Medan City Government Policy Smart City Sustainable City Development

Rafiqi Rafiqi[1] and Montayana Meher[1]

[1] Faculty Of Law, Universitas Medan Area, Medan, North Sumatera, Indonesia
rafiqi@staff.uma.ac.id

Abstract. Smart City is a city concept that applies innovative technological advances to create quality of life. Smart Cities develop environmentally friendly infrastructure, buildings designed to reduce air pollution, manage waste effectively and optimize resources. In reality, there are many government challenges in forming a Smart City. The formulation of the problem in the research is what the Medan City Government's Smart City Policy is and what are the Obstacles to Smart City in the City of Medan. The discussion in this research is. The research method in this research is normative juridical. The discussion in this research is City Government Policy, namely Environmental Regulations, permits and Fiscal Incentives. Barriers to Smart City in Medan City are Investment Costs, Public Acceptance.

Keywords: Keywords: Government Policy, Smart City, Sustainable City, Development

1 Introduction

The application of technology in an innovative, effective and efficient manner by connecting physical, economic and social infrastructure in an area is part of a Smart City or smart city concept of city development to improve services and create life and prosperity.[1] The aim of improving Smart City in smart city areas is the government collaborates with technology to increase comfort and welfare for efficiency and public services[2] Expertise as well as security issues, the government must face the reality of forming a smart city which is a diverse challenge, namely human resources, especially expertise in IT.[3]

Promoting the provision of integrated environmental and sustainable energy structures is an important step in creating smart cities.[4] This involves developing environmentally friendly infrastructure, such as efficient and environmentally friendly public transport networks, buildings designed to reduce carbon footprints, and the use of renewable energy.[5]

In this context, smart cities not only utilize technology to improve the quality of life of their residents, but also pay attention to the environmental impact of their economic and social activities. The integration of environmental structures and sustainable energy

G. W. Pradana et al. (eds.), *Proceedings of the 4th International Conference on Social Sciences and Law (ICSSL 2024)*, Advances in Social Science, Education and Humanities Research 877,
https://doi.org/10.2991/978-2-38476-303-0_88

helps reduce air pollution, manage waste effectively, and optimize the use of natural resources.[6]

Concrete steps include implementing green technologies such as the use of solar panels, smart energy management systems for buildings, and harnessing energy from renewable sources such as wind or water.[7]

Overall, the promotion of an integrated environmental and sustainable energy structure is a strategic step to build a smart city that is not only modern and efficient but also sustainable and environmentally friendly for future generations.[8]

Promoting the provision of environmental structures and sustainable energy in creating smart cities involves several legal aspects, problems and solutions that are important to consider.[9]

The problem formulation in this research is

1. What is the Medan Smart City Government Policy?
2. What are the obstacles to Smart City in Medan City

2 METHOD

The method used in this research is normative[10] Through a Concept Approach. Method. Research data in normative legal research in principle using secondary data which is commonly known as legal materials consisting of primary legal materials, secondary legal materials and tertiary legal materials.[11]

3 Result And Discussion

3.1 Medan Smart City Government Policy

Awareness in society to support smart cities is a smart combination of good performance, discovery studies and legal awareness in society.[12] Smart cities are expected to be able to have a positive impact on government, social life, transportation, quality of life, healthy competition in all fields, by utilizing information and communication technology.[13]

Medan Smart City is a city that functions optimally in managing various city resources effectively and efficiently to complete [14] various challenges and problems of the City using innovative, integrated and sustainable solutions where technology is the driving force for the creation of these solutions supported by strong infrastructure and human resources that are ready to provide City services that can improve the comfortable and loved quality of life of its citizens.

Smart government Ensures that local governments have implemented a quality Electronic-Based Government System (SPBE) in an effort to provide good public services.[15] Smart branding Helps local governments increase tourist visits to market superior city products. Smart economy: Ensuring the implementation of ICT in transaction processes (cashless) takes place in local governments and surrounding areas.

Smart living[16] Encourage a regional government situation that is conducive and comfortable for the community through the provision of transportation, hospitals, schools and other public facilities; and Smart society: Ensuring that the community and surrounding areas have superior capacity towards society 5.0.[17]

Aspek Hukum berkaiatan dengan Smart City Regulasi Lingkungan: The government needs to have clear regulations related to the sustainable development of smart cities. These include rules related to land use, protection of natural habitats, and requirements to comply with certain environmental standards.

