Smart City as a Form of Bureaucratic Transformation in Banyumas Regency

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Abstract
This study discusses the concept of smart city as a form of bureaucratic transformation in Banyumas Regency. In the digital era, the government is required to optimize public services through technological innovation to improve the efficiency and quality of services to the community. Banyumas Regency, as one of the regions that is developing the concept of smart city, is trying to carry out bureaucratic reform by adopting information and communication technology (ICT) to improve the efficiency, transparency, and accountability of its government services. This study uses a qualitative method with a case study approach, where data is obtained through in-depth interviews, observations, and document analysis related to the implementation of smart city. The results of the study show that the implementation of smart city in Banyumas covers several sectors, including public services, infrastructure, and data management. These findings also identify challenges in terms of infrastructure readiness, human resource competency, and the need for community participation. The implementation of smart city in Banyumas Regency is expected to encourage the realization of a more responsive, transparent, and accountable bureaucracy, so that it can meet the needs of the community more effectively.

Keywords: bureaucratic transformation, digital governance, smart city.

1. Introduction

The rapid development of digital technology has encouraged various local governments in Indonesia to innovate in governance. The concept of a good society has been widely studied by academics, including experts in the field of public administration studies [1]. Traditional theories of public administration generally only focus on the efficiency of centralized government and bureaucracy [2,3,4]. Studies on efforts that can be made by the government in order to achieve the goals of providing public services have shifted from initially studying bureaucratic and government issues to becoming broader into "governance" [5]. Governance is also interpreted as a process of uniting many actors of various types towards a collective goal [6]. Meanwhile, the concept of governance has now developed into "smart governance" which seeks to achieve efficient governance and improve urban management through technological innovation [7]. One of the innovative approaches that is widely adopted is the application of the smart city concept. This concept aims to increase the efficiency, effectiveness and transparency of public services and provide solutions to various challenges of conventional bureaucracy.

The use of cutting-edge technology, innovation, Internet of Things (IoT), and artificial intelligence (AI) are increasingly visible in the implementation of smart governance globally [8]. Smart governance focuses on citizen-centered digital platforms, and innovative solutions prioritize resource distribution and social welfare, increase transparency, and strengthen public engagement and services [9,10,11,12]. Toh [13] and Bibri [14] emphasize that smart cities use information and communication technologies and other innovative methods to optimize urban operations, improve quality of life, and achieve higher efficiency. Through the integration of these technologies, the goal of smart cities is to create more sustainable, efficient, and comfortable urban spaces for their citizens. The concept of smart cities includes six main

dimensions: "smart living, smart mobility, smart environment, smart economy, smart governance, and smart people" [15].

Digitalization brings changes in meeting the need for fast, effective, and transparent public services that are increasing along with public expectations for a more responsive government. Bureaucratic transformation is an urgent need for government in this digital era, where technological innovation has become the main catalyst for changes in governance. Banyumas Regency, as one of the rapidly developing regions, faces various challenges in increasing the efficiency of public services, transparency, and government accountability. In this context, the concept of a smart city is one of the strategic solutions adopted to transform the conventional bureaucratic system into a more modern, responsive bureaucracy that is oriented towards optimal public services. Currently, the implementation of the smart city concept has experienced quite significant development [16]. However, the facts in the field show that until now Banyumas Regency still faces challenges in efforts to provide optimal and effective public services. This is especially related to the bureaucratic process which is often slow and inefficient. This then became the background for Banyumas Regency's initiative to adopt the smart city concept as an effort to transform public services through digital technology innovation.

Public services in Banyumas have often faced various obstacles, such as long bureaucratic processes, limited access to information, and lack of community involvement in policy making. On the other hand, the rapid development of digital technology has encouraged many regions to switch to the concept of a smart city that integrates information technology in governance, public services, and community empowerment. Unfortunately, the reality shows that digital transformation at the local government level is uneven [17,18]. Smart cities have several main focuses, including energy, environment, industry, life, and services [19].

