A Study on the High Quality Development Path of Building "Smart Community" in Chinese Cities in the Context of Digital Economy

- A Case Study of Haishu District, Ningbo City

Chi Zhang[1,a,*]

[1]*University of Manchester, Manchester, M13 9PL, the United Kingdom*
a. chi.zhang-32@postgrad.manchester.ac.uk
*corresponding author

Abstract: The idea of a "Smart City" has evolved as society as a whole has begun to grow intelligently in the framework of the digital economy. The traditional community governance model, which represents a city's most fundamental unit, is no longer appropriate for the culture of today, and the idea of a "Smart Community" has been put out. It is a new kind of community that uses cutting-edge developing technologies like cloud computing, next-generation internet, big data, and intelligence to be practical, comfortable, convenient, and sustainable. By using the Haishu district of Ningbo as a case study, this research analyses the approach taken and the dilemmas that may be encountered when building a "Smart Community" and proposes a high-quality development path for building a "Smart Community" based on the case. The study finds that stakeholders at all levels need to be closely connected, share data and develop collaboratively, and that there is a need to further develop the talent for "Smart Community" and actively promote the idea of "Smart Community".

Keywords: smart community, digital economy, community governance

1. Introduction

The economy and technology of China have advanced quickly since the reform and opening up in the late 1970s. China is currently concentrating on building 5G networks, data centers, industrial internet, and other new infrastructure. These developments are essentially digital economy infrastructures centered around new technology industries, and the digital economy has emerged as a new engine to propel China to good and rapid growth. The various new business models that have been produced by the digital economy will also serve as an important new growth point for China. As time goes on, Patnaik found that new technology and ideas will continue to redefine how people think about and inhabit cities [1]. Li, Zhao, and Yang pointed out that digital tools, services, and interfaces are being used more frequently by residents in their daily lives, and digitization is changing how people connect and communicate as well as how places are utilized, managed, and used in [2]. The nation has advanced the idea of creating smart cities in tandem with the growth of the digital economy, and as

communities serve as the fundamental pillars of both society and cities, it makes sense that they should be strengthened.

The growth of the social economy has brought new opportunities and difficulties for community government. Scholars have developed theoretical frameworks and practical analyses on how to apply contemporary information technologies like the Internet of Things, geo-information technology, big data, and cloud computing in community governance, and they have advanced the idea of smart community governance. These efforts are intended to better integrate multiple resources, solve community problems, and resolve community conflicts. According to Li, Cao and Hou, the report of the 19th Party Congress even suggests that big data, the Internet, and other technological tools be used as much as possible to strengthen the community governance system, and the Ministry of Housing and Construction mandates that every smart city pilot must carry out a smart community project [3-4]. In this regard, Li suggests that how creating high-quality smart communities has emerged as one of the major issues facing contemporary society, and the creation of "Smart Community" in China is still in its infancy [3]. The development of smart communities is currently typically still in its first stages, and the construction process has run across various difficulties. For instance, the lack of surveillance and access control systems in older communities, as well as the absence of standardized and reliable property management, make it more difficult to maintain control. Additionally, the quality of service facilities differs by town, with some having full-service facilities and others lacking in service activities. Additionally, there is still room for improvement in the level of sophistication and informationalization of community services. Studying the route for the high-quality growth of intelligent communities is therefore vital.

The goal of this research is to create a new community form, enhance community public services and governance, and contribute to the modernization of community governance systems and capacities. It will do this by using a case study approach and a literature approach to examine the path of high-quality development of smart communities in Chinese cities in a digital context. A quick introduction to the topic's history precedes a general introduction to the fundamental ideas, which includes information on the history of the digital economy and the idea of community governance. The third section will use Haishu District in Ningbo as an example and examine the challenges it faced in creating a smart community as well as the strategies it used. Finally, the study will conclude with recommendations and responses to the previous issues and a vision for the future.