Permitting and Approvals: Sustainable infrastructure projects often require special permits. Clear and efficient licensing procedures are needed to facilitate the implementation of environmental and sustainable energy structures.[18] Fiscal Incentives The government can provide fiscal incentives, [19] such as tax exemptions or subsidies, to motivate developers and residents to adopt sustainable technologies and infrastructure.

3.2 Smart City Barriers

Smart city is a development concept for a country, region or city that is expected to improve the welfare of its people. According to Holmes [20] (2010), there are several conditions that must be met first before implementing a smart city, namely the development and utilization of computer network architecture. Development and utilization of computer network architecture such as hardware and software. [21] Having a computer network connection is very important in efforts to implement a smart city in a country, region or city.[22] Because interconnected internet networks will facilitate all communication activities, data transfer, information presentation, as well as ease of public services.

Openness of information and economic and scientific stimulation.[23] In implementing the smart city concept, information openness is an important factor. Because the ease with which people can access information will be directly proportional to the increase in people's knowledge and insight from a system that has been designed to educate people to be smart. Then, in implementing the smart city concept, stimulation is also needed in the economic sector, such as creating online-based business areas, creating applications that make it easier for people to carry out daily activities, such as online transportation applications, and so on.[24] Development of community innovation and creativity. The development of innovations in new information technology will make it easier for a country, region or city to implement the smart city concept. Community creativity needs to be increased to support the implementation of the smart city concept. Because the output of a smart city is the creation of good services and increasing the quality of life of the community, increasing community creativity will have implications for ongoing innovation developments resulting from creative ideas from the community.

Stimulation of the enterprise and entrepreneurial side. Another condition that needs to be considered in implementing the smart city concept is stimulation from the enterprise (business) and entrepreneurship side. One method of stimulation is to provide capital to every small and medium enterprise (SME). Then, through education, apart

from implementing information technology-based learning, it also fosters an entrepreneurial mentality in every student.

A more participatory and democratic governance structure. In implementing the smart city concept, it is hoped that the government will be more open and more participatory towards the aspirations of the community. And it is also hoped that the government will be able to improve its implementation of democracy so that by implementing these two things it will produce a stable government. With a stable government, the faster the smart city concept can be realized.

Balance of environmental, social and economic aspects. In implementing the smart city concept, the three aspects, namely environmental, social and economic, must be balanced. Because these three factors will make it easier to implement the smart city concept. The method for balancing these three aspects is to utilize the power to create regulations that aim to balance these three aspects.

1. Cost and Initial Investment: Sustainable infrastructure often requires a high initial investment. This can be a challenge for local governments and private developers looking to implement these solutions.
2. Technology Suitability: Choosing the right technology and ensuring its suitability to local conditions and city needs is a crucial issue. Some technologies may not be mature or may not be suitable for all environmental conditions.
3. Community Acceptance: Promoting changes towards sustainable smart cities is often met with resistance from communities concerned about the possible social or economic impacts.

Possible Solutions Collaboration and Partnerships: Collaboration between government, the private sector, and academia can facilitate the development of sustainable solutions. This includes the establishment of public-private partnerships for the financing and implementation of sustainable projects. Public Education and Awareness: Increasing public understanding of the benefits of sustainable infrastructure and green technologies can help overcome resistance and accelerate adoption. Capacity Building: Building local capacity to design, manage and maintain sustainable infrastructure is key to long-term success. Evaluation and Adaptation: Continuous monitoring and evaluation systems are needed to ensure that sustainable solutions can adapt to environmental, social, and economic changes. By paying attention to these legal aspects, problems and solutions, governments and developers can build smart cities that are not only technologically advanced but also environmentally sustainable. Promoting the provision of environmental structures and sustainable energy in creating smart cities involves several legal aspects, issues and solutions that are important to consider.[25]

Developing a smart city concept in Medan City involves several important aspects that need to be considered. Technology and Communication Infrastructure Internet Networks and Fast Connections: Improving internet infrastructure and fast onnections that can be accessed by all residents and businesses in Medan.

Sensors and IoT: Installing sensors and Internet of Things (IoT) technology to collect real-time data on various aspects of the city such as traffic, air pollution and water management.