Based on the results of the preliminary analysis conducted by the researcher, it is known that some people in Banyumas Regency consider that the bureaucratic process and access to information in Banyumas still need to be improved. This is based on public complaints, such as complicated bureaucracy, long public service times, and accessibility of information which until now has been considered an obstacle in efforts to provide optimal services to the community. Bureaucratic transformation through the smart city concept is expected to be able to answer these problems. By implementing smart governance, developing e-government, and other technological innovations, the local government is trying to improve operational efficiency, strengthen accountability, and encourage public participation in the policy-making process. The implementation of a smart city in Banyumas Regency aims to utilize digital technology, data, and smart infrastructure to improve government operational efficiency, accelerate the service process, and encourage public participation in regional development. This concept is also in line with the vision of the local government in creating more effective and efficient governance, especially in dealing with bureaucratic problems such as complex procedures, slow coordination between agencies, and limited access to information for the public. Including optimizing traditional transportation resources [20]. Where densely populated cities manage traffic and use resources reliably, the development of Intelligent Transportation Systems (ITS) is essential [21]. Smart city services such as transportation and waste management are considered with great importance in conjunction with other issues such as security and crime prevention [22].

The Banyumas Regency Government has initiated an initiative to realize a smart city in order to respond to the community's need for more effective and efficient public services. Some of the efforts made include: (1) Development of Public Service Applications; (2) Implementation of E-Government; (3) Increasing Community Participation; (4) Utilization of Data for Decision Making. Although the implementation of a smart city offers many benefits, Banyumas Regency also faces a number of challenges, such as: Limited Technology Infrastructure, Lack of Competent Human Resources, Data Security and Privacy and Resistance to Change.

Through smart city, the Banyumas Regency government is trying to digitize various public service sectors, ranging from online licensing systems, technology-based health services, to environmental and transportation management. This effort is not only aimed at improving the quality of services but also as a step to create a more open and participatory government. The implementation of smart city is expected to encourage bureaucratic transformation that is able to adapt to the needs of an increasingly dynamic and technology-savvy society. Therefore, this study aims to analyze how the implementation of smart city as a form of bureaucratic transformation in Banyumas Regency. This study will also explore the strategies, challenges, and opportunities in the process, as well as identify the impacts caused. Thus, the results of this study are expected to provide strategic input for the implementation of smart city in Banyumas Regency in particular and in other regions in general.

2. Method

This research was conducted in Banyumas Regency using a qualitative descriptive approach with a case study method. Qualitative case studies aim to answer the questions 'how' and 'why' [23], which are generally used in descriptive or explanatory research [24] and allow researchers to gain a deeper and broader understanding of the phenomenon being studied [25]. Data collection techniques were carried out through interviews with government officials, the community, and managers of smart city initiatives in Banyumas Regency. Direct observation of the implementation of technology and public service innovation, and document studies related to regional policies and regulations that support the smart city concept. The data analysis method used in this study is the interactive analysis model from [26].

3. Results and Discussion

Along with the development of science and technology that is currently developing, public organizations have carried out a digital transformation process as a result of external pressures coming from technological advances, demands made by private sector organizations on public organizations to adapt, and demands from the public who expect public organizations to adapt to technological changes [27]. In general, digital transformation in the public sector is understood as the process of continuous use of technology by public organizations to improve service quality, increase efficiency and accessibility for the public which in the process enables collaboration and involves the public and stakeholders [27,28,29,30,31]. The term smart city is part of the transformation of local government in using innovative technology as a means of providing more efficient public services, better urban governance, increasing competitiveness, and sustainable growth [32,33,34,35,36].

Smart city implementation has become a global trend adopted by various local governments to face modern challenges in providing effective, efficient, and transparent public services. “Smart city” is the latest conceptualization of how technology can improve governance [37]. Smart city initiatives aim to streamline internal operations, meet strategic priorities, and improve planning and coordination [38]. Previous studies have shown a lack of consensus on the concept of smart cities and the best efforts that can be made to achieve urban intelligence [39]. Smart cities are defined in various ways, due to the many entities involved and the many functions performed by smart cities [40]. In the early stages, the evolution of the smart city idea was driven by a technocratic and efficiency-based perspective that recognized technology as a means to optimize the process of urban transformation [41,42,43]. Then, there was a shift in the meaning of the idea of a smart city which includes human and social capital, with humans as the main actors [44]. Along with development and progress, the view of smart cities has become increasingly multidimensional [45], which requires more holistic goals [46]. Today, smart city goals openly discuss social, environmental, and economic challenges that are as important as technological challenges [47]. In fact, by embracing and utilizing ICT, smart cities can catalyze significant change by encouraging the relationship between innovation and sustainability [48].

