Research Article

Digital Transformation of Public Services in Padang City, West Sumatra Province Through Smart City Policy

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Abstract.

This article discusses the implementation of smart city policy in Padang City, West Sumatra Province, in the context of digitalization transformation of public services. Smart city is a city with its own investment, which consists of human and social capital, modern transportation, communication infrastructure, continuous economic development, and high quality of life, with wise management of natural resources through participatory governance. The smart city program consists of six pillars: smart governance, smart branding, smart economy, smart living, smart society, and smart environment. The category of smart city policy research problems is divided into three main dimensions of technology, human resources, and institutions. This article uses a qualitative method, and data were collected using literature studies, online journals, and archival documents in the Padang City Government. The results show that the digital transformation of public services expands the scope of the smart city sustainability model, which is related to funding, infrastructure maintenance, and sustainable innovation. Furthermore, applying the sustainability aspects of the digitalization transformation of smart city policies in Padang City can help ensure that technology-integrated services can be sustainable in the future.

Keywords: policy implementation, smart city, digital transformation, Padang city

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Published: 2 September 2025

Publishing services provided by Knowledge E

Selection and Peer-review under the responsibility of the 2nd Doctoral International Conference Committee.

1. Introduction

Digital transformation marks the beginning of the creation of new and more efficient methods to replace long-used processes in accomplishing tasks. Digital transformation aims to strengthen public services and encourage citizen engagement in policy-making, in line with government commitments. Transformation triggered by advances in digital technology has provided more diverse platforms to enhance public participation in political dynamics and decision-making [1]. Digital transformation in government aims to ease public access to public services and strengthen interactions between government and citizens. Government policy in the establishment of smart cities in Indonesia is a manifestation of the implementation of the e-government program, in connection with the issuance of Presidential Instruction No. 3 of 2003 concerning the National

Strategy Policy for the Development of e- government. This policy is practical in nature, which in its content has contained the necessary steps in accordance with the duties, functions, and authorities of each in implementing the development of e- government nationally based on national policies and strategies. It is also supported by the issuance of Government Regulation No. 38/2017 on Regional Innovation. The regulation explains that this regional innovation aims to improve the performance of local governments. The target of regional innovation must be directed to accelerate the realization of welfare in the community by improving the quality of public services. Smart City has become a concept used in major cities in the world. No exception in our country, Indonesia, is the innovative efforts made by the City ecosystem in overcoming various problems and improving the quality of life of people and local communities.With the implementation in each city, it is expected to solve various problems that exist in each city in Indonesia, so that the problem solving can be integrated with technology and innovation in accordance

with the progress of the times. Furthermore states that Smart City has several definitions. When looking at the point of view of the discussion, smart city or literally means Smart City, is a concept of development, application, and implementation of technology applied in an area as a complex interaction between various systems in it. Smart city is also considered as an urban space surrounded or attached by smart systems or a city with ideas and people that provide a smart outlook. Intelligent systems should not be limited to those based on Information and Communication Technology, but intelligence can also mean creative design or new organizations. In addition, smart cities realize smart and innovative cities so that the interaction of citizens and city governments is well established with technology supported by communication networks as digital development infrastructure [2]. With the integration of all lines and sectors, city governance will become smarter, more effective, innovative and efficient [3]. This will increase the socio-economic growth of a city. Information and communication systems are the design of a system that uses ICT [4].

The system will have a hand in all activities related to a device, process and information technology management [5]. Smart city technology is an ongoing development of the neoclassical theory of economic growth. Started by Robert Solow and Trevor Swan, neoclassical economic growth theory has been developed since the 1950s. This theory is related to the analysis of classical theory. According to neoclassical theory, economic growth depends on the availability (supply) of factors of production (population, labor force, capital accumulation) and technological development. This phenomenon has led

to the emergence of the smart city concept in urban Indonesia. Smart cities are the result of knowledge-intensive and creative strategies that aim to improve the socio-economic, ecological, logistical and competitive performance of cities. The smart city concept has attributes in each of its components, namely smart management, smart economy, smart people, smart housing, smart mobility and smart environment [4].

Furthermore, the category of research problems is based on the smart city concept which is divided into three main dimensions, namely technology, human resources, and institutions. The categories of research problems on these three dimensions can be seen in the Table 1 below:

Table 1: Categories of Research Problems in each Dimension.

Dimensions	Sub Dimension	Categories of Research Issues
Technology	Hardware	1. Infrastructure and availability 2. Hardware device integration Hardware device security 3. Quality and quantity of devices
	Software	1. Availability of software and 2. Database management system reliability 3. Ease of use and customization 4. Integration between software and applications
Human Resources	City residents' knowledge of the app	1. Ability of the community to use the application 2. Government socialization and public understanding of the application
	Citizen participation in city development	1. Citizen innovation and engagement in development 2. Citizen participation in supporting smart cities
Institutional	Regulation	1. master plan 2. City government regulations for smart cities
	Stakeholder cooperation	1. Government cooperation with the sector 2. Government cooperation with the academic community

