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SMART CITY IN SUSTAINABLE POLICY DEVELOPMENT AS A COMPETITIVENESS STRATEGY: LITERATURE REVIEW

Abstract
Smart cities in sustainable development policies are a phenomenon of rapid urbanization development and changing the urban development paradigm. This concept utilizes high technology and data analysis to improve the population's quality of life, increase the efficiency of infrastructure and services, and stimulate sustainable economic growth. Smart cities aim to create a connected and intelligent urban environment by integrating various sectors. This research uses a structured literature review method by utilizing sources such as Scopus and Google Scholar and formulates research questions related to smart cities. The questions include defining an intelligent city, benefits, implementation challenges, applications, and quantitative analysis. In addition, this research aims to analyze the implementation of smart city solutions and propose strategies to overcome emerging challenges. Data-driven solutions in smart cities can change the urban landscape by providing personalized services and addressing the need for collaboration between the private, public, and government sectors. This research indicates that using technology and innovation in policy development to create sustainable economic growth in cities involves efforts to increase the city's economy's efficiency, productivity, and competitiveness. The complexity of urban development, the application of advanced technologies, and data-driven solutions in intelligent cities promise significant progress in sustainable urban development.
Keywords: Smart City, Digitalization, Economy, Policy, Sustainability

INTRODUCTION

Smart Cities and Smart Governance are vital in developing practical and sustainable policies. Smart Governance in Policy Development includes using information and communication technology (ICT) to improve public governance and decision-making processes (Sepasgozar et al. 2019; Minoja & Romano 2021). In policy development, innovative governance means utilizing technology to collect data, analyze problems, expand public participation, and integrate various stakeholders in the policy-making process. It allows governments to make better decisions based on empirical evidence and involve citizens directly in developing policies that affect their lives.

Smart City in Policy Development means the smart city concept involves using technology to improve city efficiency, performance, and quality of life. In policy development, a smart city means applying technological solutions in various aspects of the city, including transportation, energy, environment, public services, and infrastructure (Wataya & Shaw 2019; Anthony Jnr et al. 2020). Innovative policy development in the context of an intelligent city involves using data and technology to plan and implement policies that support sustainable, inclusive, and innovative urban development (Zandiatashbar, et.al 2019). Integrating smart governance and smart cities allows governments to develop and implement policies responsive to urban challenges.

Innovative governance provides a framework for effective and transparent decision-making, while smart cities provide the tools and technologies necessary to enable urban innovation and transformation (Rialti et al. 2019; Di Vaio et al. 2021). By integrating these two concepts, governments can build more adaptive, connected, sustainable cities. Smart governance and smart cities also contribute to strengthening policy development capacity. By adopting a

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smart governance approach, governments can improve their administrative capabilities to design, implement, and evaluate policies. On the other hand, smart city development requires cross-sector collaboration, knowledge exchange, and skills training to implement technological solutions (Sepasgozar et al. 2019; Elmustapha & Hoppe 2020; Reis & Melão 2023). By increasing capacity in these two areas, the government can more effectively address urban development challenges. In order to achieve effective and sustainable policy development, integration between smart governance and smart cities is key. Through the application of smart governance principles and smart city technology, the government can create a policy environment that is responsive, innovative and oriented to community needs.

Smart city policy development as an economic growth strategy involves using technology and innovation to increase the city's economy's efficiency, productivity, and competitiveness. The following are some of how smart cities are used in the context of this research, namely digital and communications infrastructure, the development of digital solid infrastructure, such as fast and extensive internet networks, as well as accessibility to information technology, enabling the growth of the technological and creative sectors (Zandiatashbar et al. 2019; Anthony Jnr et al. 2020) It opens up new opportunities for creative industries, startups and technological innovation to develop.

Innovation in public services, using technology to improve public services, such as smart connected public transport, efficient waste management systems, or digital health services, can improve citizens' quality of life and create a more attractive environment for investors and workers. Smart cities can become startup business centers by attracting investment in technology and innovation and creating a conducive environment for technology companies and startups. It could include building innovation centers, business incubators and other supporting facilities.