In Indonesia, local governments have begun to adopt the concept of smart cities to improve technology-based governance. Moreover, smart cities are part of the main drivers of sustainable development [49], which contribute in various ways with various improvement efforts carried out as an effort to achieve the SDGs [50,51]. The potential of smart cities to address the SDGs has recently been increasingly recognized. Several attempts have been made to investigate the relationship between these two concepts, to the point of introducing the concept of sustainable smart cities [52,53].

Banyumas Regency is one of the regions that is trying to implement the smart city concept with various information and communication technology (ICT) development initiatives. Along with the increasing need for faster, more transparent, and more effective public services, Banyumas Regency continues to encourage digital transformation in various government sectors, considering that technology is one of the main means to support change [27,31]. Based on the data, this region has faced a number of challenges related to data management, manual public services, and limited access to information by the public. Therefore, digital transformation through the smart city concept is seen as an important solution to overcome these challenges. One of the main focuses of smart city implementation in Banyumas includes the development of integrated service applications, open data, and smart governance. Some of the main factors that drive the implementation of the smart city concept in Banyumas are:

1. Population Growth and Urbanization
   Rapid urbanization demands urban governance that is more organized and responsive to community needs.
2. Demand for Effective and Transparent Public Services
   The public expects easier and faster access to public services, thus demanding an increase in the efficiency of government services.
3. Increasing Community Participation in Governance
   The smart city concept allows the government to directly involve the public in the decision-making process through the use of digital technology.

The smart city concept has become a global strategy in responding to various urban challenges. Banyumas Regency is trying to follow this trend by implementing the six main elements in the smart city concept, namely Smart Governance, Smart Mobility, Smart Environment, Smart Living, Smart Economy, and Smart People. This article will discuss the implementation of the smart city concept in Banyumas Regency using these smart city aspects. The following are the results of the analysis and discussion of each aspect:

Bureaucratic Transformation Through Digitalization of Public Services

One of the main characteristics of the implementation of smart cities in Banyumas Regency is a paradigm shift in the provision of public services. Before the smart city initiative, public services in Banyumas Regency often faced challenges such as inefficiency, complicated bureaucracy, and limited access to information for the public. To overcome this, bureaucratic transformation was carried out through digitalization of services, which not only simplified the process but also increased transparency. Various previous studies that examined digital transformation in local governments showed that the focus of local governments tends to be on digitalization, so that the efforts made were to change the system that was previously offline [27], and optimize the use of social media [54,55,56]. This is relevant to the results of previous studies which revealed that smart cities are identical to the use of information technology to make better decisions to improve the quality of life of their people [57].

The development of online applications and platforms such as e-government, licensing services, population administration, and technology-based complaint systems has increased accessibility for the public. With this digitalization, the public can access government services more quickly, easily, and efficiently, without having to spend time in government offices. This shows that there is an adjustment in the structure and culture of the bureaucracy that is more adaptive to technological developments. This transformation is also driven by the implementation of an open data policy, which allows the public to

access public data more transparently. The implementation of this policy is an important factor in building public trust in the government, as well as encouraging accountability for bureaucratic performance in Banyumas. This is in line with the results of previous studies which show that the main focus in governance is building an information system that can be used in the future [36].

Increasing Efficiency and Effectiveness in Mobility and Infrastructure

In the Smart Mobility element, Banyumas Regency applies a technology-based approach to monitor and manage the transportation system. Several initiatives that have been taken include the development of traffic information applications and the arrangement of technology-based public transportation. This allows the government to conduct real-time monitoring of traffic conditions, better traffic management, and respond to congestion problems more quickly. The development of Internet of Things (IoT) infrastructure is also an important aspect of this transformation. The installation of sensors and CCTV at various strategic points in urban areas helps monitor security and mobility, which ultimately increases the effectiveness of supervision of public security and safety.

Sustainable Environmental Management with Smart Environment

The smart city initiative in Banyumas also focuses on improving environmental quality through the application of technology in resource management. The implementation of Smart Environment includes waste management efforts based on sensor technology, which allows for real-time identification and transportation of waste. In addition, monitoring of water and air quality using IoT technology has also begun to be implemented in various areas of Banyumas. The Banyumas Regency Government is aware of the importance of maintaining a balance between modernization and environmental sustainability. With this technology, the government can take more appropriate actions in managing natural resources and reducing negative impacts on the environment.

