

# BUILDING A SMART CITY - DEVELOPMENT GOALS AND DRIVING FORCE OF BINH DUONG PROVINCE

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Building smart cities is considered a development trend of many cities in the world. In recent years, in Vietnam, many provinces and cities, including Binh Duong province, have also initially approached this model. This is considered an inevitable trend that every province and city aspires to for green growth, sustainable development, exploitation and promotion of potentials and advantages for development. The article, on the basis of an overview of outstanding achievements in smart city construction of Binh Duong province in the 2016-2020 period, has proposed solutions to continue to improve efficiency and successfully implement the goals, the task of building smart cities in Binh Duong province, in the coming time.

**Keywords:** *Binh Duong province; Smart city; Development goal and driving force.*

## 1. Introduction

After nearly 25 years since the province's re-establishment (1997), Binh Duong's economy - society has made strong and unceasing development steps. Up to now, the province has attracted more than 48,000 domestic enterprises and over 4,000 foreign direct investment projects operating effectively. The province has also been building a new city with a centralized administrative center, many schools, hospitals, hotels of international standards and a fairly open road system, creating favorable conditions for the commodity circulation and economic development.

However, Binh Duong's economy still has to rely heavily on traditional production, the added value of products is low, affects the ecological environment, low competitive advantage, still has a large unskilled labor force - while in order to attract high-tech industries, the province must meet the requirements of quality human resources, access to modern technology, efficient production activities, finance, taxes and favorable administrative background for businesses, strong enough educational and medical infrastructure, the attractiveness of the local market... Therefore, Binh Duong needs to develop in a new direction, which is to build a smart city to protect ensure economic

development and welfare for the people of Binh Duong. The Resolution of the 11th Binh Duong Provincial Party Congress, term of 2020-2025 has determined: "striving to build Binh Duong province to develop sustainably in the direction of a smart, civilized and modern city; By 2030, Binh Duong will become a modern industrial center, and by 2045, a smart city of the region and the whole country".

In fact, over the past time, there have been many definitions of Smart city by domestic and foreign researchers.

On the English Wikipedia page defines: "A smart city is a technologically modern urban area that uses different types of electronic methods, voice activation methods and sensors to collect specific data to manage assets, resources and services efficiently".

In the process of considering a sustainable socio-economic development model suitable for Binh Duong area, after a period of preparation efforts with many events taking place to learn and evaluate the smart city/urban model in the region and in the world. On November 21, 2016, the People's Committee of Binh Duong province officially approved the project "Binh Duong Smart city". The project achieved results and

contributed many valuable and practical ideas; it is the foundation for industries, localities and units to implement many specific programs and projects towards the goal of building a smart city. Up to now, the results have recognized that the project has strongly contributed to the process of promoting socio-economic development of the province, especially breakthroughs in integration, expansion of international relations, and attracting investment partners, gradually affirming Binh Duong province's position in the international arena.

## 2. Research overview

The issue of building smart cities in our country has been studied by many authors, in which the works mainly focus on analyzing the achieved results, difficulties, challenges and solutions to improve the efficiency of smart city construction, in which there are some typical projects as follows:

Author Dao Thi Nhu, with the article "Smart city: Starting from a smart vision?", Architecture Magazine, issue 01, 2021 focused on the concept of smart, then discussed the smart vision as an important foundation when considering the smart or unintelligent of a city, thereby providing an important argument about sustainable intelligence in the implementation of urban construction smart in our country. Nguyen Thi Viet Nga, "Policy on building smart cities and the development situation in Vietnam", Finance Magazine, in 2019 analyzed the current situation of the necessary problems for smart city construction and smart city construction practice in Vietnam, thereby suggesting some contents of smart city development in Vietnam in the coming time. Author Thanh Binh "Building a smart city, promoting local socio-economic development", published on the Communist Party of Vietnam's e-newspaper, October 2020 mentioned the benefits that people and businesses enjoy in building smart cities as well as contributing to improving the capacity and efficiency of management, direction and administration of the authorities at all levels in many localities throughout the country, helping to provide public services, promptly serving people and businesses to improve their lives; creating an environment that promotes socio-economic development.

