The Concept and Symbol of the Integrated Development of New Urbanization and Informatization

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Abstract. Informationization and urbanization are deeply integrated and inseparable. This paper takes the new urbanization strategy of China as the background, takes the development of new urbanization and informatization as the research object, based on the mutual relationship between the two and the concept and form of integrated development, and establishes the symbol system of the integrated development of new urbanization and informatization with the help of expert interview method, which not only reflects the essential connotation of the development of new urbanization to help the development of informatization, but also objectively reflects the supporting role of information technology in the development of new urbanization.

Keywords: New Urbanization; Informatization; Integrated Development; Symbol.

1. Introduction

Scientific and technological revolution is progressing with each passing day. Today, the world has entered an information age composed of the information industry, the Internet, big data, cloud computing, the Internet of Things and blockchain, which are profoundly changing people's way of production and life. Informatization is playing an increasingly prominent role in the process of urbanization, and the deep integration of urbanization and informatization has become a global trend. The researches of domestic and foreign scholars on the development of urbanization construction and informatization mainly focus on the connotation, influence, strategy, planning, evaluation and other aspects of the two, and the systematic research on the combination of the two is still a little insufficient. The author intends to differentiate and analyze the concepts and interrelationships of new urbanization and informatization, clarify the concept of their integrated development, and based on this, explore the judgment criteria for their integrated development.

2. The concepts of new-type urbanization and informatization and their mutual relations

Urbanization is an important feature of the development of modern society, and it is also a universal law of economic development and social progress in all countries in the world, and new urbanization is a high-level urbanization in line with China's national conditions. Informatization is the trend and trend of social progress, and an important technical means and driving force for economic construction and social development. The integrated development of new urbanization and informationization is an objective demand for China to accelerate urbanization and informationization, and an important guarantee for China to win the right to speak in the world in the 21st century.

2.1 The concept and characteristics of new urbanization

New urbanization is a systematic project. New urbanization is not limited to the transfer of population from rural areas to cities (towns), but also emphasizes its balanced redistribution between cities and towns. On the whole, the new urbanization embodies the following characteristics:

First, the new type of urbanization puts people at the center. The new type of urbanization focuses on connotation development. While further improving urban infrastructure, it will guide population flow and citizenize rural migrants in an orderly manner, safeguard farmers' interests, protect cultivated land resources, strictly control the amount of new urban construction land, and make land more intensive.

Second, the new type of urbanization should be market-led. The new urbanization path respects the objective law of urbanization development, lets the market play a decisive role rather than the government doing all the work, and lets private capital play an active role in urbanization. The government, on the other hand, plays an important role in providing public services and creating an institutional environment.

Third, the new type of urbanization Narrows the gap between urban and rural areas. The new type of urbanization takes urban and rural areas as a whole, builds a new type of relationship between urban and rural areas, promotes rural revitalization, solves the urban-rural duality, and speeds up urban-rural integration to narrow the urban-rural gap.

Fourth, the new type of urbanization adheres to the concept of low-carbon development. The new type of urbanization focuses on promoting green, circular and low-carbon development, emphasizing the intensive use of resources and energy, strengthening environmental protection and ecological restoration, and promoting the green and low-carbon development of urban construction, operation, production and life styles.

2.2 The concept and development characteristics of informatization

The concept of "informatization" originated in Japan in the 1960s and was first put forward by Japanese scholars. Then it was translated into English and spread to the West. The concept of "informatization" was widely used in the Western society only in the late 1970s. The term "informationization" appeared in China later than industrialization, but earlier than urbanization. At present and for some time to come, the development of informatization will enter a new stage, showing some new features:

First, Informationization is supported by infrastructure construction. Information infrastructure is an important cornerstone of informatization development. The construction of Information infrastructure can strongly support the development of digital economy and provide important basic support for technological innovation, industrial innovation, application innovation and innovation and entrepreneurship

Second, informationization is led by innovation and application of information technology. The innovative development of information technology application is a current national strategy of China, which helps to help domestic hardware and software enterprises grow, better maintain national information and data security, effectively make up for technical weaknesses in key core areas, and achieve the development goal of "independent, controllable, safe and reliable". At the same time, it is also the key to the Digital transformation of the national economy and the improvement of the development of the industrial chain.

Third, informatization aims at the digital transformation of society. The economy and society will enter a new stage of comprehensive Digital transformation. The popularization of the Internet, that is, the comprehensive improvement of integrated capabilities and the innovation of information services, will promote the high-quality development of informatization in all fields of the economy and society.

Fourth, IT will focus on data security. Network data security will become the core issue of national network information security, data security problems will be comprehensively erupted in all fields, and the governance around data collection and storage, transmission and circulation, development and utilization will be further improved.

