

Research on Integrated Development of Wisdom Application System in Zhejiang Dawan District

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Abstract: Zhejiang Dawan District is Located in the Economic Belt between Chinese Coast and the Yangtze River, a t-Shaped Golden Junction. It Has a Unique Geographical Location and Great Advantages. It Has a Pivotal Strategic Position in the Overall Modernization and All-Round Opening Pattern of the Yangtze River Delta. under the New Situation, to Promote the Integrated Development of the Intelligent Application System in Zhejiang's Dawan District, the Key is to Start from the Top-Level Design, System Mechanism, Standard Planning, Data Sharing, Assessment and Evaluation and Other Dimensions, Combine the Construction Results of the Intelligent Application System in Major Cities in Zhejiang's Dawan District, and Sort out the Overall Development Trend in Time. from the Perspective of Bottleneck Problems and Demand Analysis in the Process of Integration of Intelligent Application Systems, It “Feels the Pulse” for the Implementation of the National Strategic Reality of the Integrated Development of the Yangtze River Delta Region, Thus Steadily Pushing Forward the Deepening of the “88 Strategy” and Starting from the Reform and Opening Up.

1. Introduction

The “golden south wing” of the world-class city group in the Yangtze river delta in the great bay area of Zhejiang province. this year's report on the work of the Zhejiang government proposed that the development of regional integration in the Yangtze river delta should be upgraded to a national strategy and an outline for the implementation of the development plan should be drawn up. At the provincial level, the 2019 work report of Zhejiang provincial government listed “adhering to the all-round integration of the whole province into the Yangtze river delta”, “promoting the construction of the gulf region” and “improving the energy level of Hangzhou bay economic zone” as the province's key work this year [1]. the construction of the gulf region is a high-energy strategic platform for Zhejiang to fully integrate into the integrated development of the Yangtze river delta.

The overall goal of the construction of Zhejiang's great bay area is to become a “green, intelligent, harmonious and beautiful world-class modern great bay area” [2], which is in line with the development goal of higher quality integration in the Yangtze river delta and is put forward against the spatial background of world-class metropolitan groups in the Yangtze river delta. In line with the geographical characteristics of Zhejiang's neighboring bays (bays) and agglomerations (urban agglomerations), efforts will be made to build infrastructure and carrier platforms to meet the needs of high-quality integration in the Yangtze River Delta.

In order to promote the construction of Dawan District, the Planning and Construction Group of Zhejiang Dawan District has formulated and implemented the “Recommended Plan for Ten Major Symbolic Projects of Dawan District Construction in Zhejiang Province”, implemented the “Digital Bay Area” construction project focusing on the urban brain, and planned in depth the infrastructure interconnection project focusing on integration into the Yangtze River Delta. High standards will be applied to the construction of Hangzhou's west, Ningbo's Yongjiang and Jiaying's G60 major scientific and technological development corridors, a new industrial platform of “1,000,000 mu and 100 billion yuan” will be built at a high level, a number of future communities will be built at a high level, and financial harbor construction projects, modern logistics system construction projects, international oil and gas trade center construction projects, intelligent ocean construction projects,

and ecological coastal zone construction projects will be steadily advanced. The implementation of landmark projects takes innovation as the core driving force, and promotes the integration and innovation of technologies such as big data, cloud computing, artificial intelligence and block chain in many fields, so as to realize the innovative development of digital economy industry and the modernization of intelligent society and urban governance system. This requires a new generation of digital infrastructure with cloud computing, mobile Internet, Internet of Things and intelligent terminals as the main components in Dawan District. Therefore, it is necessary to strengthen the integrated construction of intelligent application system in Dawan District and promote the intelligent construction of Dawan District [3].

2. The Practical Basis for the Construction of Intelligent Application System in Zhejiang Province

2.1 Overall Situation of the Construction of Intelligent Application System in Zhejiang Province

In December 2016, Dawan District began to implement the “run at most once” reform in an all-round way, deepening measures such as “one-window acceptance, integrated services”, “breaking away from isolated information islands, realizing data sharing” and “promoting approval of enterprise investment projects before construction”. We will build a convenient service platform, a government consultation and complaint reporting platform, standardize procedures, push forward the reform of the administrative examination and approval system, speed up the construction of “four platforms” for online handling of service matters and grassroots governance, build a social credit system, strengthen and innovate government supervision, reverse the government's digital transformation, leverage economic development transformation, and promote Zhejiang's high-quality development.