Along with research works on smart city construction nationwide, there have been a number of research projects on smart urban construction in Binh Duong province, typically: "Development Smart city in Binh Duong - a reference" by the authors Tran Van Thien - Pham Kien published in the Journal of Industry and Trade, issue 15, June 2021 studied Binh Duong's smart city development process with the aim of fundamentally and comprehensively renovating the operation of the government apparatus to become a digital government, a high-tech enterprise, towards the digital economy and

digital society. At the same time, the article also offers some solutions to help Binh Duong be more successful in the smart city development process. Author Mai Xuan in the article "Binh Duong: Solid steps in building a smart city" posted on the website <https://www.binhduong.gov.vn>, June 2020 has evaluated the achievements in building a smart city in the province and the benefits of a smart city for people and businesses investing in Binh Duong province. In which, focusing on the achievements in the following issues: Smart city development to meet 4.0 Industry; Binh Duong continues to host and successfully organize the Asian Economic Cooperation Forum (Horasis); construction of a project complex of a new city trade center in Binh Duong, which has met the criteria to join the World Trade Centers Association (including 330 members from 90 countries)...

In general, the articles have analyzed the achievements and difficulties in building smart cities in our country in recent years, there are a number of articles that have studied the results of smart city construction in Binh Duong. However, the articles only study a few areas at a general level, not comprehensively assessing the achieved and unachieved results in the implementation of the goal of building a smart city in Binh Duong in the past time, therefore, solutions and development orientations have not been given in accordance with the actual practice in building smart cities in Binh Duong province in the coming time. Therefore, it is necessary to study the current situation and propose solutions to improve the efficiency of the smart city construction program in Binh Duong province.

## 3. Research method

The article mainly uses the method of collecting data sources from reports, articles, research articles, news sites of Binh Duong province, thereby synthesizing, analyzing and making statistics of relevant information sources that directly related to the research content. In particular, the author has inherited data sources from the final reports of the Smart City and Smart City Construction Project and the Document of the 11th Binh Duong Provincial Party Committee (term of 2020-2025).

## 4. Research result

### 4.1. Orientation to build smart city of Binh Duong government

Binh Duong government has built and developed a smart city based on the Binh Duong Breakthrough Strategy Program 2021 with a vision to 2030 named "*Binh Duong Navigator 2021*". This is a specific guiding program for the implementation of the Binh Duong Smart City Project, which identifies and specifically assigns each necessary action program in the fields of: Human, technology, enterprises, fundamental elements. In which, the human factor

is the focus of the Project.

*Workforce (human):* Projects in this field are related to labor, attracting – retaining – developing talents, improving education in line with new market requirements, developing skills and promote entrepreneurship.

*Research and development (technology):* Enhance and engage research and development activities and encourage innovation and collaborative knowledge transfer. New technology needs to be linked to related industries and social challenges.

*Enterprises, business relations (enterprises):* Strengthen and develop existing enterprises while creating new ones, creating easier conditions for enterprises to do business in the region and in the international arena.

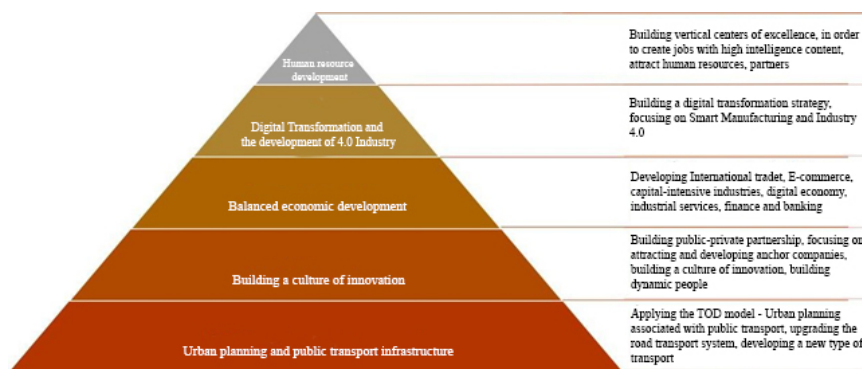
The People’s Committee of the province has planned Binh Duong new city according to international standards, suitable to become a modern central city in the future, a place worth living and working, attracting resources of knowledge and experts. Binh Duong New city was built to connect people, local authorities, schools and businesses. The city is also a center linking urban areas, industrial parks and services in the region, a key project in the goal of building a smart city of the Binh Duong government.