Technology-Based Public Transportation and Mobility: Introducing integrated and technology-based public transportation to increase travel efficiency and comfort. Environmentally Friendly Infrastructure: Developing environmentally friendly road infrastructure, including bicycle lanes, pedestrians, and the use of renewable energy for transportation. Public Services and Community Services. Digital Public Services: Converting public services into digital format to increase accessibility and efficiency. E-Government: Developing an e-government platform to make it easier for citizens to access information, make tax payments, and interact with the government online.

Energy and Environment Sustainable Energy Management Integrating renewable energy such as solar panels and smart energy management systems to reduce fossil energy consumption. Waste and Water Management: Improving waste and water management systems to reduce environmental impacts and increase urban sustainability.[26]

Cyber Security Security and Crisis Management: Ensure the security of the city's data and digital infrastructure from cyber attacks and other security threats. Data-Driven Crisis Management: Implement a data-based crisis management system to respond to emergency events and unexpected situations quickly and effectively. Digital Education and Inclusion Technology Education Introducing education and training programs to increase digital literacy and technology skills among Medan. residents.Digital Inclusion Ensure that all levels of society have access and can benefit from existing technological developments. Public-Private Partnership Strategic Collaboration Building partnerships between government, private sector, academics and civil society to support sustainable smart city development.

Innovative Financing: Seeking innovative financing solutions to support the development of necessary infrastructure and technology. By integrating all these aspects, Medan can develop itself as a sustainable smart city and be able to improve the quality of life for its residents in the long term.

In Medan City, several potential locations for development as a smart city can be considered based on various factors such as population density, existing infrastructure, accessibility, and potential for sustainable development. Some examples of locations that can be considered include Medan City Center. As an economic and administrative center, Medan city center is a strategic area to be developed as a smart city. The development of digital infrastructure, efficient public transportation and digital public services can improve efficiency and quality of life in city centers. West Medan (Medan Amplas, Medan Deli) The western region of Medan has the potential to be developed as a technology and innovation center. This location can become a base for the development of information and communication technology (ICT), as well as a research and development center. East Medan (Medan Marelan, Medan Tembung) The eastern region of Medan can be used as a focus for developing renewable energy infrastructure and sustainable environmental management. The use of renewable energy such as solar panels or hydroelectric power plants can be expanded here.

Industrial and Warehouse Areas (Medan Maimun, Medan Labuhan): Industrial and warehouse areas around Medan can be developed with IoT technology to increase operational efficiency and security, as well as optimize logistics management. Peripheral

Urban Areas (Medan Sunggal, Medan Helvetia) Peripheral urban areas can be transformed into experimental centers for the development of smart city technology. This includes the use of sensors for traffic management, improving public safety, and the use of renewable energy in the wider urban environment. Each location has unique challenges and opportunities depending on existing conditions and local needs. It is important to involve various stakeholders, including government, private sector, academics and civil society in designing and implementing strategies to become a successful smart city in Medan City[27].

Challenges and problems are the driving force for creating solutions supported by infrastructure providing services that can improve the quality of life and comfort. Medan Smart City functions in managing various city resources effectively and efficiently. City challenges and problems with innovative, integrated and sustainable solutions..[28]

1. Smart government: Ensure that local governments have implemented a quality Electronic-Based Government System (SPBE) in an effort to provide good public services;
2. Smart branding: Helping local governments increase tourist visits to market superior city products;
3. Smart economy: Ensure that the implementation of ICT in transaction processes (cashless) takes place in regional governments and surrounding areas;
4. Smart environment: Preparing a city area that is clean, free of rubbish and orderly, without abandoning its traditional elements and orderly urban spatial planning;
5. Smart living: Encouraging a regional command situation that is conducive and comfortable for the community through the provision of transportation, hospitals, schools and other public facilities; And
6. Smart society: Ensure that the community and surrounding areas have superior capacity towards society 5.0.[29]

4 Conclusion

Environmental Policy, Permits and Fiscal Smart City as a Sustainable City Policy Cost and Initial Investment Barriers: Sustainable infrastructure is often. Technology Suitability Choosing the right technology and ensuring its suitability to local conditions and city needs is a crucial issue. Some technologies may not be mature or may not be suitable for all environmental conditions. Community Acceptance Promoting changes towards sustainable smart cities is often met with resistance from communities concerned about the possible social or economic impacts. The government suggests issuing a Smart City policy

Acknowledgments. This study was funded by Universitas Medan Area T.A.2024.

Disclosure of Interests. The authors have no competing interests to declare that are relevant to the content of this article.

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