakers and stakeholders.

RESULTS

Programs created by Barcelona:

1. Sensors and Transportation Systems: Barcelona implements a sensor system to monitor traffic conditions and transportation systems. These sensors collect data on traffic density and road conditions which are then used to

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optimize traffic management, reduce congestion, and improve driving safety.

2. Energy Management System: Barcelona's Smart City program involves installing sensors to monitor energy consumption in various areas, including street lighting and public buildings. The data obtained is used to manage energy consumption more efficiently and identify potential energy savings.
3. Technology-Based Waste Management: Barcelona implements IoT technology in the city's waste management system. Sensors are installed on waste containers to monitor fill levels and optimize collection routes, reducing collection frequency and operational costs while improving service efficiency.
4. Digital Public Services: Barcelona also leverages digital technology to provide better public services, such as apps to access city information, report problems, and interact with the city government. It aims to increase transparency and community engagement.

These programs reflect Barcelona's approach to addressing the city's challenges through technology and innovation within the Smart City framework, with a focus on improving the quality of life and better management of resources.

DISCUSSION

In the article, by Leski Nizkinaswara (2020) titled: Getting to Know the Smart City Concept in Urban Development (10 October 2020), it is explained that smart cities are the result of innovative efforts made by urban ecosystems to overcome various problems and improve the quality of life of people and local communities. The Ministry of Communication and Information Technology (Kominfo) through the Directorate of Government Informatics Application Services (LAIP), in collaboration with several other ministries such as the Ministry of Home Affairs, the Ministry of National Development Planning/Bappenas, the Ministry of Public Works and Public Housing, the Presidential Staff Office, the Ministry of Finance, the Coordinating Ministry for the Economy, and the Ministry of PANRB, have launched the Movement Towards 100 Smart City program.

The Minister of Communication and Informatics, Johnny G. Plate, expressed his appreciation for the initiative. According to him, this program is a good first step in realizing the nation's dream of becoming a digital country. This was conveyed at the award ceremony for the Movement Towards 100 Smart Cities in 2019 at Balai Sudirman, Jakarta. In his remarks, the Minister of Communication and Informatics also emphasized that the next challenge is to expand the scope of smart city innovation to regions and cities that have not yet been included in this program. Therefore, collaboration between the central government, local governments, and industry is needed. In line with the views of the Minister of Communication and Information, the Director General of Informatics Applications, Samuel Abrijani Pangerapan, assessed that this movement is an event to gather the ability of the nation's children to participate in solving urban problems.

The preparation of the master plan and quick-win for 100 smart cities/districts was carried out within three years, namely from 2017 to 2019. The selection of cities/districts is carried out through a selection involving a team of assessors from various backgrounds, including the government, academics, and practitioners. Selected participants received guidance and assistance to strengthen the foundation of becoming a smart city or district based on the advantages, potentials, and

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challenges typical of each region. The development of smart cities is based on six main pillars, namely smart governance, smart society, smart living, smart economy, smart environment, and smart branding.

Sumber: https://aptika.kominfo.go.id/2020/10/mengenal-lebih-dekat-konsep-smart-city-dalam-pembangunan-kota/ . Diakses: Senin, 16 September 2024. Pukul: 13.05 WIB

After successfully running the Movement Towards 100 Smart City program, the Ministry of Communication and Information Technology (Kemkominfo) now has the responsibility to develop smart cities in priority tourist areas and in rural areas. Director of LAIP of the Ministry of Communication and Information, Bambang Dwi Anggono, said that the development of a smart city in the tourist area will follow the six pillars of a smart city. This was revealed at the Smart City Talk Show and the Best Regional Innovation Award during the Pandemic which took place on Wednesday, October 7, 2020. The image above can be understood to provide information to display the smart city development framework centered on six main pillars, which are interconnected to create a smart and innovative city. Here is a review of the data shown in the image:

1. Smart Governance

This pillar focuses on smart governance by using the Information and Communication Technology (ICT) ecosystem for Electronic-Based Government Systems (SPBE). This includes: a. Standards for business processes, data, technology, and information security; b. Human Resource Capacity (HR) that is flexible and not resistant to technological changes.

2. Smart Environment

This pillar focuses on harmonious environmental management by utilizing related ecosystems. This development includes a. Integrated environmental management with ICT; b. The development of potential disasters into productive resources, such as floods that are used for electrical energy sources; c. Intelligent environmental monitoring with technology for disaster control and control.

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3. Smart Society

Focus on a society that is intelligent and adaptive to technological advancements. Initiatives here include: a. Development of a healthy, innovative, and productive digital society; b. A society that can adapt to the latest technology and actively participate in ICT-based solutions.

4. Smart Economy

The pillars of the smart economy focus on technology-based innovation for economic growth, including a. Implementation of a cashless payment system; b. Interconnection of micro, medium, and macroeconomic sectors through technology; c. Monitoring community needs based on an integrated family economy.