Remarkable results have been achieved in the pilot construction of smart cities. Dawan District has carried out 20 provincial smart city demonstration pilot projects in the fields of medical and health care, urban management, transportation, energy management and environmental protection, with outstanding results. “Smart Health” collaborative service level has been significantly improved, and a new medical and health service mode based on the combination of individualized medical treatment and prevention based on information has been promoted. The “smart urban management” realizes the coordinated interaction between the government and the public through the application of mobile terminals, and initially forms a new urban governance mode of “common management by all people”. “Smart Express” has set up an operation and management platform that covers Zhejiang Province's expressway network and integrates collaborative management and public travel services. “Smart Energy Monitoring” to Realize Online Monitoring of Total Energy Consumption of Key Energy Consumption Units in Zhejiang Province; “Smart and Environmental Protection” realizes on-line automatic detection and visual monitoring of pollution sources and environmental quality and is popularized to the whole province. The five-year action plan for the standardization of smart cities has been implemented in depth, and the standard system has been accelerated. By the end of 2015, more than 40 national and local standards related to smart cities have been formulated [4].

2.2 The Construction of Intelligent Application System in Major Cities in Zhejiang's Dawan District

The Yangtze River Delta region is the meeting point of a large number of national strategies for the “Yangtze River Economic Belt” and “the belt and road initiative”. With the “Yangtze River Delta regional integration” rising to a national strategy, the Yangtze River Delta region has three major national strategies and is playing an increasingly important strategic role in Chinese new pattern of reform and opening up. Dawan District covers Hangzhou, Ningbo and Wenzhou metropolitan areas, involving Hangzhou, Ningbo, Wenzhou, Huzhou, Jiaxing, Shaoxing, Taizhou and Zhoushan.

3. The Practical Needs and Difficulties in Promoting the Integration of Intelligent Application System in Dawan District of Zhejiang Province

3.1 The Practical Needs of Integrated Construction of Intelligent Application System in Dawan District of Zhejiang Province

The goal of Zhejiang's big bay area is a world-class modern big bay area, which requires a first-class business environment with global competitiveness. However, enterprises have been facing many problems such as difficulty in examination and approval, difficulty in entry, difficulty in handling affairs, and running errands. Therefore, it is necessary to take modern information as the main starting point to strengthen the integrated construction of the wisdom application system in Dawan District, from the aspects of government affairs environment, market environment, financial environment, innovative scenery, legal environment, service environment, social environment, policy environment, etc. Focusing on key links such as enterprise start-up, approval, access, trade, tax payment, financing, etc., we will strengthen infrastructure construction to upgrade the hard environment, reduce the whole process of enterprise start-up, cross-city communication, provide green channels for key projects, continuously improve service efficiency and other measures to optimize the software environment to help enterprises solve the pain points of development. Breaking through the "bottleneck" of administrative examination and approval, which is time-consuming and laborious, improving efficiency, achieving a high degree of sharing of government data, a high degree of integration of enterprise-related examination and approval matters, a high degree of connection between all aspects of government service and required data, and full-process service to create a more open and efficient business environment.

With the expansion of the city, a variety of social problems have arisen, such as increasing traffic congestion, worsening ecological environment, and sharp increase in urban population. How to improve the governance capability of Dawan District is an urgent problem to be solved in the construction of Dawan District. With the development of artificial intelligence, big data, Internet of Things and other technologies, smart cities have gradually become an effective means to improve the governance capability of the city. Through the use of remote sensing, meteorology, environment, safety, transportation, mobile and other monitoring networks, and in combination with spatial location information, an all-round spatial perception of urban integration is realized, and a "multi-rule integration" platform, an e-government platform, a comprehensive supervision platform and a shared service platform are built. It can realize more efficient, coordinated and intelligent operation of the city, make the life of city residents more convenient, reduce energy consumption, minimize environmental pollution, respond to demands as quickly as possible and handle affairs efficiently. Establish and improve the urban emergency command system, open up the emergency command data link, form a situation of close division of labor and cooperation, rapid response to disposal of relevant departments, and improve the safety of the city.

3.2 Bottleneck of Integrated Development of Intelligent Application System in Dawan District of Zhejiang Province

Smart city is a new concept and new model that is applied to information technologies such as Internet of Things, cloud computing, big data, and spatial geographic information integration to promote the wisdom of urban planning, construction, management, and service [5]. Compared with digital cities, smart cities place more emphasis on the comprehensiveness of urban information application and decision support capability. In particular, smart cities place more emphasis on the interrelation between information technology and urban development, urban planning, construction and management. As Dawan District is a cross-city and cross-regional geographical space, there are many problems such as unbalanced regional development level of smart application systems, difficulties in data exchange and sharing, imperfect overall coordination mechanism, and various system interface standards.

