

Basic Solutions For Smart City Development In Binh Duong Today

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Abstract: *The concept of "smart city" was mentioned by technology companies in the early years of the 21st century to talk about the application of information technology to the operation of urban infrastructure such as buildings, traffic, electricity and water supply and social safety. With Binh Duong being a province in the Southeast region of Vietnam, the urban population growth rate, the urban space has been expanded strongly throughout the administrative units. As the result of the industrial revolution 4.0 is the birthplace of highly connected smart technology devices, so the construction of smart cities is considered as an inevitable trend in the internal development of the country. Binh Duong. The article analyzes and clarifies the current situation and basic solutions for smart city development in Binh Duong today. The results show an overview of the current situation of smart urban construction in Binh Duong. The article also offers solutions to develop smart cities in Binh Duong in the current period. Accordingly, the solutions to focus on implementation will be: applying science and technology in urban development planning and management; building a system of mechanisms and policies to meet the practical requirements of society for smart city development; promote innovation and creativity; study policies to promote cooperation between domestic and international enterprises, creating opportunities for domestic enterprises to increase their scale in terms of both finance and scope of activities related to smart cities; focus on human issues.*

Keywords: *Binh Duong; Smart city; Solution; Develop*

1. INTRODUCTION

Binh Duong is a province in the Southeast region of Vietnam. With many different potentials, outstanding opportunities, competitive advantages, Binh Duong has all the factors of strong development, becoming an important growth engine for the Southeast region in particular, including Vietnam in particular. in the context of international integration and the impact of the fourth industrial revolution. Recently, Binh Duong has always been in the group of leading provinces in Vietnam in terms of attracting foreign investment. In 2021, despite many difficulties and challenges, especially the outbreak of the fourth COVID-19 epidemic, the Party Committee, authorities and people of Binh Duong province have united, made efforts to strive, create and develop utilize potentials and advantages, strongly mobilize resources and achieve comprehensive results in all fields: GRDP increased by 2.62%; economic structure shifted in the right direction, the proportion of industry, trade and services reached over 89.2%; index of industrial production (IIP) increased by 4.5%; total import-export turnover reached 58 billion

USD, up 17.8%[5]. Faced with the impact of the 4th industrial revolution and current international integration, it can be said that building a smart and sustainable city has been an inevitable trend, becoming more and more popular in the world. The development of a smart and sustainable city requires the full participation of stakeholders such as the government, local authorities, businesses and communities; flexible, multi-dimensional and multi-level city connection activities require a coordination mechanism from governance, investment to operation and beneficiaries. A smart city is a city model that applies information technology and artificial intelligence to manage and improve urban living standards, improve service quality of city authorities, and effectively use urban resources. energy and natural resources. Sustainable development is development that meets the needs of the present generation without compromising the ability of future generations to meet those needs on the basis of a close and harmonious combination between economic growth and development. solve social problems and protect the environment. In other words, smart city (smart city) is associated with the concept of achieving sustainability through the application and use of advanced information technology on a large scale, the main goal of a smart city is supposed to increase sustainability through modern technology. For Binh Duong, building a smart and sustainable city is identified as one of the core tasks in the digital transformation process. Smart and sustainable cities bring many benefits to different audiences, from authorities, people, businesses to economic sectors. All have the opportunity to benefit from smart and sustainable urban development as well as directly participate in the process of smart and sustainable urban development such as improving the efficiency of investments, saving costs. costs, save energy, save resources, support and solve hot problems of the city today. In addition, sustainable smart cities also help increase accessibility, improve social services, contribute to economic development and increase quality of life. With the above meanings, finding specific and feasible solutions to develop smart cities in Binh Duong in the current period is a matter of urgency and practical significance.

Theoretical basis

Based on the guidelines, guidelines and policies of the Communist Party of Vietnam and the State of Vietnam on the development of smart cities in Vietnam.

Practical basis

The process of leadership, direction and implementation of the Communist Party of Vietnam and the Government of Vietnam, the Binh Duong government for the current smart city development.

Research methods

The article uses specific methods including: Analysis, synthesis, logic and history.

Research question

Question 1: What is the current situation of smart city construction in Binh Duong?

Question 2: What are the solutions to develop smart cities in Binh Duong in the current period?

Research purpose

The purpose of the article is to analyze and clarify the current situation and basic solutions for smart city development in Binh Duong today.