After more than 4 years of implementation, the Binh Duong Smart city project has achieved many encouraging results, deeply and widely affecting many aspects of the social life of the province,

contributing to the outstanding development of Binh Duong recently. The project has been realized by specific projects, which are widely distributed to important segments of society depending on their roles and responsibilities. In order to successfully implement the Smart city project, Binh Duong province’s government has been steadfast and continues to greatly accompany all elements of society, especially the three factors (the government, the school and the enterprises). The involvement of the government is a big push for enterprises - the main factor on the economic development front, and the school - the main factor in the human development and science and technology front. At the same time, the province has approved the policy of planning the Innovation zone. This is the focus of the goal of building a smart city in general and the Binh Duong Smart city project in particular in the next phases.

Binh Duong Innovation zone with 5-level model in figure 1 is drawn from the practice of construction and development of Binh Duong, is the condensation of Binh Duong’s smart development strategy. There are specific levels as follows:

- Level 1 – Urban planning and public transport infrastructure
- Level 2 – Building a culture of innovation
- Level 3 – Balanced economic development
- Level 4 – Digital Transformation and the development of 4.0 Industry
- Level 5 – Human resource development



**Figure.** Condensed 5-level model for Binh Duong province’s smart development strategy

Each level has its own but interrelated role. Each level is the guide to a set of purposeful projects that address the province’s challenges by theme, which, combined in five levels, will create interdisciplinary, broad-based, direct impacts on all aspects of social life.

**4.2. Some initial achievements in implementing the contents of Binh Duong smart city**

- On smart urban planning

In order to move towards building a smart city, the construction planning of the province has paid attention to the issue of sustainable urban development, response to climate change; harmonious development between socio-economic development and environmental protection. Currently, Binh Duong is implementing the provincial planning, the project will integrate the contents of smart city development.

For urban planning under the province, agencies advising and assisting the Provincial People's Committee, especially the Provincial Department of Construction, have advised the Provincial People's Committee on strengthening and correcting construction planning, manage urban development according to the approved planning, through which the implementation of planning contents and planning adjustments are concerned and evaluated in terms of meeting the needs of social and technical infrastructure of residents, paid more attention to issues of high floors, construction density, land use coefficient and the ability to respond to climate change, smart and sustainable urban development,...

*- On building and providing smart urban utilities*

Binh Duong Center for Community initiative and Start-up support (BIIC) was put into operation to support the formation of a strong and sustainable creative startup ecosystem in Binh Duong, increasing the number of innovative enterprises, science and technology enterprises; promoting local economic growth in depth on the basis of increasing contributions of science and technology; strengthen public-private cooperation, promote the linkage of three factors in the direction of smart urban development of Binh Duong.

In the transportation sector, the Becamex Tokyu bus system has been deployed using clean fuel (CNG gas); automatic toll collection without stopping on Highway 13. Traffic monitoring system has been approved by the Provincial People's Committee. Traffic signal management in key areas to ensure traffic order and safety in Binh Duong province. Continue to develop important main traffic axes such as Ring road 3, Ring road 4, Bac Tan Uyen - Phu Giao - Bau Bang road, etc., and at the same time continue to improve and expand existing main roads such as My Phuoc - Tan Van, National Highway 13, with solutions such as building overpasses, underpasses, parallel roads, and collection roads at intersections with high traffic volume at peak hours, in order to solve existing traffic infrastructure pressure.