4. The Urgent Key Areas for the Integration of Intelligent Application Systems

According to the requirements of “Zhejiang Dawan District Construction Plan” and “Zhejiang Dawan District Construction Ten Major Symbolic Projects Promotion Plan”, and in combination with a series of urgent needs such as urban business environment optimization, urban governance, environmental protection, information benefiting the people, intelligent security, and intelligent ocean, the integrated construction will be promoted from the four major fields of government service, urban governance, information benefiting the people, and environmental protection, so as to realize the interconnection of intelligent application systems and enhance the intelligent experience of the government, enterprises, and the public.

4.1 Integration of Government Services

We will deepen the application of smart government affairs, innovate government service methods, push forward the “one run at most” reform with digitalization, and accelerate the construction of an integrated government service platform that integrates the functions of administrative law enforcement, convenient service, government affairs publicity, efficiency supervision, etc., with a unified framework and multi-level linkage. On the basis of the one-stop online processing mode, we will promote the reengineering of the approval process, parallel approval, realize the sharing of government resources, cross-regional, cross-departmental and cross-level information sharing and business collaboration, and strengthen the integrated construction of the intelligent application system in Dawan District.

4.2 Urban Governance Integration

The construction of Da Wan District in Zhejiang will focus on upgrading the level of urban modernization, promoting the development of central cities and the construction of urban agglomerations, and creating a high-quality Bay District. Actively push the integration and application of new generation information technologies such as big data and artificial intelligence in the field of urban governance, integrating urban brain, intelligent security, intelligent urban management, intelligent ocean, etc. to strengthen the integrated construction of recommended bay area intelligent application system, realize the global real-time analysis of the whole city, automatically allocate public resources, and finally truly realize the wisdom of urban governance.

The “Digital Bay Area” construction project, focusing on the urban brain, is a new generation of digital infrastructure with cloud computing, mobile Internet, Internet of Things, intelligent terminals and integrated air, sea and land communications as the main components. Full deployment of the next generation Internet based on IPV6, construction of IPV6 upgrade and renovation of backbone network, metropolitan area network, access network, Internet data center and support system, realization of full coverage of broadband fiber access to urban fixed Internet, construction of ultra-high definition interactive digital home network. Accelerate the scale deployment and commercial use of 5G networks, and cultivate and expand construction operators; Actively expand the application field of “urban brain” construction, and orderly construct intelligent management service systems such as transportation, safety, monitoring, environmental protection, tourism, etc.

4.3 Integration of Information Benefiting the People

Ten landmark projects for the construction of Dawan District propose the future community construction with high-quality life as the focus, namely focusing on three-dimensional value coordinates of humanism, ecology and digitization. We will build an integrated system that focuses on the innovation of nine scenarios in the future, including neighborhood, education, health, entrepreneurship, architecture, transportation, low carbon, service and governance, so that people can have a sense of belonging and comfort, meet the service needs of a 5-to 10-minute living circle, integrate intelligent transportation, intelligent health insurance, and intelligent education, and promote the construction of intelligent application systems in the Gulf region as well as the all-round development of people and social progress.

4.4 Integration of Environmental Protection

Strengthen the construction and layout of the environmental quality monitoring network in the whole bay area, monitor and perceive the ecological environment such as water, soil, gas, noise, radiation, etc., strengthen the collection and sharing of multi-department information designed for environmental protection, improve the Internet of Things system for ecological environment monitoring, promote the application of integrated environmental protection system features, and integrate into the provincial ecological environment collaborative management system. Through correlation analysis and comprehensive analysis of ecological environment quality, water quality and changes in water areas, pollutant emissions, greenhouse gas emissions, environmental carrying capacity and other data, the integration and utilization of economic and social, basic geography, meteorology and hydrology and the Internet data resources and information services will be strengthened to achieve accurate environmental supervision and scientific environmental decision-making.