Source: Authors' calculation based on 8 pillars of smart city program, 2025

Before the implementation of the Smart City policy in Padang City, the main challenges faced were related to inadequate digital infrastructure. Many public services are still conventional, resulting in slow and inefficient administrative processes. This is exacerbated by the lack of public awareness of the use of existing information technology. In addition, the development and implementation of public service applications are not balanced with effective socialization, so that users do not utilize existing applications optimally [6]. The inability to integrate various applications also hampers the transition to a more efficient and responsive system to community needs [6]. Another challenge is the

lack of citizen involvement in the decision-making process related to city development. Studies show that public participation in smart governance policies is critical to the success of a Smart City [7]. In Padang City, this participation is not optimal, so that the voice of the community is often not heard in the planning process, relying more on policies set by the government [8]. Therefore, collaborative efforts are needed between the government and the community to build a digital ecosystem that is responsive to the needs of citizens and enables more inclusive development [9]. Before the Smart City program was implemented in Padang City, there were a number of significant challenges that needed to be overcome, one of which was the high population density. With a dense population, the city experiences problems such as traffic congestion, which is one of the main issues in the daily mobility of residents [8]. Research shows that high mobility from the suburbs to the city center worsens the situation, causing air pollution and worsening access to already limited public facilities [10]. Infrastructure improvements, including roads, bridges, and public facilities, are essential to provide adequate support for urban growth and improve the overall quality of life of the community. Therefore, effective planning is needed to address population movement issues and facilitate efficient public services [11].

Padang City already has smart city infrastructure which includes physical infrastructure, information and communication technology infrastructure, and social infrastructure. Physical infrastructure includes smart transportation system, smart waste management, and smart public street lighting system. Information and communication technology infrastructure, we already have local government information system (SIPD), public service management information system (SIMPP), and integrated licensing management information system (SIMPTSP). As for social infrastructure, we have an education information system, health information system, and youth information system. To date, Padang City has developed 61 applications to support public services. These applications aim to provide services to the community in a fast, easy, transparent and accountable manner. In addition, Padang City has also developed 72 bureaucratic applications to assist governance and bureaucratic efficiency. This is supported by the commitment of the government and the community to realize smart city. Meanwhile, General Administration Assistant of Padang City Secretariat Corri Saidan said that to support smart city, the Padang City Government will integrate it with the acceleration of thematic bureaucratic reforms. Padang City itself has three targets in implementing the Smart City concept, namely efficiency in government, transparency and public participation. Based on the above background, the author would like to answer the

following questions: (1) How is the implementation of Smart City policy in Padang City in the context of public service digitization transformation? (2) What are the factors that influence success and failure in the transformation of Smart City-based public service digitization in Padang City? (3) What are the challenges faced by the Padang City Government in the transformation of Smart City policy for public service digitization? (4) What is the role of collaboration between local governments, the private sector, and the community in supporting the successful transformation of Smart City-based public service digitization in Padang City?

1. Policy Implementation Theory

George C. Edward III in [12] suggests several things that can affect the success of your implementation. Communication, resources, disposal, bureaucratic structure. The success of policy implementation can be influenced by the above factors, such as:

2. Communication

According to Edward III, communication is the process of conveying information from communicators to communicants. Based on this understanding, communication determines the success of achieving the objectives of implementation. Effective implementation occurs when decision makers already know what to do. According to Edward III, policy communication has several dimensions, including the dimensions of transmission, clarity, and consistency.

a. Transmission. The communication aspect requires that public policies are communicated, both directly and indirectly, not only to policy implementers, but also to policy audiences and other stakeholders.

b. Clarity. The clarity dimension requires policies to be clearly communicated to implementers, target groups, and other stakeholders. This will give everyone an idea of what the goals, objectives and content of public policy are and what needs to be prepared and implemented to make a policy effective and efficient.

Consistency. The dimension of coherence is necessary so that the actions taken do not confuse the action implementers, target groups and stakeholders.

1. Resources

According to Edward III, one of the available resources is a resource that can determine the success of your implementation. Humans are the most important resource in determining the success of the implementation process and resources are the success of the implementation process is influenced by the use of human resources, costs and

time. According to Edward III, the indicators used to determine the extent to which resources affect policy implementation are:

a. Staff. The main resource in policy implementation is staff or employees (street-level bureaucrats). Failures that often occur in policy implementation are caused by staff / employees who are not sufficient, sufficient, or incompetent in their fields. Increasing the number of staff and implementors is not enough to solve the problem of policy implementation, but it is necessary to have sufficient staff with the necessary skills and abilities (competent) in implementing policies.

b. Information. In policy implementation, information has two forms, namely: First, information related to how to implement the policy. Second, information regarding compliance data from implementers to established government rules and regulations.

c. Authority. In general, authority must be formal so that orders can be carried out effectively. Authority is the authority or legitimacy for implementers in implementing politically determined policies. When authority does not exist, the power of the implementers in the eyes of the public is not legitimized, which can thwart the implementation of public policies. But in another context, when formal authority is available, there is often a mistake in seeing the effectiveness of authority. On the one hand, the effectiveness of authority is needed in policy implementation, but on the other hand, effectiveness will diminish when authority is misused by implementers for their own or their group's interests.

d. Facilities. Physical facilities are an important factor in policy implementation. Implementors may have sufficient, capable and competent staff, but without supporting facilities (facilities and infrastructure), the policy implementation will not be successful.

2. Dispositions

According to Edward III. The disposition or attitude of implementers is an important factor in their approach to implementation. For an implementation to be effective, an implementer not only needs to have the ability to implement if the quality of the policy is influenced by the quality or characteristics of the implementing actors. The success or failure of the policy can be read from the disposition (of the executive body). Trends or tendencies are one of the factors that have important consequences for effective policy implementation.