Sustainable economic growth can be realized through resource efficiency and reducing carbon footprints; smart cities can support sustainable economic growth (Ilgen, et al., 2019; Ardito et al. 2019). Initiatives such as using renewable energy, green transportation, and smart buildings can generate new economic opportunities in these sectors. Thus, increasing Global Competitiveness by adopting the latest technology and practices, smart cities can increase the economic competitiveness of cities on a global scale (Zandiatashbar et al. 2019; Ardito et al. 2019; Lestari et al. 2020). It creates opportunities to attract foreign investment, grow exports of technology products and services, and create high-quality jobs in innovative sectors. Developing policies that consider these aspects can encourage sustainable, inclusive and innovative economic growth in cities that are transforming into smart cities.

First, this research aims to understand the concept and characteristics of a Smart City, including the technology used, infrastructure integration, and its impact on the lives of citizens and the environment (Campbell-Johnston et al., 2019). The second objective is to identify challenges and opportunities in realizing the smart city concept in sustainable policy development. Achieving this research's objectives further contributes to a better understanding of how technology and innovation can be used to improve life in cities holistically by developing sustainable policies as an economic growth strategy.

METHOD

This research uses a literature review method with the initial step of formulating research questions. These questions served as a guide to establishing the scope of the study and guided the review process. This systematic review aims to investigate the current status quo of smart cities. explores the definition of smart cities, development and implementation of smart cities, types of applications being implemented, evaluation of the advantages and disadvantages of smart city initiatives, implementation of smart city solutions in an international context, root causes of challenges in smart city implementation, and strategies and solutions used by cities - city to overcome these challenges. Here are some of the research questions we used:

1. How is the definition of a smart city determined?
2. What types of smart city applications are being implemented today?
3. What are the advantages and disadvantages of smart city initiatives?
4. How are smart city solutions implemented in an international context?
5. What are the root causes that underlie the challenges in implementing smart cities?

6. What strategies and solutions have cities implemented to overcome challenges in implementing smart city initiatives?

After defining the research question, the criteria for assessing which research articles to include or exclude are set next. The search process involved searching the core collection of articles on Scopus and Google Scholar using the keywords namely Smart city AND governance AND policy AND development AND capacity and found 95 articles; Smart City AND Business AND Policy found 450 articles. Using multiple keywords is necessary to reduce the number of articles found, as one keyword may produce too many results to examine in depth.

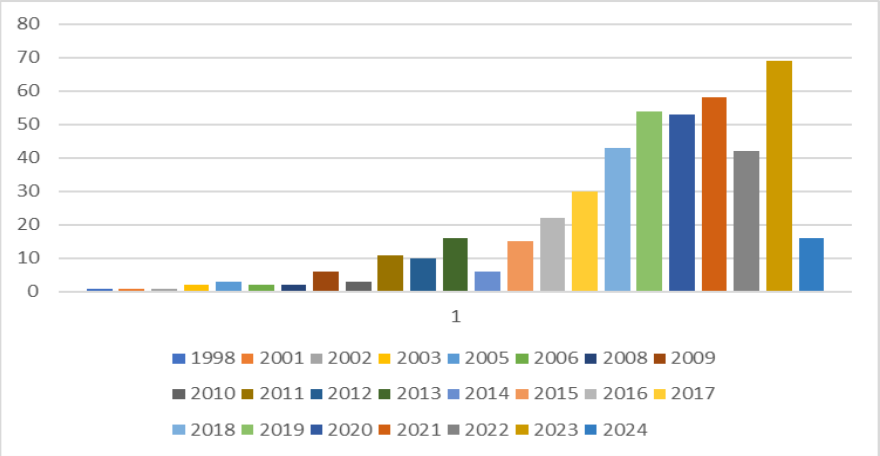

Figure 1. Number of Papers in the Literature Review by Year.

Discussion

Research trends on smart cities in the context of smart governance Sustainable policy development continues to develop along with the complexity and challenges cities worldwide face. A thorough analysis of the smart city concept through a structured literature review highlights many different definitions, with various conceptual interpretations often replacing the word "smart" with alternative descriptions such as "advanced" or "digital" (Anthony Jnr et al. 2020; Nguyen, Vu, and Jung 2020). It causes the term "smart city" to remain vague and ambiguous, and its use is inconsistent in various contexts. Although many smart city initiatives emphasize themes such as sustainability, efficiency, and improved quality of life, the lack of a universal definition is due to the diversity of ideas and initiatives that fall within the scope of the term. These ideas and initiatives vary depending on different geographical and socio-economic contexts. Through research on smart cities in the context of smart governance, there is a better understanding of how information technology can be used to improve urban governance, strengthen citizen participation, and create more inclusive, sustainable, and competitive cities (Othman, et al., 2017).