2.3 The relationship between new-type urbanization and informatization

The development of informatization and urbanization is not independent of each other, they promote and influence each other. The healthy development of urbanization has enabled farmers to

lift themselves out of poverty and become prosperous, narrowing the information distance between cities, and providing a good carrier for informatization. The problems of traffic congestion, air pollution, and untimely garbage disposal brought about by high-speed urbanization all constrain the healthy development of the economy and society. However, the rise of emerging information technology and the integration of the information industry and traditional industries make it possible to eliminate "urban diseases"; On the other hand, the development of informatization can effectively promote economic transformation and industrialization, adjust industrial structure, and the latecomer advantage of informatization in promoting urbanization development is increasingly evident, bringing new content and impetus to the development of new urbanization. The deep integration of urbanization and informatization has become a world trend and a distinct characteristic of the times. Urbanization provides a stage, market, capital, talent, and space for information aggregation, information technology development, information industrialization, and information technology application; And information technology and its industrialization contribute to the empowerment, upgrading, improvement, and efficiency enhancement of new urbanization, promoting the qualitative transformation of urbanization form, rich connotation, structural optimization, quality improvement, comprehensive strength, and competitiveness enhancement.The relationship between new urbanization and IT application is shown in Figure 1 below:

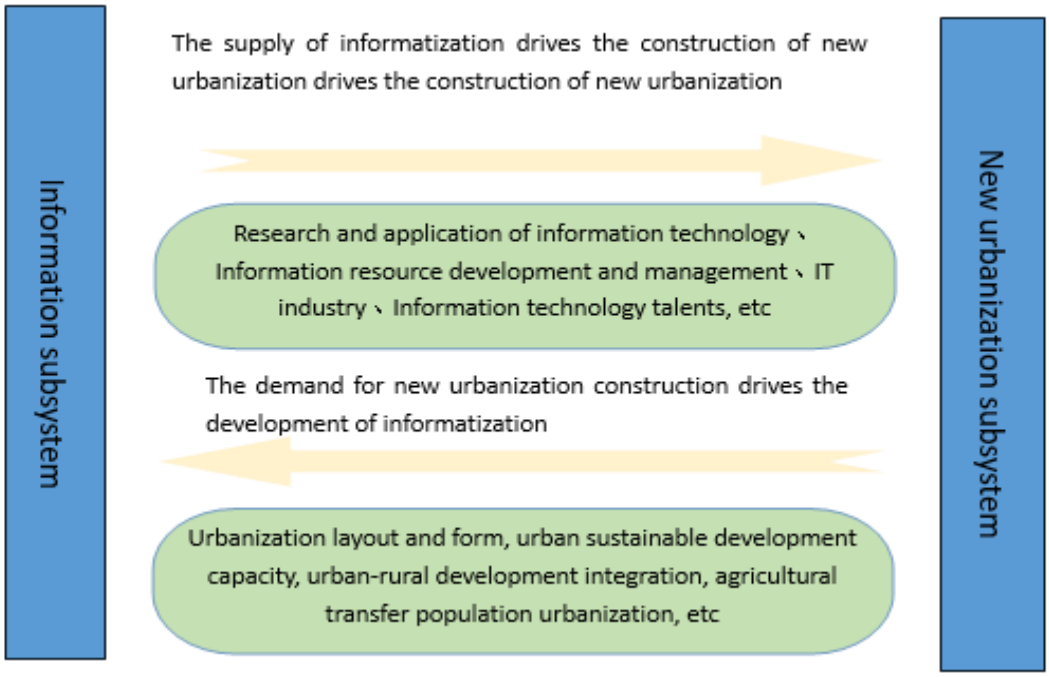


Fig. 1 The relationship between new-type urbanization and informatization

3. The concept and form of the integrated development of new urbanization and informatization

In 2011, the urban population in China exceeded the rural population for the first time. Urbanization brought enormous opportunities to China's development and posed serious challenges to urban construction, social management, and economic development. How to promote the effective integration of information technology and advanced urban management service concepts has become a new proposition. How to achieve the integration of the two is a problem that countries around the world must face, The research on the integration and development of new urbanization and informatization should first focus on the performance of the integration and development between the two, that is, discussing the signs of achieving integration and development between the two.

3.1 The concept of the integrated development of new urbanization and informatization

Integration means integration and assimilation, or at least mutual non-exclusion and inclusive coexistence. In reality, integrated development not only emphasizes integration and assimilation, but also emphasizes cooperation, mutual assistance and mutual benefit. Integrated development does not only refer to the combined development of several levels, but the combined development of all aspects, all levels and broad angles; It does not refer to the general development of relying on each other, combining development and driving development, but refers to the close connection between the two industries and mutual benefit and symbiosis. Therefore, the integrated development of new urbanization and informatization refers to fully leveraging the driving, supporting, and enhancing role of information technology in the construction of new urbanization. Through innovation driven by informatization, the goal is to improve the development quality and efficiency of urban education, healthcare, public services, government affairs, enterprises, etc. through the media of government, enterprises, and the market, A development model that ultimately achieves comprehensive and high-quality development of urban socio-economic aspects.