2. Literature Review

2.1. Digital Economy

Carlsson pointed out that the Internet, the World Wide Web, and blockchain technologies allow billions of electronic shopping every day between individuals, corporations, academic facilities, non-profits, and distributed computing devices (servers, tablets, cellphones, etc.), and without the Internet, the digital economy would not be able to develop into the Internet of Things (IoT) that it is today [5]. The economy is undergoing a digital transition that is upending traditional notions about how businesses are organized, how customers obtain products and services, and how localities must adjust to new regulatory requirements.

2.2. Community Governance Models in China

Community governance is a method and mechanism for coordination and cooperation based on social and community principles to maximize community order. Community is the essential building block of social governance. Chen and Hou believe that community governance is a framework for the combined engagement of many topics in the management of community affairs [6]. Community is the fundamental unit of social government. In general, Hong observes China's community

governance model has gone through three periods: unitary, neighborhood, and community autonomy [7]. Due to resource shortages and a lack of economic development when New China was first built, the First Five-Year Plan declared that the nation would be governed on a unitary basis. The nation's management needed to be coordinated. According to Hong, with the unification of its most significant administrative, homogeneous, and closed elements, the unitary system serves political, social, and economic purposes [7].

The second phase started after the 1980s when China's neighborhood system replaced other local governance structures as the main one [7]. At this level, Zhai finds that the community is a hybrid one in which the government no longer takes the initiative but rather serves as a facilitator while the group progressively takes control of its own affairs, and in the mixed community model of governance, the government no longer assumes the leading position but rather serves as a facilitator as the community gradually gains autonomy [8]. Hong thinks that the community system stage was the third stage, where the street offices received government approval for community building and quickened the speed of building a community by proposing the "two key components and three levels of management" model of community governance, i.e., a top-down hierarchical organizational system based on the principle of the government, in combination with the street offices, the metropolitan area, and the district [7]. Zhai suggests such a community serves as an illustration of democratic self-governance, with the community council serving as its focal point and working in conjunction with a wide range of other local organizations to conduct business [8].

2.3. Challenges in Traditional Community Governance

The community governance models mentioned above demonstrate how China is speeding and strengthening community governance, but it is apparent that a sizable number of issues still need to be resolved in this process.

In the view of Li and Li, the device of China's community broadband networks, wireless networks, radio and television networks, Internet of Things, and other smart networks is comparatively falling behind, and each community is developing unevenly and in different regions. In addition, it might be challenging to navigate many neighborhoods safely [9]. On the one hand, China's historic neighborhoods frequently lack a cohesive and experienced community police team, and the open neighborhood atmosphere makes community policing more challenging. However, Zhou argues that some neighborhoods lack enough surveillance equipment coverage due to their premature establishment [10]. Cheng emphasizes the community governance platform also needs to be enhanced, both in terms of its capacity for application and integration, as well as in terms of how quickly and easily it can address issues at the local level [11].

Government meddling in local government is excessive. The government should support effective supervision rather than overbearing intervention in the community's hiring practices. The community's administrative systems are not autonomous. Theoretically, a community's people have the authority to decide how to handle its challenges, but in reality, it is not they who are in charge of implementing it. The community governance process is also characterized by low participation by community residents. In the research of Li, Gu and Zhu, the degree of community governance is currently severely constrained by the fact that many people who live in communities have no desire, ability, desire, or order to involve themselves in public affairs, which even increases criticisms and even mass incidents [12].

Currently, community governance performs a poor job of safeguarding and inspiring community employees, which leads to some community staff engaged idly and unproductively. They won't proactively seek out new science and technology skills in this situation. Cheng thinks community governance capacity needs to be improved immediately since local personnel are not sufficiently equipped to employ contemporary techniques of governance, are not particularly proactive in

governance, and are even accustomed to doing their duties passively [11]. But with the growth of the digital economy, a mastery of emerging technologies such as the internet is essential. This has contributed to one of the problems of community governance today. Community governance can easily be flawed if the staff is not dedicated to serving the community. The government should start thinking about how to use policies to incentivize community governance and motivate community personnel, not only the staff, but as mentioned earlier, the participation of residents is just as important.