Improving the Quality of Life of the Community through Smart Living

The Smart Living element in Banyumas is focused on improving the quality of life of the community through the provision of digital-based health and education services. The implementation of health service applications allows the community to conduct medical consultations and registrations online, which ultimately increases the accessibility and efficiency of health services. In addition, the integration of technology in the education sector supports a more innovative and participatory learning process. The Banyumas Regency Government has also increased public security surveillance by installing CCTV in public areas, which aims to create a safer environment for the community. Improving public services through Smart Living shows the government's commitment to creating a safer, healthier, and more prosperous city.

Economic Development and Entrepreneurship with Smart Economy

The implementation of the Smart Economy concept in Banyumas emphasizes efforts to develop an economy based on technology, innovation, and entrepreneurship. Digitalization of MSMEs is one of the strategic steps taken to increase the competitiveness of local MSMEs in the global market. The Banyumas Regency Government also facilitates MSMEs with an online platform to promote local products more widely. The initiative to develop an innovation and entrepreneurship center in Banyumas shows the government's efforts to encourage the creation of an innovation ecosystem in this area. The Smart Economy approach that focuses on the development of technology and innovation is expected to be able to improve the local economy and open up new job opportunities for the community.

Community Empowerment in Smart People Elements

The Banyumas Regency Government realizes that humans are at the heart of every urban transformation. Therefore, the Smart People element focuses on increasing human resource capacity through technology-based education and digital skills training. This is in line with the statement of [27], that "processes, people, policies, and especially leadership need to be fundamentally changed to achieve digital transformation in the public sector". Digital-based training and education programs organized by the government aim to improve people's digital literacy, as well as develop skills that are relevant to the needs of the current job market. In addition, community participation in policy-making is also a priority in

this transformation. Through online forums and public service applications, the public can provide input, report problems, and participate in the local government's decision-making process.

From the results of the analysis and discussion, it can be concluded that the implementation of the smart city concept in Banyumas Regency is a strategic effort in transforming the bureaucracy to be more modern, efficient, and responsive to the needs of the community. Initiatives carried out by the government, such as digitalization of public services, development of technological infrastructure, and community empowerment, are concrete steps in creating a more open and accountable government. However, the implementation of this smart city concept still faces several challenges, such as limited technological infrastructure in several areas, the digital divide, and resistance to traditional bureaucratic culture. Therefore, strong cooperation is needed between the government, private sector, and the community to realize a more optimal bureaucratic transformation in Banyumas Regency. A coordination process is needed for many stakeholders to share their data on a system that can be operated together, facilitating the increase in scale and long-term sustainability of all aspects of smart city implementation [58,59,60]. With the support of all parties, Banyumas Regency has great potential to become an example of a region that has successfully implemented the smart city concept as a solution to create a better, more responsive, and more welfare-oriented government. This supports the findings that state that a smart city is a definition that represents a city order with a strong commitment not only to innovation in technology but also in management and public policy [57], with various driving factors for the success of a smart city, including resources [61], a supportive political environment [62,63], and effective communication [64].

4. Conclusion

The implementation of the smart city concept in Banyumas Regency is a strategic step to realize a bureaucratic transformation that is more modern, efficient, and responsive to the needs of the community. Through various main elements such as Smart Governance, Smart Mobility, Smart Environment, Smart Living, Smart Economy, and Smart People, the Banyumas Regency government has integrated information and communication technology in various aspects of public services. This step not only increases the effectiveness and efficiency of the bureaucracy, but also encourages transparency, community participation, and better resource management. With the digitalization of public services, the development of technology-based infrastructure, and open data policies, Banyumas has succeeded in creating a more transparent and accountable government environment. This initiative also increases public accessibility to public services, improves the quality of life, and supports local economic development. However, the transformation towards a smart city in Banyumas is not without challenges, such as the digital divide, limited infrastructure, and resistance to traditional bureaucratic culture. Therefore, collaboration between the government, private sector, and community is needed to ensure the sustainability of this transformation. Overall, the smart city concept has provided a great opportunity for Banyumas Regency to optimize governance and improve the quality of public services. With a strong commitment and support from all parties, Banyumas can become an example of a region that has succeeded in realizing a smart city as a form of effective bureaucratic transformation that is oriented towards community welfare.

5. Conflict of Interest

There is no conflict of interest related to the writing or publication of this article.

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