3. Bureaucracy

Bureaucracy is one of the institutions that most often and even entirely implement activities. The existence of bureaucracy is not only in government structures, but also

in private organizations, educational institutions and so on. Even in certain cases the bureaucracy is created only to carry out a certain policy. Bureaucratic structure according to Edwards in [13] has two main characteristics, namely Standard Operating Procedures (SOP) and Fragmentation: SOPs or basic work procedures develop as an internal response to the limited time and resources of implementers and the desire for uniformity in the operation of complex and widely dispersed organizations. Fragmentation, on the other hand, stems from pressures outside bureaucratic units, such as legislative committees, interest groups of executive officials, state constitutions and the nature of policies affecting the organization of government bureaucracies.

4. Smart City

According to [14] smart city is a city that is able to use human resources (HR), social capital, and modern telecommunications infrastructure to realize sustainable economic growth and high quality of life, with wise resource management through community participation-based governance. Furthermore, stated that smart cities are the result of intensive knowledge development and creative strategies in improving the socio-economic quality, ecology, and competitive power of cities. The emergence of smart cities is the result of a combination of human capital (such as an educated workforce), infrastructure capital (such as high-tech communication facilities), social capital (such as open communication networks) and entrepreneurial capital (such as creative business activities). Some experts also have the following definition of (smart city):

1. According to Cohen [15] a smart city is a city that uses ICT in a smart and efficient way in using various resources, resulting in cost and energy savings, improving services and quality of life, and reducing the environmental footprint, all supporting innovation and a green economy.

2. According to smart cities are cities that are able to use human resources, social capital and modern telecommunications infrastructure to realize sustainable economic growth and high quality of life, with wise resource management through community participation-based governance.

3. According to Muliarto [16] smart city is a way of connecting physical infrastructure, social infrastructure, and economic infrastructure in an area using ICT technology, which can integrate all elements in these aspects and make the city more efficient and livable.

4. According to Schaffers [17] defines Smart City as a City that is able to use human resources, social capital, and modern telecommunications infrastructure to realize sustainable economic growth and high quality of life, with wise resource management through community participation- based governance.

5. According to Supangkat [18] defines Smart City as a city that knows the problems that exist in it (sensing), understands the condition of the problem (understanding), and can manage (controlling) various existing resources to be used effectively and efficiently with the aim of maximizing services to its citizens. Smart City is one of the City development concepts based on the principles of information technology made for the common good effectively and efficiently.

6. According to Kominfo [19] the smart city concept also applies a more sustainable environment due to the concept of waste management and more advanced water management. The goal of Kotapintar is also how to bring in as many tourists as possible, attract investors to invest in this city, then attract new residents, for which new residents from both professionals, academics, and entrepreneurs reside in our city.

In connection with this, Kourtit & Nijkamp mentioned that a strong and trustworthy government accompanied by creative and open-minded people will increase local productivity and accelerate the economic growth of a city. In relation to this, explains that smart cities are cities with investments that are owned, which consist of human and social capital, modern transportation and communication infrastructure as well as continuous economic development and high quality of life, with wise natural resource management through participatory governance.

According to Supangkat [18]identified six smart city models to make a city successful in implementing the smart city concept:

1. Smart Government. Smart Government is the main key in the establishment of a smart city. The government as part of the fundamentals of a country, has the task of shaping a paradigm or view to the community about a better life. A smart government is a government that cares and is transparent towards its people, this is one of the efforts to increase public trust and willingness towards its government. The establishment of clear laws and freedom of speech or democracy also needs to be realized to ensure the security, safety and comfort of the community. The government's plan to improve the structure of real development, control economic flows, and resource management are also efforts that can be made by the government to start reducing imports and start utilizing local products supported by native human resources. In addition, the