2.4. Smart Community

Li points out that smart communities were originally used in industrialized Western countries [3]. With the introduction of the concept of "Smart City" and "Smart Community" to China, the Chinese government has also started to take development seriously. All levels of government, industry, and academia in China have fervently promoted the growth of the "Smart Community" in recent years. Even though there are many different definitions of what a "Smart Community" is and a variety of focuses on supporting the development of "Smart Community", Li and Li suggest it is widely acknowledged that a "Smart Community" is both the apex of a "Smart City" and its core unit and component module, and the creation of "Smart Community" serves as the foundation for and results in the creation of "Smart City" [9].

2.5. Research Gap

In China, "Smart Community" is a more recent idea than "Smart City," and it is still innovative, with many interpretations and beginning points for encouraging the building of smart communities. Because the concept is unclear, China's building of smart communities has not been planned or implemented consistently, and there is now a lack of a mature and uniform set of smart community architecture and standards. It has been challenging for China's smart community building to develop a comprehensive strategy due to the lack of cooperation between the many construction groups. Therefore, the development of smart communities in China is still in a relatively early stage and needs to be studied. This study attempts to add to the current high-quality development of smart community construction in China and provide some suggestions and ideas for modern community governance.

3. Case Study

3.1. Overview of the Study Area

Ningbo is one of the early cities in China to promote the construction of "Smart Community", and there are many regions that have already explored several effective models, taking into account their own characteristics [13]. Haishu District is one of the more successful areas of development. The central Haishu District of Ningbo presently has a population of around 624,000 people and a land area of 595.5 square kilometers after the city's administrative division was modified in 2016. With 168 administrative villages, 9 street offices, 7 towns, 1 township, 98 communities, and 8 streets, it is managed by 5 town neighborhood committees. It has developed a linkage mechanism that combines online and offline, network and entity, developed specialized applications like car park management and neighborhood security, and created a complete and accurate community service platform that integrates e-government and commercial services for community members to benefit from the convenience that a smart community brings [3]. Haishu District has constructed a number of standard examples and has been awarded the "2016 China Smart City Promotion Achievement Award" and the title of "12th Five-Year Plan China's Leading City in Smart Government".

3.2. Problems in Community Governance in Haishu District

There are a number of problems with the process of community governance in Haishu District in the past, many of which coincide with those mentioned earlier. Firstly, the community management function in Haishu District is not clear [14]. The original allocation of intelligence becomes perplexing as the number and size of communities grow, as do their management responsibilities. This is due to the fact that departments that were only required to perform a portion of the management duties now have to perform additional duties concurrently. For instance, duties that should have involved helping the community have evolved into departments responsible for inspection and supervision. As a result, community staff members are becoming more overworked and have less time to interact with local residents. At the same time, responsibilities from a lower level, like the neighborhood committee, are moved to a higher level, like the street. As a result, the management is less effective as a whole, and the functions are unclear.

Secondly, residents were not sufficiently involved. Even though the community has set up a director for efficiency reasons in line with the requirement of one social worker for a specified number of residents, residents in Haishu District report that there is not a good sense of involvement because there is actually a mismatch between services and needs.

Thirdly, the power of self-government of community residents was not sufficient and there is also not enough community cohesion. In a survey done by Liu and Wang, residents' needs in Ningbo for "Smart communities" were characterized by diversity, with resident communication being one of the biggest needs of residents [13]. However, in practice, urbanization has hastened the alienation of contemporary neighborhoods from one another. The Haishu district's inhabitants lack the ability to govern themselves, and they have a weak sense of community engagement and belonging. Elections frequently turn into a formality, and many people barely engage in community events. Even the citizens' committee is not recognized.