Currently, Binh Duong is at the forefront of the country in terms of GIS geographic information system with digitized data of planning maps across the province, while strengthening state management and sharing public and transparent information for people. People through the mobile app on planning, housing, real estate, technical infrastructure, and reflections on violations in the field of construction, etc. The system model is built according to a 3-level model. with cross-platform and multi-application on all devices: desktop, tablet, mobile phone. The entire construction GIS database is stored at the Binh Duong Provincial

Data Center, specialized application software is installed on the user's computer at the specialized divisions of the Departments, People's Committees of Districts/Towns/Cities and businesses/people who have a need to use construction planning data and technical infrastructure (Binh Duong Province People's Committee, 2018).

Binh Duong has successfully deployed a hotline number 1022 providing multi-channels (telephone, Zalo, Facebook, email...) to connect people and authorities 24/7, in order to receive, process and promptly reflect on issues of individuals and organizations living, working and operating in the province (<http://binhduong.gov.vn>). At the same time, providing ambulance service to people with the fastest speed. The above projects are gradually creating the Smart City Operation Center phase 1, which will soon be put into use by the end of 2021.

*- On smart administrative reform*

Binh Duong province has issued a decision approving the model of e-Government Architecture of Binh Duong province, version 2.0, which promotes effective implementation of the following main contents: Users; Communication channel; Data and applications; Technology; Safety information; Directives, policies; External systems (Binh Duong Provincial People's Committee, 2021). Thereby as a driving force to complete the platforms for the implementation of e-government in Binh Duong province, step by step applying information technology to strengthen administrative reform and improve the satisfaction level of citizens and businesses with the Government of Binh Duong Province. Complete development of information systems and databases to serve the professional processing of state agencies in Binh Duong province in all fields on the basis of application of revolutionary products and technological solutions of 4.0 industry; at the same time, improve efficiency and transparency in providing services to organizations, citizens and businesses.

*- On human resource development*

Focusing on building human resource training centers, especially high-quality human resources in vertical industries, selectively attracting world-class and regional experts: Strategy to attract experts, professors, etc. are reputable in the fields and fields of training in an international environment about working and cooperation, thereby affirming the quality of the center of excellence, those individuals are also "the lighthouses" in the industry, creating prestige for the centers, from which it will be easier to attract more human resources for the development of key economic sectors of Binh Duong.

Actively creating long-term, high-knowledge-

content jobs, derived from the actual needs of investors and society: Jobs with high knowledge content, through research and development, technology transfer topics, etc. will attract high-quality human resources to solve those problems, combined with a commensurate and long-term compensation policy, through specialized centers.

The implementation of the 5-Level Solution (Figure 1) is especially influential in attracting human resources, each layer will play a specific role in attracting human resources. The first level of urban and traffic planning, with the application of the TOD (Transit Oriented Development) model and site creation, will help Binh Duong build a scientifically planned urban area that facilitate trade and travel, which will help people live, work and play comfortably and conveniently. The second level on building a culture of innovation will help Binh Duong continue to promote and become a dynamic and vibrant land, creating a good environment for attracting human resources, the balanced economic development in level 3 will create a service-trade ecosystem for people, for trade, which is an important aspect in attracting human resources. And the strategy of digital transformation and 4.0 industrial development of level 4 will help attract scientists and experts, turning Binh Duong into a modern land, in tune with the flow of the new era. Each level in the 5-level model will have its own role in the human-centered development strategy, thereby combining to form an interdisciplinary and comprehensive development strategy for Binh Duong in the next period.

In addition to the positive results achieved in the goal of building a smart city and initially when developing the Smart City Project in Binh Duong province, there are still difficulties and limitations in the implementation process. Issues to be resolved are as follows:

*Firstly*, for urban development management, in 2013 the Government issued Decree No. 11/2013/ND-CP on urban development investment management, however, the legal bases at the higher level have been replaced (Law on Construction, Law on Housing, Law on Land), so there are many problems when implementing.