3.2 Forms of integrated development of new urbanization and informatization

(1) The development mode with "informationization" as the main driving force. In recent years, informatization has become a priority choice for urban construction and development due to its low pollution and high added value characteristics. By establishing new economic development modes, it can promote the transformation and upgrading of traditional industries and the deep integration of informatization and industrialization, thus accelerating urban economic development and improving urban functions. The construction and application of e-government, as well as new information interaction methods such as wechat and Weibo, can comprehensively improve the openness and service of network government affairs. By means of information technology, we can improve the function of urban network intelligent management service, innovate social information management service means, and provide a good development environment for the good and fast construction of urbanization. In addition, for new urban residents, the construction of online education platforms can also enhance the urban life skills of these residents, so that they can better integrate into urban life. The development mode with "informatization" as the main driving force is to effectively promote urbanization construction by strengthening the development and application of a new generation of information technology and promoting the deep integration of various technologies and various fields of urban society, so as to use informatization to enhance the comprehensive competitiveness of new urbanization and achieve development.

(2) A development model with "new urbanization" as the main driving force. For regions with relatively backward economic development, due to the lack of sufficient financial, material and human resources to promote information construction at the same time, we can consider giving priority to promoting urbanization construction and developing information technology at the same time. Urban infrastructure, as the necessary material basis for the sustainable and stable development of economy and society, can provide environmental protection for the further development of information technology. With the improvement of urbanization level, the emergence of new information consumption demand provides a broad market for the development of information industry, and a large amount of capital inflow is conducive to optimizing the investment structure and promoting the optimization and upgrading of industrial structure. In addition, the agglomeration effect of urban resources and the enhancement of radiation ability will also help attract many excellent enterprises and high-end technical talents, and enhance the overall comprehensive competitiveness of cities and towns. Therefore, in the process of new-type urbanization construction, stable development environment, perfect infrastructure, good investment environment, sufficient capital environment and broad market demand can provide a good spatial carrier and support for informatization construction, and lay a solid foundation for the integrated development of informatization and urbanization.

(3) The "two" integrated development as the dual driving force of the development model. In the context of the prevailing information technology, if the new urbanization construction wants to achieve sustainable and stable development, it must conform to the new concept of modern urban development, and promoting the direction of smart city construction has undoubtedly become the best form of integrated development of information technology and new urbanization. In the development of informatization and new-type urbanization, they are not independent, but have a close relationship with each other. New-type urbanization can provide spatial carrier and support for informatization, create a large number of demands and markets for informatization, and informatization can effectively improve the management efficiency and service quality of new-type urbanization, and accelerate the upgrading and transformation of urban industrial structure. Through the construction of smart cities, we can fully realize the promotion role of informatization on new urbanization and the driving role of new urbanization on informatization, and finally effectively promote the highly integrated and integrated development of informatization and urbanization on the basis of mutual leverage between the "two urbanization".

4. A symbol of the integrated development of new urbanization and informatization

As there are few researches directly related to the performance, characteristics or signs of the integrated development of new urbanization and informatization, the research group preliminically established the signs of the integrated development of new urbanization and informatization through brainstorming. See Appendix I for the outline of the expert interview, and further compile the questionnaire by using the Delphi method and the Li Kert scale. See Appendix II for the specific contents of the questionnaire. We investigated and interviewed experts in related fields, and confirmed the symbols of the integrated development of new urbanization and informatization with the help of the knowledge accumulation of experts. Due to space constraints, this report only lists the final indicator system, as shown in Table 1 below:

Table 1. Indicator system for the integrated development of new urbanization and informatization

First-level indicators	Secondary indicators	Specific signs
New urbanization can assist in	The impact of new urbanization on information resources (X11)	New urbanization is conducive to the integration and in-depth development of information resources
	The impact of new-type urbanization on information technology (X12)	New urbanization can promote the development of communication technology
		New urbanization can promote the development of digital equipment manufacturing technology
		New urbanization can promote the development of software development service technology
		The new type of urbanization will promote the cultivation of a new generation of information technology
	The application of new urbanization to information technology (X13)	New-type urbanization can provide more abundant scenarios for the application of information technology
		New-type urbanization can improve the application level of new-generation information technology
	The impact of new urbanization on information-based talents (X14)	New urbanization can provide talent reserve for informatization