3.3. Overview of "Smart Community" Construction in Haishu District

Core Philosophy. According to Wu et al., during the construction of "Smart Community" in Haishu District, there are several principles: first and foremost, the goal is to increase public satisfaction and government effectiveness [15]. The establishment of appropriate policies and institutions, which raise the bar for regional social management, advance the equitability of fundamental public services, and achieve good governance in community social management, integrate management and services. By creating an information platform and implementing cutting-edge information technology, the community will give inhabitants the greatest ease possible when doing their tasks and utilizing services. This would enable easy access to information and application services for residents from any location at any time, fostering a friendly environment for neighborhood living.

The incorporation and shared utilization of information resources serve as the foundation for the second point. Achieving successful management of "individuals, spaces, things, objects, and organizations" in the area is a goal of the smart community, as is catering to locals' requirements for "food, lodging, mobility, tourist, retail, recreation, and health" services. Therefore, it's necessary to effectively combine all the information, show it to the residents in a clear, comprehensive, and visually appealing manner, and promptly take into account their wants.

Neighborhood services that are specific to a given location define the third point. The living circle concept is one of the main focuses of recent planning, as residents often live their daily lives within a 5km radius of themselves, such as eating, parking, shopping, etc. By offering a smart community service platform, Haishu District allows local residents and tourists visiting to easily acquire the location information they require as well as other information about its nearby services through smart terminals, offering the greatest convenience possible.

Construction Mode. In general, the construction of intelligent communities in the Haishu District can be summarized as follows: "one cloud, two networks, one platform and two parks". The District Government Information Resource Center serves as the core carrier and the foundational "cloud database", while "Optical and Wireless Networks", "Smart Community Comprehensive Service Platform", "Ningbo E-commerce Industrial Park", and "Cross-border Trade Park" provide the infrastructure support and construction of the "Smart Community" [14].

One Cloud: Haishu District had a significant problem with information silos and resource information asymmetry in many of its departments, but this issue was resolved by the construction of a government information resource center.

Two Networks: By the end of 2012, 98% of Haishu's residences were connected to the fiber-optic network, and by the end of 2013, 99.5% were. Haishu District currently has full optical network coverage, and public places, office buildings, thoroughfares, and public institutions all provide free WiFi. Free WiFi is available in all government facilities, office buildings, public parks, and significant public areas including the city's main thoroughfares.

One Platform: In order to provide free information services to people and enterprises via information channels, the Haishu District Government employs 81890 as a full platform. It provides a mechanism for the government to assess the community's efforts, a functional workspace for social workers, a platform for residents to exchange living services, a number of service channels for businesses, and a way for inhabitants to access a variety of intelligent services.

Two Parks: Using e-commerce as a leading sector, Haishu District has aggressively promoted the growth and concentration of smart industries based on the establishment of smart communities, supporting the development of Haishu's smart industries to create a smart industry chain. The development of these sectors has provided the fuel for the expansion of smart communities in addition to fostering the development of linked wisdom enterprises.

System Architecture. As shown in figure 1, the Haishu District Smart Community's system design is composed of two main guarantee systems and five tiers at the technological level [14].
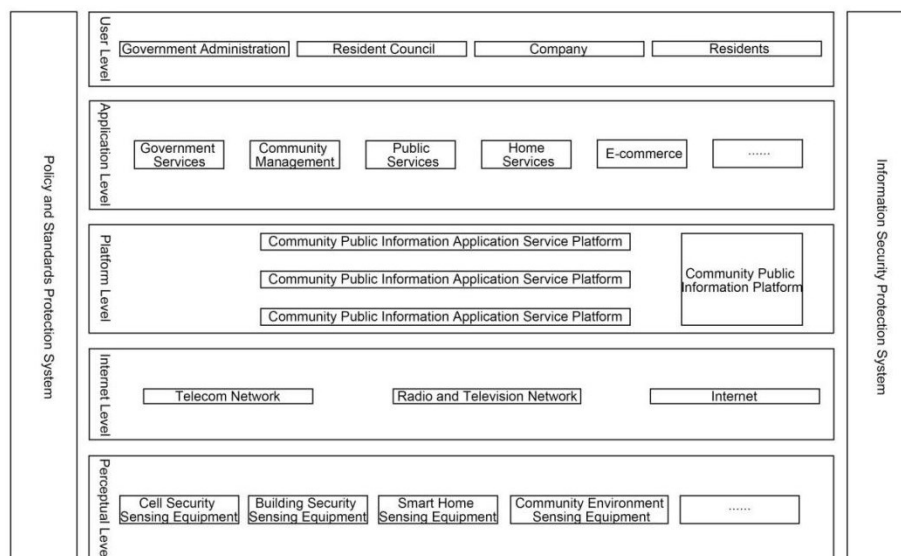