2. RESULTS AND DISCUSSION

2.1. Overview of the current situation of smart city construction in Binh Duong

A smart and sustainable city is an innovative city that uses information and communication technology (ICT) and other means to improve the quality of life, performance of urban services as well as competitiveness, while ensuring that it meets the needs of present and future generations economically, socially and environmentally. To improve people's lives, a complete smart city project needs to take into account the humanistic, social and environmental aspects of urban centers [12,243]. Therefore, the concept of smart city needs to incorporate aspects related to governance, infrastructure, human capital and society. Only when these factors are combined can cities become smart and capable of promoting sustainable and integrated development. A smart city integrates its different areas using broadband communication networks, cloud computing, smart mobile devices, analytics software and sensors. A collection of digital resources that collect data generated by different employees and process the data, generating information and knowledge that support leadership decision-making, providing quality of life and better benefits for the people.

Over the years, with the determination and participation of the whole political system, Binh Duong has implemented many effective solutions to build a smart city (smart city). The Binh Duong smart city project was approved in 2016 with the drastic intervention of the government and businesses (DN). Up to now, Binh Duong has initially achieved certain results. Most recently, on February 25, 2022, in New York, USA, after three consecutive times in the top 21 (Smart 21) and recognized in the top 7 in 2021, the World Smart Community Forum (ICF) – a forum of nearly 200 prosperous smart cities in the world, continues to honor Binh Duong Smart Region as one of 21 communities with a typical smart city development strategy in the world by 2022. Although 2021 is greatly affected by the Covid-19 epidemic, Binh Duong continues to satisfy 6 rigorous criteria of ICF to be honored in the Smart 21 list, namely the broadband connection platform, broadband, knowledge human resources, innovation, equal access to digital, support encouragement and sustainable development. The Smart 21 list will continue to be researched and evaluated by ICF on the depth of content of local development strategies, looking at the inheritance, depth and consistency of the strategy in order to ultimately create values that serve the prosperity and happiness of the community. In 2021, Binh Duong will continue to implement foundation projects and develop the next smart city development project (2022 - 2026), in which the focus is on innovation. Industry 4.0, smart growth. Binh Duong continues to closely associate with Eindhoven city, the Netherlands and international organizations, determined to implement the Smart City Project as the goal set by the 11th Provincial Party Congress, term 2020-2025 Being mention. This will be an important driving force for Binh Duong to recover after the Covid-19 pandemic, making a breakthrough to welcome the 4.0 era. After basically completely controlling the Covid-19 epidemic, bringing people's lives back to a new normal state, Binh Duong quickly deployed the construction of Binh Duong's Smart Monitoring and Operation Center (call abbreviated as IOC Center) to put into operation effectively. The promotion and taking advantage of the advantages of technology application not only make an important contribution to repel the epidemic, but also create favorable conditions for the province to restore the economy, continue to fulfill the aspiration to build a successful city. smart city. In addition to promoting socio-economic development, Binh Duong actively expands bilateral and multilateral cooperation in many fields. The

province has established bilateral cooperation relationships with 10 foreign provinces and cities and is an official member and reliable partner of many major international organizations such as ICF, Asian Economic Cooperation Forum (ICF) Horasis), World Trade Center Association (WTCA). Adapting to international integration and the impact of the industrial revolution 4.0, Binh Duong is coordinating with agencies, departments, international partners from Eindhoven and Singapore, experts and scientists. from other developed countries to implement the Binh Duong Innovation Zone project, which is a breakthrough in the next phase of the Binh Duong Smart City Project, which is expected to promote and build Binh Duong. becoming a province with a broader innovation ecosystem, creating a foundation for building an attractive investment environment, gradually becoming a smart, less labor-intensive production region, attracting industries with great intelligence. high and healthy living environment.

In 2022, Binh Duong was named in the list of Top 7 smart communities in the world for the second time. This result affirms the recognition of the international community for the right strategies and steady and steady development steps of Binh Duong in particular and Vietnam in general in recent years. Once again, the fact that Binh Duong is the only locality of Vietnam to be honored by ICF for the fourth time in a row affirms that the direction of Binh Duong city development is correct and in line with the world trend.

In alphabetical order, the Top7 Intelligent Communities of 2021 are:

- Binh Duong Smart City, Vietnam
- Curitiba, Paraná, Brazil
- Langley Township, British Columbia, Canada
- Mississauga, Ontario, Canada
- Moscow, Russia
- Townsville, Queensland, Australia
- Winnipeg, Manitoba, Canada

Source:https://www.intelligentcommunity.org/the_intelligent_community_forum_names_the_global_top7_intelligent_communities_of_2021