Smart cities have become a topic of increasing interest in recent years, with many initiatives and projects underway worldwide. However, despite existing interest and investment, a universally agreed definition of a smart city has yet to be reached. It can challenge policymakers, urban planners, and stakeholders seeking to develop and implement smart city initiatives. Literature review revealed numerous definitions of smart cities, with varying conceptual interpretations that often replace the term "smart" with alternative descriptions such as "technological" or "digital." As a result, the term "smart city" remains vague and ambiguous, and its use is inconsistent in various contexts. Although many smart city initiatives emphasize sustainability, efficiency, and improving the quality of life, the lack of a universal definition is due to the wide variety of ideas and initiatives encompassed by the term, which vary in different geographical and socio-economic contexts.

Keywords analysis of the results of this research shows that the main emphasis in the definition of a smart city is on improving the quality of life of its residents, with technology being the primary tool for implementing smart city projects. However, it is essential to note that although these themes are expected, there is no uniform definition of a smart city. All definitions used in the keyword analysis and frequency plot are in the table provided.

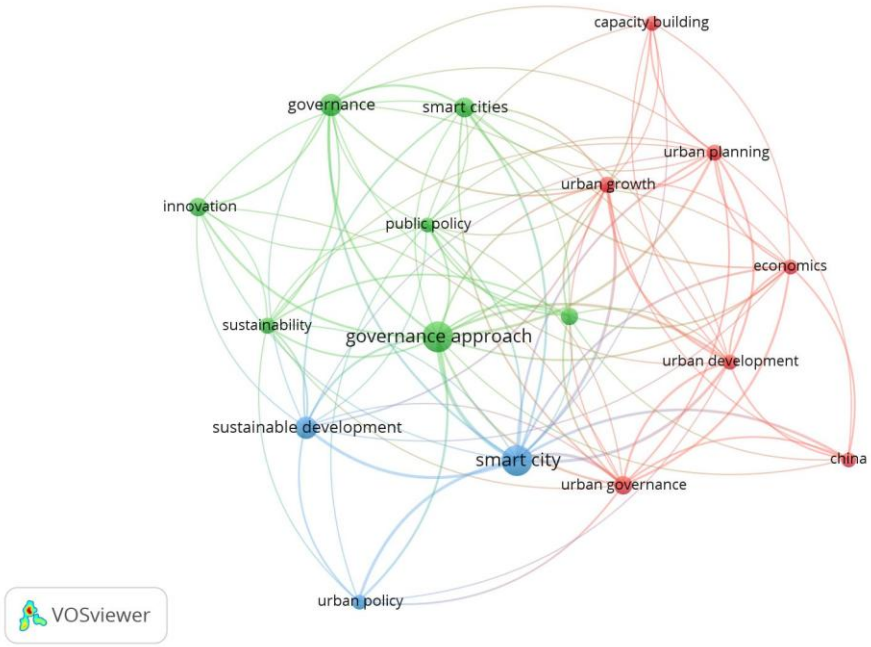

Figure 2. Vos Viewer Result

The results of the processed literature review, according to Figure 2, show that there are 95 articles with the keywords "Smart city AND governance AND policy AND development AND capacity," which are related to topics involving the concept of a smart city as well as other essential aspects such as governance. Management, policy, development and capacity. It shows that many studies or articles discuss how governance, policy, development, and capacity influence or are related to the implementation and development of smart cities. It suggests there is significant interest in understanding how these factors contribute to the success or failure of smart city projects and how they can be optimized or improved to achieve desired smart city goals.