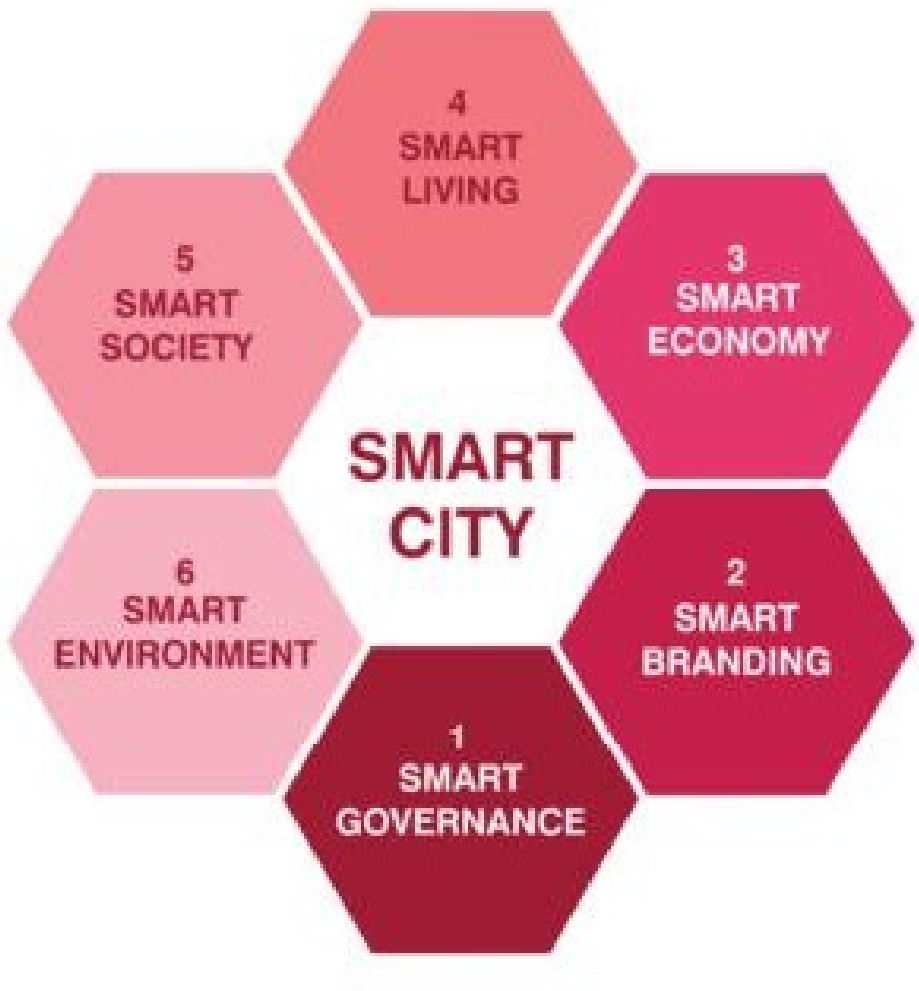

Figure 1: Smart City. Source: Ministry of Communication and Information, 2021).

most important thing in creating a smart government is the formation of a professional, responsible and clean government character.

1. Smart People. The formation of a civilized and self-aware society is the main vision of the Smart People for Smart City program. Civil society is a condition where all human resources in a city have truly become competent people. While self-awareness is an understanding where the emergence of awareness from the heart of every human being that they are social beings, so what they do in the world is not only always for their own interests, but also for the benefit of other humans, the creation of mutual cooperation, mutual assistance, mutual trust, tolerance and understanding of each other are examples of traits that are born if there is awareness in every human being. These two keys, if they can be achieved, will create what is called smart people, because humans are the main actors in realizing smart cities, the earliest intelligence must start from ourselves.

2. Smart Economy. The higher the number of new innovations that are improved, the more new business opportunities and increased business/capital market competition.

3. Smart Mobility. The city infrastructure management developed in the future is an integrated management system to ensure alignment with the public interest.

4. Smart Living. An environment that can provide comfort, sustainability of resources, physical and non-physical beauty, visual or not, for the community and the public.

5. Smart Live. Humans have a measurable quality of life (cultured).

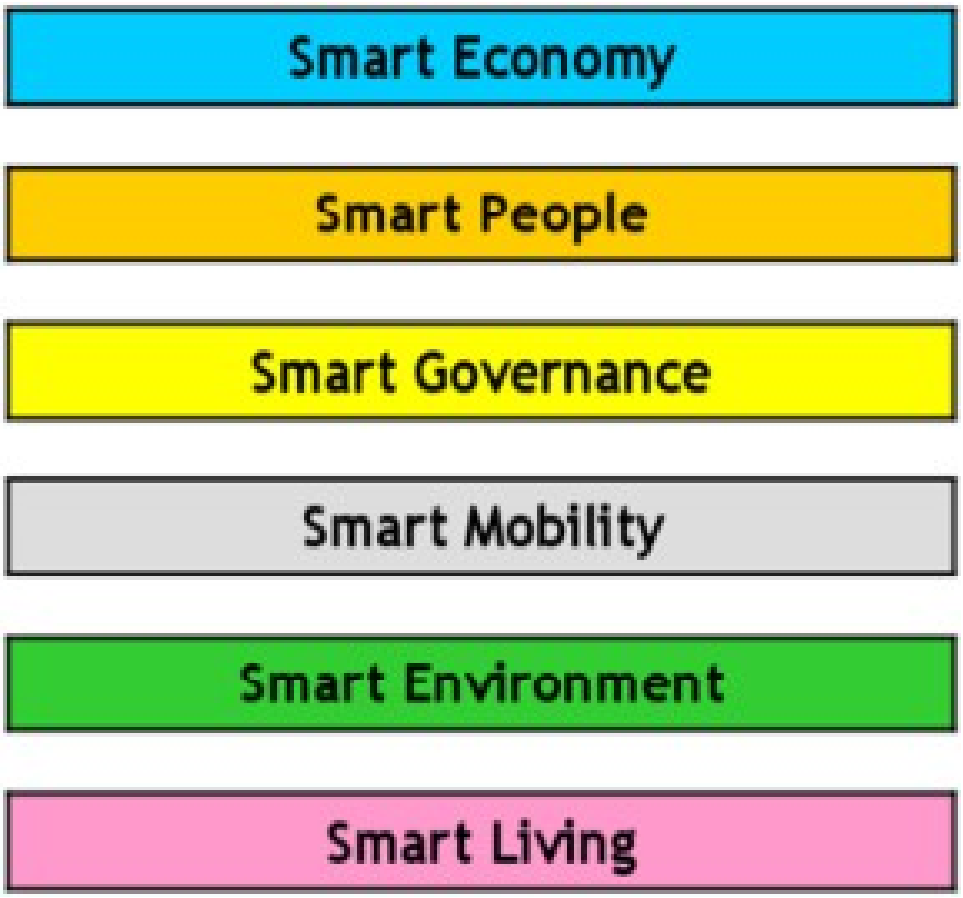

Figure 2: Characteristics of Realizing a Smart City. (Source: Giffinger, 2007).