Figure 1: System architecture for "smart community" building.
(Adapted by Author, Source from: Zhang, 2018)

3.4. Challenges Appeared During Construction

Although Haishu District has been more successful in building "Smart Community", there are still some challenges in the construction process. The first dilemma encountered in building a "Smart Community" is the slight deviation in positioning and perception, the lack of clarity in the concept and the difficulty in creating a holistic promotion dynamic [9]. On the one hand, there has not been much progress made toward implementation despite enormous financial and human resources contributed by some regions, leaving a tiger's head and a snake's tail in its wake. The building process is well known to be digital and automated, but despite this, it does not reach the level of the entire and does not take into account refined management, the demands of the inhabitants are not addressed, and there is insufficient resident participation in the "Smart Community".

Second, it lacks the operability in top-level design. The biggest barrier to resource integration in the process of creating "Smart Community" remains "information silos", notwithstanding all improvements [16]. Computer programs are known as "information silos" are not functionally interconnected to one another, do not share or exchange information, and are not connected in terms of information and business processes and applications [14]. There were major issues with duplicate construction, poor application compatibility, inconsistent standards throughout the development process, and difficulty integrating and using relevant resources. All sizes and types of communities, including those that were new and ancient, urban and rural, and those with fixed and shifting inhabitants, were impacted by these problems.

Not only that, but some places also lack the concept of sustainable development, thinking only about the current needs of the residents to the exclusion of future development, and also lacking specific consideration of the actual situation, resulting in actual development being shackled and subsequently requiring a lot of energy and money and maintenance. Future social challenges like demographic change, medical education, and aging are not taken into account, and neither are the many technology advancements that could take place.

4. The Path to Building "Smart Community"

To achieve significant results in the development of China's intelligent communities, people must be acutely aware of the issues, take proactive measures to continuously innovate community governance, and consider all aspects of developing new intelligent communities, including concepts, methods, content, and technical means.

4.1. Focus on Top-level Design and Strengthen Resource Integration

The top-level design of a "Smart Community" building at the central level seeks to establish technical specifications, define the construction concept, and harmonize the driving ideology. Municipal governments should coordinate the coordinated planning, deployment, and construction of smart communities at the operational level within the general framework of creating "Smart Community", and specific guidelines for doing so should be developed to clarify the key elements, supporting environment, and key tasks, as well as to set up the key implementation and optimization programs and assessment systems [13]. Furthermore, the construction of "Smart Community" should follow a refined design tailored to local conditions. The specific circumstances of each community are different and modelling should be avoided, leading to a situation where services do not match demand. Finally, in order to achieve a sustainable smart community, it should be built not only with the current needs in mind, but also with room for future development.

One of the most important characteristics of a "Smart Community" is its ability to share and exchange resources with other organizations and management departments in society to the greatest extent possible. To achieve this, the construction of a "Smart Community" should employ a variety

of methods to integrate the resources of all parties in society, break down barriers between departments, industries, conditions, and regions, and establish a unified information management platform based on a scientific top-level design. By offering thorough information, locals and visitors may easily use terminals and other tools to find the information they require. Therefore, the smart system's design must be both technologically feasible and allow access so that data sources held by various departments can be spread in terms of both software and hardware, dismantling information silos. This will enable the smart system to be practically applied to people's lives and community management. Cybersecurity is also a very important point, protecting the information and personal safety of users.