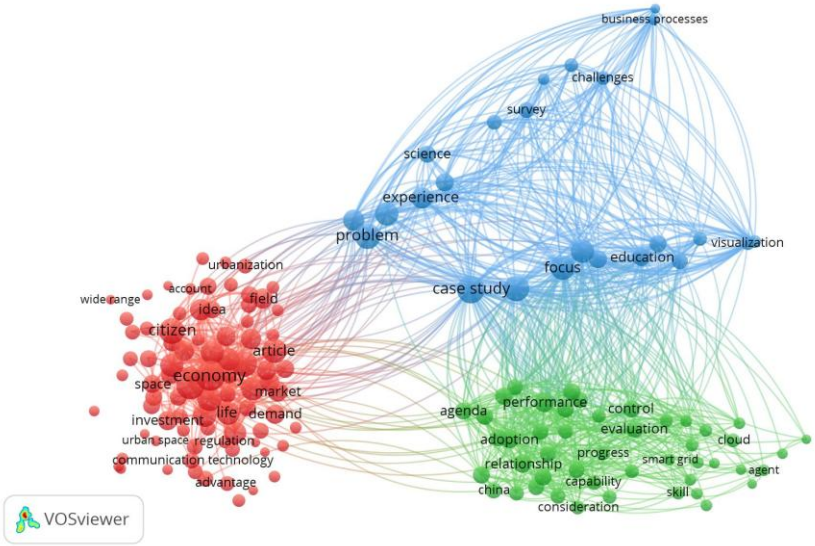

Figure 3. Vos Viewer Processed Results

Figure 3 is the result of a processed literature review of 460 articles with the keywords "Smart City AND Business AND Policy." it was found that there were 460 articles that were related to topics involving the concept of smart cities, business, and policy. It suggests there is

significant interest in understanding how business aspects are involved in developing and implementing smart cities and how policies influence or are managed to support business integration in the smart city context.

These articles discuss various aspects, including but not limited to: Business development in the context of smart cities, namely how businesses can utilize technology and innovation to contribute to smart city development. Business in smart city infrastructure can play a role in developing infrastructure that supports smart cities, such as sensor networks, information technology, or other data-based services. Policies and regulations that affect business in smart cities. How partnerships between government and private companies are formed and regulated to create a business ecosystem that supports smart city development. Business innovation in smart city solutions is how companies develop innovative products and services to improve life and services in smart cities, such as technology-based transportation solutions or energy management platforms.

The following are several definitions of smart cities that have emerged in theory in the last five years:

1. A smart city is a city that uses information and communication technology (ICT) and data to improve quality of life, operational efficiency and sustainable resource management. (Amah et al., 2020)
2. A smart city is an environment that combines physical infrastructure, digital technology and data to connect and improve the lives of its citizens, as well as increase economic and environmental sustainability. (Bartelt et al., 2020)
3. A smart city is a city that integrates information technology, the internet, and data in its physical infrastructure to improve the quality of life, productivity, and performance of the city system as a whole. (Amah et al., 2020)(Bartelt et al., 2020)(Xu, Chen, & Zhang 2020)
4. A smart city is a city that uses digital technology solutions to improve city services, operational efficiency, and citizen participation in decision-making, with a focus on sustainability and inclusiveness. (Wataya & Shaw 2019)
5. A smart city is a city that adopts a data- and technology-based approach to face urban challenges, such as mobility, environmental, and social challenges, to improve the quality of life of citizens and economic competitiveness. (Zandiatashbar et al., 2019)

These definitions reflect the evolution of the smart city concept in combining technology, data, and aspirations to improve overall city life by considering aspects of sustainability, inclusivity, and efficiency.

As such, these articles may provide valuable insights into how business and policy interrelate in the context of smart city development and the implications for economic growth, sustainability, and quality of life in cities worldwide. Research on smart governance and policy-building capacity in the business administration sector could focus on using information technology and advanced policy strategies to improve business decision-making efficiency, effectiveness, and quality. The following are several recommendations for research trends carried out in this context, as in the table below:

Table 1. Recommended Research Trends in Context Smart City and Smart Governance in Policy Development Capacity No Research Topic Research Study

No	Research Topic	Research Study
1	Use of Big Data in Business	Decision-Making Examines how companies use big data and analytics to collect, manage, and analyze big data from various sources, such as customer, operational, and market data. Research focus may include data analysis methods, machine learning algorithms, and practical applications of insights gained in strategic and operational decision-making
2	Digital Platforms for Stakeholder Engagement:	Digital platforms, such as social media, websites, or custom applications, can increase interaction and engagement with business stakeholders, such