1. In addition, states that there are six characteristics to realize a smart city. The six characteristics describe the city's ability to manage potential and solve prSmart Economy. Cities are expected to be places where sustainable economic activities take place. This can be realized through high productivity, followed by a spirit of innovation.

2. Smart Mobility. Cities are expected to be able to realize the provision of safe, comfortable, and innovative transportation infrastructure, systems, and services (land, water, air), which support the community mobility process. Intelligent Transportation

System (ITS) is one of the concepts of utilizing information technology to realize Smart Mobility in the transportation sector.

3. Smart Environment. Cities are expected to realize the use of information technology that is environmentally friendly, so as to create an environment that is safe, comfortable, sustainable, healthy, friendly for people and other living things, and has high sustainability. The concept and implementation of Green Computing and Smart Grid, aims to help realize the Smart Environment.

4. Smart People. Cities are expected not only to be able to realize smart systems (based on information technology), but also smart people. The people in the city are expected to be able to play an active role in realizing, maintaining, and developing Smart City. This type of society has a high spirit and spirit of creativity, which is followed by tolerance, friendliness, and an open mind.

5. Smart Living. Cities are expected to realize a better life process (based on information technology), which includes the quality of life of the community (Quality Of Life) and culture (Culture) that has been running in the community. To realize these characteristics, it can be done through the provision of infrastructure support (electricity, internet, roads), handling problems in the community (social, health, environment), and preserving culture, by utilizing information technology.

6. Smart Governance. Cities are expected to have good governance to realize smart cities, which in this case requires good cooperation between the government (as the holder of authority) and the community. Transparency in the running of the government, openness, public support for the government that runs, as well as active participation from the community and government, are the main keys to realizing smart governance.

Characteristics of smart cities According to there are several characteristics that characterize smart cities, namely:

1. Interconnection between urban parts, smart city combines communication network, internet, sensor and recognition to help communication between people, thus interconnection between urban parts will be realized.

2. The integration of urban information systems, internet-related matters and cloud computing will be used in every business field and integrate application systems, data and the internet into core elements that support urban operations and management.

3. Urban management and service cooperation, interconnection of urban components and support of urban management application systems and services with coordination of urban critic systems and participants to make the best urban run.

The latest ICT (Information and Communication Technology) applications, smart city modern city management theory as a guide that emphasizes the application of advanced information technology to urban management and services, so as to motivate governments, enterprises and people to make innovation, urban development movementoblems that occur or are experienced. The six characteristics include:

2. Methods

The method used in this article is qualitative research with a descriptive approach. According to [20], qualitative research aims to understand the phenomena experienced by research subjects, such as behavior, perception, motivation, action, and others, holistically and in a descriptive way in the form of words and language, in a natural context, and by utilizing various scientific methods. Data collection techniques were carried out through field observations, literature studies, and online journals. The collected data is then analyzed to discuss and draw conclusions as answers to existing problems. In this context, the researcher wants to understand the dynamics and challenges faced by Padang City in implementing the Smart City program, which is a very relevant issue in this modern era of rapid information flow and ever-evolving technology. Data collection techniques in this study involve several methods, namely field observation, library studies, and online journals. Field observation provides researchers with the opportunity to experience firsthand the situation and context being studied, while collecting data that is not limited to what is expressed by respondents. Meanwhile, literature studies and information collection from online journals allow researchers to obtain a valid theoretical basis and relevant data that supports the analysis. After the data is collected, the researcher will analyze the information, which includes identifying themes, patterns, and relationships between the variables involved. In this way, researchers can draw comprehensive conclusions and answer existing problems related to the impacts and challenges of implementing Smart City in Padang City, which will be beneficial for both policy developers and the wider community.

3. Results and Discussion

The policy implementation theory proposed by George Edward III provides an important analytical framework for understanding the success and challenges in policy implementation, including the Smart City concept. This theory highlights four key factors: communication, disposition, resources, and bureaucratic structure, which are interrelated and influence each other in the context of policy implementation [21]. In the context of Smart City, the success of information technology integration to improve public services is highly dependent on the effectiveness of communication between the government and the community. Research shows that transparent and equitable communication can increase public participation and reduce resistance to new technologies [22]. In addition, the disposition or attitude of the implementers in supporting the policy also determines the effectiveness of implementation. This shows that in the implementation of Smart City, not only technology is important, but also the human elements and organizational structures in it. In the application of the Smart City concept, the integration of factors from George Edward III's theory needs to be analyzed to see how complex the interactions and their impacts are on policy outcomes. For example, in the implementation of the e-government system in several regions, it was found that although the bureaucratic structure had been prepared, there was still a lack of trained human resources, which was a significant obstacle to implementation. In addition, analysis of the case study context shows that the lack of community involvement in planning also drives dissatisfaction with the results achieved [23]. On the other hand, if there is a strong understanding and support from all stakeholders, the implementation of Smart City policies can run more effectively, a manifestation of the realization of a synergistic and adaptive system in solving the challenges of urbanization in this digital era [24] [25]. Research shows that the implementation of digital services can improve interaction between the government and the community, enable better oversight of administrative processes and reduce corruption. The use of CCTV and command centers is also an important part of supporting security and emergency response in Padang City. These systems allow the government to monitor the security situation in real-time, respond quickly to community needs, and coordinate disaster management efforts [26]. This is very important considering that Padang City is at risk of natural disasters such as earthquakes and floods. Hopefully, with the development of this digital infrastructure, the government can create a safer and more comfortable environment for its citizens.