4.2. Innovative Construction Model to Enhance Multi-participation

The development of a "Smart Community" cannot be carried out by a single person. The link between the government and social organizations must be made clearer in order to effectively build "Smart Community", and many stakeholders must be encouraged to contribute to its development. In order to achieve mutual checks and balances between them, the government and social organizations must acknowledge the equality of their legal standing and sign cooperation agreements. In addition, a third-party monitoring mechanism should be incorporated to establish the limits of the rights of the government and social organizations and to regularly assess them through the establishment of reasonable assessment criteria in order to prevent "rent-seeking" brought on by the escalating tensions between them [9]. Regardless of which party is dominant, there is a risk that the autonomy of residents in the process of community governance will be reduced, and low autonomy is one of the several challenges of community governance.

All levels from top to bottom need to be closely linked, otherwise it is easy for misinformation to be passed on, leading to a bias in the positioning and perception of building "Smart Community", with the consequence of investing a lot of manpower and money without any success. Building "Smart Community" should remove barriers to communication at all levels and take advantage of data sharing to maximize its value, gradually enhance its value, and finally make it accessible to the general public. Additionally, a leadership group with the "Smart Community" at its core can be established, allowing for the quick and accurate collection of any practical issues that come up during the construction process. As a result, a multi-party shared construction and management model is formed.

4.3. Creating a Humanistic "Smart" Environment to Help Promote "Smart Community"

Without widespread identification of "Smart Community" by local inhabitants and a corresponding shift in behavior patterns, as well as without the instruction of qualified technical and managerial professionals, the development and effective operation of "Smart Community" cannot be realized [9]. First and foremost, advocacy should be approached from multiple angles. In particular, older people are less likely to use cell phones and watch more television, so they can actively rely on new media such as WeChat and TikTok to promote publicity matters while still relying on traditional media such as television to support the development of "Smart Community". To create a radiation effect, we should especially focus on promoting young organizations [16]. In order to help community members comprehend and utilize the intelligent systems of "Smart Community" and to improve people's adaptability and sense of recognition in the use of smart products, it can also widely carry out the rising popularity of knowledge related to the construction of smart communities through concept propaganda and real-life experience.

In addition to this, the development of staff talent for "Smart Community" is important. As mentioned earlier, in the process of community governance, there is often a lack of enthusiasm and

perfunctory completion of work by community governance staff due to problems such as inadequate policy incentives. The country should aggressively integrate its own research and development efforts in order to create "Smart Community". It should also increase research in important fields and technologies and put together a team of experts who are proficient in the major smart industrial technologies. To develop professional skills for "Smart Community" and entice additional businesses and organizations to take part in their creation, the government should implement a number of different regulations and incentives. Give community workers a platform for ongoing education so they can continually raise their skill levels and capacities and contribute to the creation and management of the "Smart Community". The building and running of the "Smart Community" will allow the neighborhood to participate.

5. Conclusion

Overall, through the research, this study found that community governance, as one of the most dominant components of the city, has been one of the main focuses of public attention, but with the rise of the digital economy, the traditional model of community governance has encountered some challenges. For example, there is a low level of community autonomy, confusion over functions at all levels and low policy incentives. In this context, the active promotion of "Smart Community" has become an important development direction for community governance.

Using Haishu District in Ningbo as a case study, this research investigates the development paths taken by the construction of "Smart Community" in actual cases and the challenges in their construction, and based on these proposes recommendations for the development paths for building high-quality "Smart Community". In the construction of "Smart Community" in Haishu District, the participation of all levels, the neighborhood network is its central idea, one cloud, two networks, one platform and two parks is its construction code, its system contains two main guarantee systems and five tiers. In the analysis, it is found that in order to build a high-quality "Smart Community", top-level design is important, which is the overall approach that leads all construction, while one should integrate resources at all levels to build a network platform and requires joint participation of all levels in management. Finally, the promotion of smart communities and the development of human resources are also essential for their development.