With Binh Duong, in the process of building and developing smart cities, Binh Duong approaches in a different way, not in the usual way of applying advanced technology to solve specific social problems. But Binh Duong builds a dynamic, creative and connected ecosystem. In which, every element is continuously improved, innovated and optimized. At the same time, smart cities are also a superior solution to improve and enhance the quality of life, bringing happiness to people. The smart city project focuses on developing a scientific research and education system, attracting foreign-invested high-tech manufacturing enterprises (FDI). From there, leverage for existing investment items in the region, creating many places to live and work for new businesses and people. And from 2020 to now, based on the potentials and achievements, Binh Duong province promotes the development strategy of a new phase as "Binh Duong Innovation Zone". This is a project with an interdisciplinary, multi-layered

solution that is relevant and affects many aspects of social life. Integrating the Binh Duong Smart City Project for the 2021-2025 period with a new breakthrough strategy, focusing on planning "Innovation Zones" in a 5-layer model including: Urban and transport planning; building a culture of innovation; on balanced economic development; digital transformation and industry 4.0; develop and attract human resources. At present, Binh Duong innovation zone is considered as a breakthrough in a new development phase, thereby taking science and technology as the center. After the success in attracting FDI, Binh Duong is implementing an investment attraction strategy for the next stages with industry identified as the main development sector. At the same time, Binh Duong applied the TOD model - urban development in the direction of relying on public transport hubs, in order to develop urban chains associated with the construction of BRT routes, regional transport; continue to strengthen the road traffic system, develop management solutions and upgrade existing roads to solve traffic congestion. However, the urban growth model is not diversified, the growth is unsustainable, the reserve capacity and long-term vision are still limited. Using urban land resources is not efficient, the development of housing projects, urban projects is still scattered, there is a lack of information about the needs of the market. The technical infrastructure network of the urban framework has not yet met the requirements, connecting the new development area with the existing area, leading to problems such as flooding, traffic congestion in the urban area, etc. existing problems in the development of smart cities in Binh Duong today.

2.2. Solutions to develop smart cities in Binh Duong in the current period

The solutions to develop smart cities in Binh Duong will be:

Firstly, applying science and technology in planning and management urban development.

This aims to step by step standardize the implementation processes, shorten the implementation time of processes and procedures in the formulation and approval of urban planning, urban development investment projects and housing, construction work and optimize the efficiency of operation management. Focus on deploying services on the basis of smart cities, building urban monitoring and management centers; to associate the development of smart city services with the digital government system and digital society. In addition to the application of science and technology in urban development planning and management, in order to step by step standardize the implementation processes, shorten the implementation time, especially in the processes and procedures of the city. the formulation and approval of urban planning, urban and housing development investment projects, construction of works in order to optimize the efficiency of operation management; It is necessary to study the application of science and technology in building solutions and connectivity models for smart cities, addressing the main features of a smart city such as the level of information technology integration and be able to apply comprehensive information sources; In addition, it is necessary to apply science and technology to essential components in smart city development such as smart technology, smart industry, smart services, smart management and smart life. aims to solve a number of problems such as more efficient water supply, flood control and drainage, solutions to traffic congestion problems, improving the quality of public transport, urban lighting, improving improve people's trust in urban services and activities... Using smart urban industries to support economic development and control the impacts of urbanization on the environment , infrastructure and social security... Forming and connecting digitized urban spatial data and

national urban database, applying information technology in database management and management urban activities.

Second, building a system of mechanisms and policies to meet the practical requirements of society for smart city development.

Specifically, authorities and specialized agencies at all levels need to develop, promulgate and deploy a system of mechanisms and policies to meet the practical requirements of the process of building, developing and transforming towards the construction industry. smart city. Mechanisms and policies should be in the direction of support and encouragement, in order to create favorable conditions for people, businesses and authorities in accessing, applying and implementing effectively. In addition, it is also necessary to pay attention to the construction and completion of the legal foundation for smart city development. Specialized agencies need to coordinate with authorities at all levels based on a number of standard frameworks being applied by the world to study and quantify smart city criteria in the fields of urban planning and infrastructure. urban, urban architecture, urban operation (including water supply, wastewater treatment, traffic, communications, housing, health care, education, etc.) utilities for people, saving energy , Sustainable Development. Formulate, promulgate and apply basic criteria of smart cities and smart urban planning in urban construction in accordance with the development context of Vietnam in general and application to each urban area in general. private. Building a legal foundation, regulations and standards for smart cities; build an interconnected database of land, planning, traffic, population and other urban spatial data... Build a system to monitor and evaluate the process of formation and development, as well as research promulgate guidelines for the development of regulations on management, operation and control, including the integration of the participation and supervision of urban residential communities;

Third, promote innovation and creativity.

Researching mechanisms to promote and support breakthrough solutions in both technology and non-technology such as: Urban spatial organization model; develop types of green, smart, climate change adaptation and works with mixed functions; linking smart city development with scientific and technological advances, application and development of new technologies, prioritizing digital technology, 5G and post-5G connectivity, artificial intelligence, blockchain (blockchain), 3D printing, Internet of Things, cybersecurity, clean energy, environmental technology...; upgrading information - communication technology infrastructure (establishing a shared technology platform, implementing digital government, e-government...); mobilize creative resources of the community, businesses and authorities to deploy effective solutions to build smart cities.