A digital-based disaster information system is needed to optimize natural disaster risk management.

This system involves collecting, processing and presenting data related to environmental conditions and potential risks. Research shows that an effective information system can provide accurate and timely information to decision makers when disaster events occur [27]. Thus, the development of this system can assist in mitigation planning and post-disaster infrastructure repair more effectively [28]. Digitizing archives and government administration documents is also an important step in advancing public services in Padang City. By converting physical documents into digital formats, the government not only saves space, but also improves accessibility and speed in data management [29]. Research shows that digitizing records contributes to reduced operational costs and increased transparency in public services [30]. However, sufficient investment and training for employees in using this digital system is required for the goal of digitization to be fully achieved. Furthermore, evaluation and monitoring of smart city policy implementation must be more integrated across sectors. This is important because partial implementation can lead to unsynchronized policies between agencies and reduce the overall effectiveness of smart city efforts [31]. In this context, collaboration between various government agencies, the private sector, and the community is key to conducting continuous evaluation and ensuring that the implemented policies are in line with the needs of the community and are able to anticipate various challenges in the future [32]. Therefore, a collaborative approach in policy evaluation needs to be improved to achieve the desired goals in the digital transformation of public services in Padang City. The implementation of the smart city policy in Padang City can be seen in the figure below:

Based on the figure above, it shows that Padang City has shown positive progress in implementing the Smart City policy during the period 2022 to 2024. The evaluation of Smart City implementation is carried out with an approach based on six main indicators, namely: baseline, output, outcome, impact, quick wins, and final value. The data in the graph shows that in each of these indicators there is an increase in value from year to year, reflecting the commitment of the Padang City Government in developing a smart city that is measurable and sustainable. In 2024, Padang City achieved one of the best rankings at the city level in Sumatra, namely second place. This achievement is inseparable from a significant increase in scores in various aspects of the evaluation, with the final achievement index reaching 3.16 from the average of all assessment dimensions. Here is the explanation:

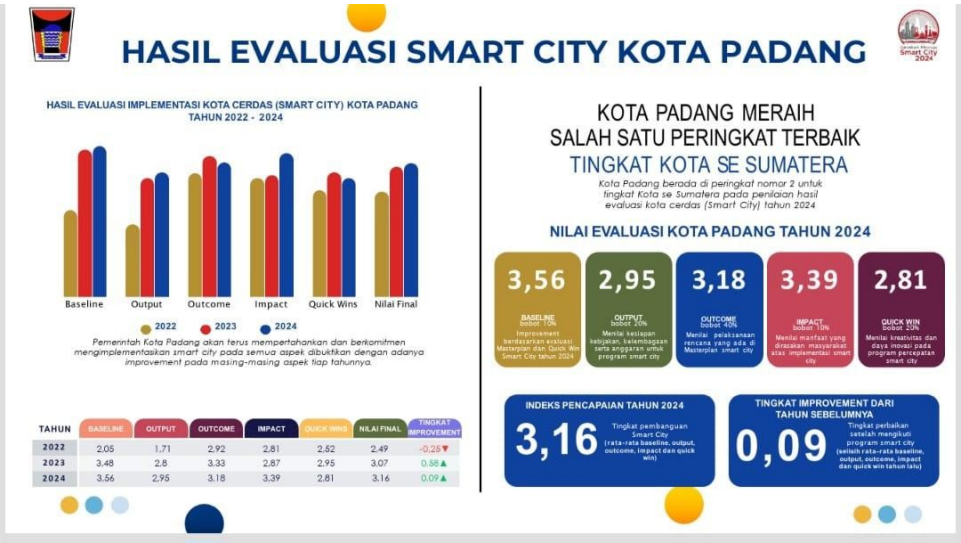

Figure 3: Smart City Evaluation Results for Padang City, Year 2024.

TABLE 2: Details of the evaluation scores for 2024.

	Year 2024 Evaluation Value Breakdown
Baseline (3.56)	Showing that Padang City's initial readiness is already above the national average, it is a strong foundation for Smart City development.
Output (2.95)	Describes the results of concrete activities of policy implementation that begin to show direction and structure.
Outcome (3.18)	Assess the success of program implementation that is aligned with planning documents such as the Smart City Masterplan.
Impact (3.39)	Describes the impact of program implementation that is starting to be felt by the community directly.
Quick Wins (2.81)	Represents priority and innovative programs that can see results in a short time.
Final Score (3.06)	It is an aggregate of all indicators that become a general reference in measuring the performance of Smart City policy implementation.

In conclusion, in 2024, Padang City experienced an improvement of 0.09 points compared to the previous year (2023), indicating progress although not as big as the spike between 2022 and 2023. Particularly in the output and outcome indicators, there is a steady increase which reflects the effectiveness of more mature policy implementation.

1. Factors Affecting the Success and Failure of Smart City-Based Public Service Digitalization Transformation in Padang City

Succes

2. Availability of Information and Communication Technology (ICT) Infrastructure

The success and failure of the digitalization transformation of smart city-based public services in Padang City is strongly influenced by the availability of Information and Communication Technology (ICT) infrastructure. The availability of a stable internet network,

adequate hardware, and efficient application systems are the main prerequisites for various public services to be run effectively. Research shows that without adequate ICT infrastructure, digitization efforts will be hampered and cannot achieve their goals. In addition, challenges such as the digital divide that exists in society also need to be addressed so that every level of society can benefit from digital services. Therefore, stakeholders need to invest in ICT infrastructure to ensure that technology can be utilized by all parties.