5. Promoting Safeguard Measures

5.1 Strengthen Top-Level Design

In order to further promote the construction of Ningbo's new smart city, it is necessary to thoroughly implement the spirit of the "Nineteenth National Congress", the spirit of the speech by the General Secretary of the Internship on "Implementing the National Big Data Strategy to Accelerate the Construction of Digital China" and the overall requirements of the national new smart city construction. According to the five development concepts of "innovation, coordination, green, open and sharing", the guiding ideology of people-oriented and sustainable development, and the goal of "wisdom, good governance, pluralism and common governance", it is necessary to vigorously promote the effective integration and innovation of modern information technology and urban governance services, and build a new smart city of "data-driven, business collaboration, industrial integration, application and upgrading, and information security". Focus on building a "five-in-one" system of infrastructure system, data resource system, application support system, industrial ecological system and information security system. The main construction framework is "1+5+3+1+N", i.e. a ubiquitous high-speed interconnected network system with five centers (big data center, smart city operation center, big data exchange and trading center, digital economy innovation center, network information security monitoring and protection center). On this basis, we will focus on building "government cloud", "People's Livelihood Cloud" and "Industry Cloud" as three clouds, and a smart city brain (CityGo). We will focus on building N smart application systems around smart party building, government management, people's livelihood services and social governance. By 2020, we will strive to form an intensive and coordinated network infrastructure, efficient and transparent smart government, fine and accurate smart governance, diversified and inclusive smart people's livelihood, integrated and innovative smart industries and diversified and innovative investment, construction and operation modes. The scale of smart industries will break through the overall development level of smart cities, continue to maintain domestic leadership and take the lead in entering the international advanced ranks.

5.2 Deepen the Innovation of Information System and Mechanism

Guided by joint construction and sharing, we will strengthen top-level design and overall coordination and management, give better play to organizational efficiency and overall coordination and promotion, effectively solve thorny problems such as government data integration and sharing, major industrial development and comprehensive application project construction, avoid duplication of investment in construction, maximize the performance of capital use, and improve the level of integration and intensification of smart cities in the city.

To strengthen the leadership of the information work, to promote network security and information work in Zhejiang Province as a whole, to form a unified, clear, coordinated and smooth work pattern. We will improve the information development index system and carry out evaluation

and assessment of the level of information development. Establish a market environment, property right system, investment and financing mechanism, distribution mechanism and personnel training introduction and use mechanism conducive to the innovation and development of information technology. Give full play to the role of Da Wan District Data Management Center and establish and perfect the market-oriented mechanism of data resources. Actively promote the construction of government and enterprise chief information officer (CIO) system. Encourage all localities to innovate the promotion and operation mechanism of informatization projects, and establish a market-oriented operation management and dynamic assessment mechanism covering the whole life cycle of projects. Orderly push forward the transfer of relevant government functions to social organizations in the information field. We will explore closer capital cooperation mechanisms, give full play to the leading advantages of the industry, and promote the development of small and medium-sized enterprises.

5.3 We Will Improve the System of Information-Based Regulations and Standards

We will implement standardization of electronic documents and big data, formulate relevant standards and safety guidelines for data resource collection, sharing and opening, data product development and transaction circulation, and establish a cross-departmental data collection, sharing and checking mechanism. To carry out research and application promotion of information technology service standards (ITSS), to speed up the construction of smart cities, information economy, intelligent manufacturing, unmanned driving, Internet applications and other standards and norms, and to improve the standard system in the field of information technology. Encourage the Gulf region to actively participate in the formulation of international standards and industry standards if conditions permit. We will innovate ways to protect knowledge and property rights and strengthen the protection of intellectual property rights in information-related fields. To study and explore local laws and regulations that promote the innovative development of e-commerce, data collection and sharing, network information security, personal information protection, etc., to standardize the market order and promote healthy competition.

6. Conclusion

As Zhejiang's action to implement the national strategy for the integrated development of the Yangtze River Delta region, the integrated development of the wisdom application system in Zhejiang's Gulf region must be coordinated with policies such as the “the belt and road initiative” construction, the coordinated development of Beijing, Tianjin and Hebei, the development of the Yangtze River Economic Belt, and the construction of Guangdong, Hong Kong and Macao's Gulf region. It is necessary to break the administrative restrictions between smart city areas and change the traditional promotion research limited to a single smart city. We must stick to the two keys of “integration” and “high quality”, give full play to our own advantages and strive to promote high-quality economic development and create a better life. This is a long-term work that continuously integrates creativity, exploration and comprehensiveness, thus building and improving the overall layout of Chinese deepening reform.

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References

- [1] Zhejiang Provincial Government Work Report 2019, Zhejiang Daily, 2019-2-3.
- [2] Wang erde. (2018). Zhejiang plans to build “world-class bay area” [J]. Shandong guozi, vol. 86, no. 06, pp. 89-90.

- [3] Ten Promotional Projects for the Construction of Dawan District in Zhejiang Province, Zhejiang Development Planning and Research Institute, 2019.
- [4] The 13th Five-Year Plan for Information Development in Zhejiang Province (the “Digital Zhejiang 2.0” Development Plan). Zhejiang Economic and Information Commission, Zhejiang Development and Reform Commission, 2016-11-15.
- [5] Ji rongjing. (2019). analysis of the current situation of smart city research [J]. cooperative economy and technology, no. 13.