*Secondly*, the urban upgrading according to the rapid urbanization rate has caused the local government not to keep up with the inadequate number of civil servants, qualifications and management capacity. In addition, according to current legal regulations, there is no specialized force to manage urban order, leading to violations that are not promptly handled.

*Thirdly*, public investment resources to develop

infrastructure as a premise for socio-economic development are still limited and have not met the needs of urban development of the province. On the other hand, due to a number of subjective and objective reasons, the disbursement progress is still low, leading to slow effectiveness of projects being promoted (little capital, difficulties in site clearance...), calling for forms of public-private partnership, socialization still faces many difficulties.

*Fourthly*, the speed of urbanization associated with socio-economic development in Binh Duong province is quite fast, creating great pressure on state management; The workload of state management of the industry related to urban development tends to increase, while the payroll is decreasing, leading to overload in task performance.

*Fifthly*, the coordination among provinces in the Southern Key Economic Region has not been synchronized and timely in the process of planning, appraisal and approval. In implementing investment in the construction of inter-provincial and inter-regional transport routes, it is also local in nature, affecting the socio-economic development of the locality in particular and of the region in general.

#### 4.3. Some solutions

On the basis of initial achievements, in order to continue to build Binh Duong smart city into a highlight in the future, the Provincial Party Committee and government need to synchronously implement the following solutions:

*Firstly*, enhancing the active role and responsibility of Party committees at all levels and heads of sectors and levels in the process of managing and mobilizing resources to invest in the socio-economic infrastructure system of the country, each sector and locality. Training and fostering staff to improve management capacity; building criteria of professional ethics, corporate culture, sense of responsibility, initiative, enthusiasm and creativity in work.

*Secondly*, to develop mechanisms and policies to attract investment and urban development resources. Strengthen propaganda on new policies to attract investment of the province as well as promote the image of the province. Strengthening international cooperation through programs, seminars and conferences to exchange learning experiences, promote Binh Duong's image as a friendly destination for investors as well as scientists contributing to building Binh Duong into a livable city and a destination for investors. Focus on properly implementing the smart city construction roadmap; research into the formation of industrial parks - science and technology urban centers; building a complex of the World Trade Center, mobilizing

resources to build infrastructure serving the formation of an innovation ecosystem as a premise for innovation to attract investment, and increase added value and economic scale of the province.

*Thirdly*, taking advantage of the support of the Central Government, mobilizing to attract supporting capital sources and taking the initiative of key enterprises of the province to gradually build a river transport system associated with logistics infrastructure is the important key in regional linkage, reducing road traffic pressure, improving production and business efficiency of all economic sectors. Paying attention to developing and improving the quality of public passenger transport; strengthen the application of science and technology in urban traffic management and administration. Research and proactively propose to the Central Government to invest in railway infrastructure to serve the transport of goods and passengers in the area.

*Fourthly*, focus on implementing the right roadmap to build a Smart City as a premise for innovation to attract investment, improve added value and economic scale of the province. Accelerate investment in infrastructure of industrial zones and clusters according to the provincial planning; review the planning of existing industrial clusters and develop a number of new industrial clusters in which a part of the area is reserved to meet the production requirements of domestic enterprises. Continue to develop industrial - service - urban zones; high-quality complex urban residential areas; to build social housing and workers' houses to meet the requirements of urbanization and improve the people's quality of life; strengthen the management of population in apartment buildings in the province.

*Fifthly*, develop road traffic in the direction of connecting local roads with the transport system of the Southern Key Economic Region, with the international airport and the Thi Vai - Vung Tau seaport cluster, Ho Chi Minh City and other technical infrastructure systems. Focus on completing key traffic works that are in the constructing process.