3. Local Government Commitment and Capacity

The commitment and capacity of local governments in implementing digital transformation is also a crucial factor. Visionary leadership and the readiness of digitally literate bureaucratic human resources (HR) greatly contribute to the successful implementation of digitalization. According to Mandler and Ingrams, the bureaucracy's ability to adapt to change and provide sufficient training for employees is important so that they can serve the public efficiently through digital platforms. Without strong leadership support, digital initiatives will be difficult to implement effectively, and there will be a high risk of failing to achieve the desired goals. Conversely, a government with a clear vision will be better able to foster the culture of innovation required in the digitization of public services.

4. Budget and Funding Availability

In terms of budget and funding, the success of digital transformation is also highly dependent on the availability of sustainable funding. Research shows that adequate funding is one of the main factors that support the development and maintenance of digital systems in public services. Without sufficient budget, efforts to improve ICT infrastructure and digital application development cannot be optimized. In addition, local governments need to develop innovative funding models so that digital projects can proceed without being disrupted by annual budget constraints -, 2024). This is to ensure that investments made in technology are not just temporary, but can continue for the long term, providing a positive impact on society.

5. Organizational Culture and Resistance to Change

One important challenge that is often faced is organizational culture and resistance to change. Within the bureaucracy, resistance to the implementation of new technologies often hinders the transformation process. Bureaucratic people who are accustomed to manual systems find it difficult to adapt to digital innovations. This is a challenge because digitalization requires a cultural change that supports innovation and openness

to new technologies. Therefore, it is important for the government to conduct effective change management, including involving employees in the process of developing and implementing new technologies. Through adequate training and socialization, this resistance can be minimized and encourage a culture that is more adaptive to technological change (49).

6. Community Participation and Digital Literacy

The participation and digital literacy of the public, as service users, is a determining factor for the success of digitalization transformation. A tech-savvy society is better able to access public services provided digitally . However, there are still challenges in terms of digital literacy among the wider community, where not all citizens have the same understanding of technology. The level of awareness and understanding of the benefits and how to use digital services will determine their level of participatio. For this reason, programs to improve digital literacy are very important, which involve counseling and training at the community level to support people in making optimal use of digital services

Failure

1. The failure in the implementation of the digitalization transformation of smart city-based public services in Padang City can be viewed from several interrelated aspects. One factor that is often raised is the lack of adequate infrastructure. Many cities in Indonesia, including Padang, still face problems in developing and maintaining the information and communication technology (ICT) infrastructure needed to support this digitization process. Without solid infrastructure, digital applications designed to improve public services cannot function properly, causing access gaps between different groups of people, especially those living in underserved areas. In this context, outdated hardware and unstable internet networks can be significant barriers to effective digital transformation.

2. Local government commitment and capacity are determinant factors that are often used as reasons for failure. Without strong leadership and a clear vision for implementing smart cities, many initiatives have the potential to stall. Lack of training and knowledge of new technologies among government employees is also a barrier to effective technology implementation. Research shows that many employees are not ready to adapt to new digital systems and prefer traditional ways of delivering services to the publi. This problem has the potential to slow down progress and make public services fall short of the expectations of people who want efficiency and ease of access.

3. The availability of budget and funding also directly impacts the success of digital transformation. Without sufficient funding allocation, system development and application maintenance required for digitalization cannot be implemented on an ongoing basis. This leads to temporary initiatives and dissatisfaction among the public if the expected digital services cannot be fulfilled. In many cases, insufficient funding encourages governments to associate initiatives with short-term projects rather than more strategic long-term plans, thus creating a failure in achieving the grand goal of smart city transformation .

4. Organizational culture that does not support innovation is also a major cause of failure. Resistance to change within the bureaucracy often results in the failure of digitization implementatio. Government employees' discomfort in accepting new systems as well as the complicated process of adapting to new technologies can result in implementation deadlocks. Inadequate or no training for employees will slow down the implementation of digital systems, causing inertia in public services. Without the support of a positive culture towards change, any initiative for digital transformation will risk failure.

5. The level of digital literacy among the public is equally important. A lack of understanding of how to use digital applications can result in a lack of participation in smart city programs designed to improve public services. Without government efforts to educate the public on the benefits of and how to use digital services, such initiatives can be futile. Through more effective outreach and digital literacy programs, the public is expected to participate more and understand how to utilize technology to get better public services.

3. Challenges faced by the Padang City Government in the transformation of Smart City policies for the digitization of public services

1. Infrastructure and Network Limitations

The smart city policy transformation in Padang City is faced with a number of complex challenges. One of the main challenges is the limited telecommunications infrastructure and network, which is still a significant problem. There are still areas in Padang City that are not covered by fast and stable internet networks, which results in inequitable access to digital services. This creates a gap in services between areas that have internet access and those that do not, exacerbating the digital isolation of some disadvantaged groups. Without adequate infrastructure, smart city initiatives will be difficult to implement properly and effectively.

2. Inter-Government Agency Coordination

In addition, coordination among government agencies is another important challenge. Program fragmentation among local government organizations often results in overlapping policies and resource use, leading to inefficiencies in project implementation. The lack of clarity in the division of tasks and responsibilities between agencies causes the public to doubt the government's ability to develop a comprehensive plan for smart city implementation, which in turn hinders the collaborative efforts needed to improve the quality of public services.