		as customers, business partners, and employees. This research can explore the impact of using this platform on relationships with stakeholders, business responsiveness, and innovation.
3	Uses of Artificial Intelligence in Business Management	This research may examine the applications of artificial intelligence in business management, including AI for business process automation, predictive analysis, decision-making, and operational optimization. Research focus could include the effects of AI use on organizational productivity, efficiency, and creativity.
4	Transparency and Accountability in Business Reporting	Explores how companies increase transparency and accountability in their business reporting through the use of information technology and digital platforms. This could include online financial reporting analysis, continuous reporting, or the integration of blockchain technology to increase the security and authenticity of information.
5	Policy Development and Ethics in the Use of Business Technology	Explores how companies increase transparency and accountability in their business reporting through the use of information technology and digital platforms. This could include online financial reporting analysis, continuous reporting, or the integration of blockchain technology to increase the security and authenticity of information.
6	Stakeholder Engagement Platforms:	Companies can leverage digital platforms to interact with their stakeholders, including customers, business partners, and employees. For example, companies can use social media or internal collaboration platforms to listen to feedback, gain insights, and facilitate better discussions.
6	Information Security Smart governance in business also involves data protection and information security.	Companies can adopt the latest information security technologies, such as data encryption, network monitoring, and cyberattack protection, to protect sensitive information and reduce security risks
7	Governance in Product and Service Development In product and service development	Companies can apply smart governance principles by utilizing tools such as market analysis, user testing, and fast iteration. This way, companies can respond to customer needs faster and more effectively
8	Policy Development and Ethics in the Use of Business Technology	Development of company policies and ethical aspects in using information technology in business operations. It could include research on the principles governing the use of customer data, user privacy, the ethics of artificial intelligence, and corporate social responsibility in the context of information technology
9	Information Security and Data	Examines the strategies and technologies

	Protection	companies use to protect the security of their information and sensitive data from cyber threats. This may include analyzing security policies, implementing encryption technology, training employees in security awareness, and evaluating responses to security incidents
10	Public Participation and Citizen Involvement	The importance of public participation and citizen involvement in decision-making and city planning. These studies look for new ways to use information technology, such as online platforms and mobile applications, to facilitate dialogue between governments and citizens,

Source : Data Processing, 2024

Through research in the field of Smart Governance and Policy Building Capacity in the business administration sector, we can better understand how information technology can be used to improve business performance, strengthen good governance, and create added value for all stakeholders. Cities have implemented various strategies and solutions to overcome the challenges of implementing smart city initiatives.Cities have implemented some various strategies and solutions to overcome the challenges of implementing smart city initiatives. First, Public-Private Partnerships, namely, Cities have formed partnerships with private companies to develop and finance smart city projects. This partnership enables combining resources and expertise from the public and private sectors to create innovative and sustainable solutions. Second, Digital Infrastructure. Cities have invested in digital infrastructure such as sensor networks, Internet of Things (IoT) technology, and extensive broadband connectivity.Digital infrastructure enables better data collection and more efficient city management. Third, Citizen Participation. Cities have implemented participatory strategies involving citizens in developing and implementing smart city initiatives. It can be done through online platforms, surveys, or community meetings to understand residents' needs and desires. Fourth, Data Use: Cities use data to inform decision-making and optimize city services. Careful data analysis can help detect patterns, identify problems, and design more effective solutions. Fifth, education and training are approaches to increasing understanding and skills related to technology among government staff, citizens, and other stakeholders. This training helps ensure that all parties involved can understand and properly utilize the potential of smart city initiatives. Sixth is data security and privacy management, which pays attention to data security and privacy issues in developing smart city solutions. They implement policies and best practices to protect citizen data and secure their technology infrastructure from cyber security threats. By combining these strategies, cities can overcome the challenges associated with implementing smart city initiatives and achieve their goals of improving quality of life, sustainability, and operational efficiency.

CONCLUSION

Smart cities and smart government in economic policy development are as follows: The application of the concept of smart cities and smart government can increase operational efficiency in the economic management of cities or regions. Integrating information technology and data allows governments to collect, analyze and use information more effectively, improving decision-making and public services. Smart cities and smart governments drive economic innovation by creating an environment that supports the development of new technologies, creative businesses and startup ecosystems. Cities can stimulate economic growth and create new jobs through investments in digital infrastructure, support programs for new industries, and collaboration between the public and private sectors. The concept of smart cities and smart government promotes the active involvement of citizens and other stakeholders in the economic policy development process. Governments can listen to citizens' voices, understand their needs, and design more responsive and inclusive policies using digital platforms and other participatory mechanisms. Through the implementation of digital technologies

and smart governance practices, cities and their governments can increase their competitiveness on a global scale.

Accelerating digital transformation and strengthening information technology infrastructure, cities can become centers of innovation and investment, attracting global business and talent. Integrating smart city and smart government concepts in economic policy development supports sustainable development goals. Through efficient energy use, smart transportation management, and the promotion of an environment-based economy, cities can create sustainable economic growth and improve citizens' quality of life. Thus, smart cities and governments are essential in developing progressive and future-oriented economic policies, focusing on innovation, efficiency, citizen participation, global competitiveness, and sustainability.

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