*Sixthly*, strongly innovate thinking and methods in organizing the implementation of mechanisms, policies and laws on science and technology, entrepreneurship and innovation. Propose and develop mechanisms, policies, regulations, regulations and measures to promote S&T activities. Effectively operate the Center for Community initiative and Start-up support to gradually form and develop an innovative startup ecosystem, creating conditions to promote the development of science and technology enterprises and technology enterprises. high. Promoting applied research,

linking science and technology development tasks with socio-economic development tasks at all levels and sectors on the basis of promoting cohesion and cooperation between universities and institutes with industry and business sectors.

## 5. Discussion

Despite achieving positive results, the process of building smart cities in Binh Duong province is also posing a number of problems such as:

*Firstly*, the process of urbanization has transformed rural people into urban people, but the transformation happened too fast, so people's consciousness has not changed to match the new lifestyle and urban civilization.

*Secondly*, the speed of urbanization associated with socio-economic development in Binh Duong province is quite fast, creating great pressure on state management; The workload of state management of the industry related to urban development tends to increase, while the payroll is decreasing, leading to overload in task performance.

*Thirdly*, along with the process of urbanization, the problem of creating a land fund for education and health is still difficult.

*Fourthly*, there are no breakthrough and strategic solutions to develop high-quality human resources. Vocational training is not really tied to social needs, especially the demand for skilled workers; failed to attract employers to participate in human resource development. The application of science and technology, the 4.0 industrial revolution in state management, in production and business activities has not met the requirements set forth.

*Fifthly*, the investment in the construction of cultural and sports institutions is still behind the planned schedule, and some projects are not used effectively due to the specificity of each region. The development of sectors and fields with localities has not yet been clearly shown.

## 6. Conclusion

Being recognized in the Top 21 by Intelligent Community Forum for 3 consecutive times is a bright spot, a worthy achievement for the efforts and intelligence of Binh Duong province in choosing development strategy in the past years. But in order to maintain and further promote those achievements, to overcome the still great challenges ahead and turn Binh Duong into a prosperous, high-income land, developed in science and technology, a destination for global trade, commerce and service activities, a land for innovation, research and invention... there is still a long way to go. The development accumulation of a land is a relay race, the predecessor generation creates a premise for the next generation. Smart development strategy

is like a stick in that relay race, once the way has been found and the strategy has been shaped, it is also time to accelerate to finally achieve the goal of prosperity and sustainability soon. In recent years, the construction of smart cities has been determined by Binh Duong province and has achieved initial important results. However, the construction of a

smart city is a very difficult and complicated task from the theoretical basis as well as the practical implementation. Therefore, it is required that the Party committee, government and people of Binh Duong need to constantly strive to build Binh Duong into a modern urban and smart city in the future in all fields.

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## XÂY DỰNG ĐÔ THỊ THÔNG MINH - MỤC TIÊU, ĐỘNG LỰC PHÁT TRIỂN CỦA TỈNH BÌNH DƯƠNG

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Xây dựng đô thị thông minh được xem là xu hướng phát triển của nhiều đô thị trên thế giới. Trong thời gian qua, tại Việt Nam, nhiều tỉnh, thành phố, trong đó có tỉnh Bình Dương cũng đã bước đầu tiếp cận với mô hình này. Đây được xem và xu thế tất yếu mà mọi tỉnh, thành phố đều mong muốn hướng đến nhằm mục đích tăng trưởng xanh, phát triển bền vững, khai thác, phát huy các tiềm năng và lợi thế để phát triển. Bài viết trên cơ sở khái quát những thành tựu nổi bật trong xây dựng đô thị thông minh của tỉnh Bình Dương giai đoạn 2016-2020 đã đề xuất những giải pháp để tiếp tục nâng cao hiệu quả và thực hiện thành công các mục tiêu, nhiệm vụ xây dựng đô thị thông minh ở tỉnh Bình Dương, trong thời gian tới.

**Từ khóa:** Tỉnh Bình Dương; Đô thị thông minh; Mục tiêu, động lực phát triển.