3. Lack of Human Resources with Competencies

Competent human resources (HR) in the digital field is also one of the critical challenges. Many government officials in Padang City currently do not have the necessary technical skills to operate digital systems optimally. The absence of adequate training leads to a lack of expertise in the use of digital technologies and applications required to deliver smart city projects. This can result in delays in implementation and make the policies implemented less effective in achieving their goals.

4. Lack of Public Trust in Digital Services

A further challenge is the lack of public trust in digital services. Concerns regarding data security and the effectiveness of digital services are still significant issues. People tend to be skeptical about the privacy and protection of their personal information, which is often a barrier to the adoption of technology-based services. This lack of trust needs to be addressed through increased transparency and clear communication from the government regarding the measures taken to protect citizens' data and ensure the quality of services provided.

5. Regulatory and Institutional Challenges

Finally, regulatory and institutional challenges are evident especially in terms of the limited technical regulations concerning smart city implementation. Currently, there is no comprehensive legal umbrella governing smart city policies in Pdang City, leaving room for uncertainty in implementation [33]. A clear and detailed regulatory framework is needed to support all aspects of the desired digital transformation, so that local governments can accelerate policy implementation with a strong legal foundation. By resolving these challenges, Padang City can be better prepared for the evolving digital era and improve the overall quality of life of the community.

The role of collaboration between local government, private sector, and community in supporting the successful transformation of digitization of public services based on Smart City in Padang City?

Collaboration between the local government, the private sector and the community is key in driving the transformation of smart city policies in Padang City. One strategic role that can be developed is a partnership with the private sector to provide efficient application platforms and data storage systems, such as cloud systems. This partnership not only accelerates the process of implementing digital solutions, but also ensures adequate technical support [34]. By utilizing resources and expertise from the private sector, local governments can develop digital infrastructure that can be accessed by all levels of society, creating efficiency in data management and public services. The role of local digital communities and start-ups is also crucial in supporting app-based public service innovation. The technology community in Padang City can serve as an incubator for new ideas and creative solutions that meet the needs of the community. With support from the government, these communities can not only encourage the development of information technology, but also contribute to the development of applications that can increase community participation in decision- making and public services.

Community empowerment through digital literacy programs is another important element in smart city policy transformation. The government together with non-governmental organizations (NGOs) and local communities can develop educational programs to improve people's knowledge and skills in utilizing technology [35]. This program will help people to become technologically literate, so they can be more confident in using public service applications. In addition, improving digital literacy will also create a community that more actively participates in the development process and policy formulation related to smart cities. Collaboration in policy planning and evaluation should actively involve communities and the private sector. Smart city forums and roadmap development should include input from a wide range of stakeholders, including local citizens [36]. By involving the community in the decision-making process, the government can ensure that the policies implemented are in line with the needs and expectations of the community. It also has the potential to increase people's sense of ownership of the smart city program, making them more committed to supporting and being involved in its implementation. Finally, public ideation and participation in service innovation needs to be implemented as a method to explore new ideas from the community. Through this method, people can be directly involved in the development of digital public services, so that the services provided become more suitable to their

needs [37]. Methods such as polls, surveys, or citizen complaint applications can be used to collect citizen feedback and aspirations directly [38]. In this way, the government can create more responsive, transparent and quality services, and encourage citizens to actively participate in city development

4. Conclusion

1. Digital transformation of public services in Padang City through the Smart City policy is a strategic effort to improve efficiency, transparency and accessibility of services to the community. The success of this transformation is strongly influenced by several main factors, including the readiness of technological infrastructure, local government commitment, budget adequacy, human resource capacity, and the level of community participation and digital literacy. This transformation still faces various complex challenges, such as limited network infrastructure, weak inter-agency coordination, low digital capacity of the apparatus, and public skepticism towards digital services. In addition, regulatory and institutional constraints also hinder the acceleration of Smart City implementation as a whole.

2. Collaboration between local governments, the private sector, and the community has proven to be an important key in supporting the success of digital transformation. This collaboration is reflected in technology partnerships, the support of local digital communities, and the active involvement of the public in policy planning, implementation and evaluation processes. Thus, the sustainability and effectiveness of digital transformation of public services in Padang City is highly dependent on multi-stakeholder synergy, strengthening digital governance, and building a Smart City ecosystem that is inclusive and adaptive to technological change.

3. The importance of concrete recommendations to support the success of the Smart City program in Padang City. In line with the results of the study, it is recommended to develop a collaboration model between the government, community, and private sector that can encourage active participation in policy planning and implementation. Through this collaboration model, each party can contribute to developing more effective and sustainable solutions, especially in addressing population density and infrastructure issues. In addition, it is important to develop a clear and measurable digitalization roadmap, which includes short-term priority steps for policy reform. This roadmap should include the development of technology-based infrastructure, increasing public access

to digital services, and training for human resources to make maximum use of this technology.

4. Another recommendation is to set priorities for policy reform that focus on improving people's quality of life, access to education, and efficient public services. These steps are essential in ensuring that Smart City implementation does not only focus on the technological aspect, but also on community welfare and participation. In addition, paying attention to and addressing existing challenges through data-based interventions and community engagement can increase government accountability and responsiveness in policy implementation.

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