information technology construction (X1)	The impact of new urbanization on the information technology industry (X15)	New-type urbanization can foster new business forms of information technology industry
		New-type urbanization can optimize the structure of information technology industry
		New-type urbanization can promote the agglomeration of information technology industry
Informatization Supports the Development of New Urbanization (X2)	The impact of informatization on the Layout and form of urbanization (X21)	Informationization promotes the rational layout of urbanization development
		Informatization can consolidate the digital construction foundation of urban agglomerations
	The impact of informatization on urban sustainable development capacity (X22)	Informationization promotes the modernization of urban governance system
		Informationization enhances the level of urban planning, construction,and managemen
		Informationization supports the transformation and upgrading of urban industrial systems
	The impact of informatization on urban-Rural integration (X23)	Informatization helps promote the integration of urban and rural infrastructure and public services
		Informatization can break the digital divide and technical barriers between urban and rural areas
		Informatization helps urban and rural industries to integrate to a higher level
		Informatization is conducive to the two-way flow of urban and rural resource factors
	The impact of informatization on the citizenization of agricultural migrant population (X24)	Promoting the citizenization of agricultural transfer Population through informatization measures

4.1 New-type urbanization can help informatization construction

New-type urbanization can provide funds, talents and space for information resources, information technology development, information technology industrialization, information technology application, information technology system, etc. Specifically speaking: (1) Cities are the generating and radiating centers of information flow, and information resources are the most important strategic resources for urban development. The development of new-type urbanization can continuously promote the integration and in-depth development of data resources, and at the same time meet the development requirements of new-type urbanization through in-depth development, processing, transmission and application of information; (2) Urbanization development is gradually changing to high-quality, requiring the development of network communication technology as the basis, driven by the transformation of digital equipment manufacturing technology, and the integration with a new generation of information technology, therefore, the investment in various types of information technology research and development is also relatively increased, thus promoting the development of information technology; (3) In the construction of new urbanization, all kinds of e-government platforms, distance education, and telemedicine need to integrate information technology, thus providing a richer scenario for the application of information technology and improving the application level of a new generation of information technology (such as the Internet of things, cloud computing, etc.); (4) Under the background of new urbanization, local governments have introduced talent introduction policies, which have transported human resources for the development of informatization; (5)The wave of urban digital development can promote the agglomeration of

information technology industry, and the innovative application of new generation information technology such as artificial intelligence in urban management, transportation and other fields can cultivate new formats of information technology industry, while optimizing the structure of the existing information technology industry.

4.2 Informationization supports the development of new urbanization

The integrated development of new urbanization and informatization should be shown that informatization can support the development of new urbanization. (1) Digital infrastructure or operation carriers such as 5G base stations, smart highways, and future communities are deeply distributed in urban agglomerations, making up for the limitations of physical space and broadening the scope of urbanization layout; (2) The application of cutting-edge information technologies such as big data, cloud computing, blockchain and artificial intelligence can effectively promote the modernization of urban governance means and governance models, and realize the visual simulation of urban planning information through the application of information technologies such as network, 3S, remote sensing communication and the Internet of Things, so as to improve the level of urban planning, construction and management; (3) Digital technology can be widely applied in urban and rural areas to provide basic technical support for urban-rural integration and development. Through informatization, the digital divide between urban and rural areas can be gradually narrowed, the balanced allocation of urban and rural public resources and public services can be promoted, the two-way flow of production factors can be promoted, the urban-rural integration can be interactive and the development can be jointly built and shared, and the majority of farmers can participate in and share the fruits of modernization simultaneously. (4) Through information technology, it can help the agricultural transfer population improve their vocational skills faster and better, broaden the channels for migrant workers and other groups to obtain housing security and children's school information, and help the agricultural transfer population become citizens.

5. Summary

In summary, the following research conclusions have been drawn in this article:

Firstly, the interrelationship between new urbanization and informatization is manifested as the supply of informatization driving new urbanization, and the demand for new urbanization driving the development of informatization;

Secondly, the integration of new urbanization and information technology refers to a development model that fully utilizes the driving, supporting, and enhancing role of information technology in the construction of new urbanization. Through innovation driven by information technology, the goal is to improve the quality and efficiency of urban education, healthcare, public services, government affairs, and enterprise development through the media of government, enterprises, and the market, ultimately achieving comprehensive and high-quality development of urban social economy.

Thirdly, the indicators for judging the integration of new urbanization and information technology development are mainly divided into two primary indicators: new urbanization can help with information technology construction (X1) and information technology supports new urbanization development (X2). Among them, new urbanization can help with information technology construction (X1) includes five secondary indicators, including the impact of new urbanization on information resources (X11), The development of new urbanization supported by informatization (X2) includes four secondary indicators: the impact of informatization on the layout and form of urbanization (X21).

Acknowledgements

This paper is supported by the project of the Humanities and social science project of Education Department of Hubei Province (Grant No.20Q137), the project of the Doctoral Start-up Fund project of Hubei University of Science and Technology (Grant No. BK202021)

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