This research makes a contribution to the analysis of "Smart Community" construction challenges and suggests targeted, high-quality development paths to develop a new scientific "Smart Community" system that will provide a long-term contribution to the modernization of social governance in China as the construction of "smart communities" is currently underway in China. The time constraints and dearth of fieldwork are two potential limitations. Although it is true that the study may not have been flawless due to a lack of time, this weakness was made up for by reading as much of the enormous literature as was possible within the research period. Although it is difficult to avoid limitations in this research, every attempt has been taken to lessen their impact.

For the information given, there is still a long way to go for the construction of "Smart Community" in China. The creation of "Smart Community" is currently underway on a national and international level since it integrates all areas of social administration. It demands continuous development, though, and cannot be finished overnight. In terms of mechanism and system innovation, service concept innovation, application model innovation, and construction and operation model innovation, the development of "Smart Community" must be coupled with local reality. To continuously work toward a more intelligent society, experiments must be carried out, experience and lessons learned must be summarized, and the growth of China's "Smart Community" must be supported.

References

[1]   Patnaik, S: Smart Cities and Smart Communities: Empowering Citizens through Intelligent Technologies. Patnaik, S. Sen, & S. Ghosh, Eds. Publisher, Singapore (2022).

[2]   Li, H., Zhao, X.J., and Yang, Z.J.: Future-oriented smart city space design and construction. Shanghai City Management (04), 52-60 (2022).

[3]   Li, C.H.: New thinking on the Smart community in China: a theoretical analysis framework. Western journal (10), 51-54(2022).

[4]   Cao, H.J., Hou, T.T.: Smart community construction under the background of the new Era: value, logic and path. Guangxi Social Science (02),1-7(2021).

[5]   Carlsson, B.: The Digital Economy: what is new and what is not. Structural change and economic dynamics, 15(3), 245-264 (2004).

[6]   Chen, M., Hou, Y.J.: Future community of —— community construction and governance model innovation [J]. Civic architecture 19(12), 1-4 (2022).

[7]   Hong, T.: Community Governance research in the context of Internet +. Beijing: Capital University of Economics and Trade.

[8]   Zhai, W.Y.: The Historical Change and Innovation of Urban Community Governance Model in China. Journal of Changchun Institute of Education (18), 54-55 (2013).

[9]   Li, G.Q., Li, Y.: The dilemma and outlet of smart community construction in China. Journal of Guangzhou University (Social Sciences Edition) (12), 67-71 (2015).

[10] Zhou, Y.L.: Research on the Community Governance Pathway in the Reconstruction of the Old Residential Area. Residential Housing and Real Estate (22), 20-21 (2021).

[11] Cheng, X.: A Study on the Practical Difficulties and Countermeasures of Urban Community Governance. Journal of Luoyang Institute of Technology (Social Science Edition) (03), 53-56 (2022).

[12] Li, D.Z., Gu, T.T., Zhu, S.Y.: Research on the willingness of residents to participate in governance in the reconstruction of old residential areas——Take Nanjing as an example. Modern urban research (02), 19-25+41 (2020).

[13] Liu, Q.W., Wang, W.J.: Research on Smart Community Construction and Governance Innovation in Ningbo City. Journal of Ningbo Institute of Engineering (01), 54-59 (2020).

[14] Zhang, Q.Z.: Exploring the new mode of Community management in Haishu District, Ningbo City Ningbo: Ningbo University (2018).

[15] Wu, S.W., Zhu, Z.F., Wu, H.Y., Duan, Y.H.: Discussion on the construction and operation mode of smart community in Haishu District. Urban development research (06), 145-147 (2013).

[16] Zhao, Y.T.: Practical problems and difficulties of the construction of "smart community" in the era of big data. Scientific Consultation (Education and Scientific Research) (04), 34-36 (2022).