5. Smart Living

Focusing on the development of an integrated region with various sectors to create a safe and comfortable life. This concept includes a. Integration of housing, government, business, and education sectors in one region; b. Ensuring the safety and comfort of the community through the use of information technology.

6. Smart Branding

This aspect emphasizes the importance of developing an innovative and modern city identity and image, including a. Development of an orderly, safe, modern, and technologically advanced city branding; b. Development of innovation centers that encourage the development of smart cities.

The data and explanations above emphasize the importance of collaboration between aspects of technology, the environment, and society in building smart cities that can handle various urban challenges intelligently. Each pillar is designed to support each other and create holistic solutions, from governance to community participation and economic growth, all of which are integrated through digital technology.

CONCLUSION

The development of digital-based Smart Cities by optimizing local potential is an important strategy in facing the challenges of urbanization and climate change while improving the quality of life of the community. An effective Smart City concept not only relies on advanced technologies such as the Internet of Things (IoT), big data, and artificial intelligence but also leverages local potential that reflects the character and uniqueness of each city.

Several international cities such as Barcelona and Amsterdam have shown that the integration of technology with local resources and culture can result in innovative and effective solutions in managing different aspects of the city. This successful example illustrates that the success of Smart Cities is not only determined by technology but also by the city's ability to combine technology with local wisdom and community participation.

In Indonesia, the development of Smart City faces challenges such as limited infrastructure, varying technological readiness, and low community involvement. Cities in Indonesia need to adapt their Smart City strategies to local conditions to ensure effectiveness and sustainability. Collaboration between the government, the private sector, and the community as well as the utilization of local potential can be key to overcoming this challenge.

The main pillars in the development of a Smart City, such as smart governance, smart environment, smart society, smart economy, smart living, and smart branding, are interconnected to create a smart and innovative city. Each pillar plays an important role in building smart cities that can address urban challenges holistically and sustainably. Therefore, it is important to continue to conduct studies and developments in this field, adapt technology according to local potential, and increase collaboration between various parties

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to create a Smart City that is not only technologically advanced but also relevant and useful for the local community.

Based on the discussion on the development of digital-based Smart Cities with the optimization of local potential, here are some recommendations to be implemented in the development of Digital-Based Smart Cities:

1. Integration of Technology with Local Potential:
    a. Evaluate local potential: Conduct an in-depth assessment of local potential, such as culture, local wisdom, and natural resources, which can be integrated with technology to create relevant and sustainable solutions.
    b. Technology customization: Adapt the technology used to local needs and characteristics, rather than simply adopting global solutions. For example, the use of IoT sensors to monitor air quality must consider the specific conditions of the local environmental infrastructure.
2. Improvement and Technology Readiness:
    a. Infrastructure investment: Upgrade basic infrastructure, such as internet networks and transportation systems, to support the implementation of advanced technologies. This involves improving communication networks and providing wider internet access.
    b. Training and education: Provide training and education to improve people's technical and digital skills, as well as improve technological readiness among governments and the private sector.
3. Community Collaboration and Participation:
    a. Strategic partnerships: Build partnerships between the government, the private sector, academia, and the community to ensure the successful implementation of Smart Cities. This collaboration can include the formation of forums or working groups to discuss and plan Smart City strategies.
    b. Active participation: Involve the community in the Smart City planning and development process through public consultation forums, surveys, and feedback mechanisms. Active community participation can increase project acceptance and success.
4. Implementation of Smart City Pillars:
    a. Smart Governance: implement a transparent and responsive government system by utilizing technology to improve efficiency and accountability. This includes the use of digital platforms for public services and community engagement.
    b. Smart Environment: focuses on environmental initiatives such as waste management, air quality, and energy conservation. Implement green technologies and data-driven solutions to reduce environmental impact.
    c. Smart Society: promote social inclusion and well-being by using technology to improve access to education, health services, and social well-being.
    d. Smart Economy: support for local economic growth through initiatives such as business incubators, support for MSMEs,

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and the use of technology to increase productivity.

e. Smart Living: improve the quality of life by providing technology solutions for better transportation, safety, and public facilities.

f. Smart Branding: build a smart city image through effective branding and clear communication regarding the benefits and successes of Smart City projects.

Continuous study and development, focused on; Monitoring and evaluation: Conduct regular monitoring and evaluation to assess the effectiveness of the Smart City strategy and make adjustments if necessary. Use data and feedback to improve and adapt the initiative of case studies: learn and adapt best practices from international cities that have succeeded in the development of Smart Cities. Case study analysis from Barcelona, Amsterdam, and other cities can provide valuable insights for local implementation.

Effective digital-based Smart City development requires the integration of technology with local potential, infrastructure improvement, community participation, and the implementation of Smart City pillars. With strong collaboration and approaches tailored to local conditions, cities in Indonesia can create urban environments that are smarter, more sustainable, and responsive to future challenges.

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