Fourth, study policies to promote cooperation between domestic and international enterprises, creating opportunities for domestic enterprises to increase their scale in both finance and scope of activities related to smart cities.

Regarding investment, the local government needs to encourage and support businesses and scientists to invest in scientific research, develop and accelerate the new urban technology, participate in investment in development projects. local smart city development; encourage people's participation in personal investment in accordance with the requirements of smart cities. Regarding management and exploitation, it is necessary to encourage the participation

of citizens and businesses in the following fields: Budget estimation, urban planning, urban traffic, environmental protection, public security, culture and education. education and public service provision... in order to contribute to improving the governance efficiency of urban government is an indispensable factor to promote the sustainable development of the city.

Fifth, focus on human issues.

Under two specific aspects:

- Focus on developing smart utilities for urban residents. It is necessary to identify and step by step invest in the construction and completion of smart, convenient and convenient public service utilities in urban areas; deploying and providing information technology applications for administration, commerce, administration... to meet the requirements of building a smart city with efficient infrastructure, sustainable development and friendly living environment and at the same time improve the quality of life, operational efficiency of urban services, directly serving the people and the community.

- Improve the quality of human resources and the awareness of the social community, including the objectives of improving the efficiency of management and operations, aiming to build a population community with integration, accessibility, using information technology applications also creates opportunities for the real estate market to develop dynamically, increasing the product segment means creating many new opportunities for the market.

3. CONCLUSION

In the world, the deployment of smart cities has become urgent since the late 20th century in many countries in order to solve urgent and specific urban problems. In particular, some advances in information and communication technology such as Internet of Things (IoT), Artificial Intelligence (AI), big data (Big Data), cloud computing (cloud computing),... has pushed countries to step up the deployment of smart cities in some big cities to solve urban problems. Some smart cities have formed and are continuing to perfect "smarter" such as Amsterdam, Eindhoven of the Netherlands, Barcelona of Spain, Copenhagen of Denmark, Espoo of Finland, Nice of France or Vienna of Austria. In Vietnam, on August 1, 2018, the Prime Minister approved the Project on sustainable smart city development in Vietnam for the period 2018 - 2025 and orientation to 2030 (Decision No. 950/QĐ-TTg dated August 1, 2018), which clearly defines the viewpoints, principles and key tasks and solutions in the sustainable smart city development in Vietnam. Up to now, 28 localities have promulgated Smart Urban Development Schemes, Programs and Plans, 11 localities have promulgated Information and Communication Technology Architecture for smart city development. Binh Duong is the leading province in Vietnam in smart urban development, in November 2016, the Provincial People's Committee approved the Smart City - Binh Duong Project. The project was born to create a breakthrough in comprehensive development, both technological and non-technological to improve the content of knowledge and creativity in life and economy, and bring Binh Duong from traditional production to an economy with high economic potential. Higher added value but innovation is the driving force for development, creating a premise to reach the knowledge economy and digital economy. Binh Duong has implemented a master action plan based on the three-house model, promoting the cooperation between the State - Entrepreneurs - Schools/Research Institutes. This is the model that the province learned from the Dutch city of Eindhoven. With this model, each house takes on a part of the role of the rest

to share information and contribute ideas to each other, towards the sustainable socio-economic development in the new era. . With its efforts, Binh Duong smart region has become an official member of ICF World Smart Community Forum in 2018, honored as one of 21 areas with Smart City development strategy. the most typical representative for 2 consecutive years (2019, 2020). In 2022, Binh Duong was named in the list of Top 7 smart communities in the world for the second time. This result affirms the recognition of the international community for the right strategies and steady and steady development steps of Binh Duong in particular and Vietnam in general in recent years.

This study was conducted to analyze and clarify the current situation and basic solutions for smart city development in Binh Duong today. The results show an overview of the current situation of smart urban construction in Binh Duong. The article also offers solutions to develop smart cities in Binh Duong in the current period. Accordingly, the solutions to focus on implementation will be: applying science and technology in urban development planning and management; building a system of mechanisms and policies to meet the practical requirements of society for smart city development; promote innovation and creativity; study policies to promote cooperation between domestic and international enterprises, creating opportunities for domestic enterprises to increase their scale in both finance and scope of activities related to smart cities; focus on human issues. The limitation of this study is that it has not yet developed a smart city analysis framework from a review of theoretical and experimental studies in cities around the world.

Acknowledgement

I would like to take this opportunity to express my warm thanks to Board of editors, my family, colleagues and brother in assisting convenient conditions for my research paper.

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