An Analysis of the Old-age Model of Intelligent Community in Hebei Province under the Background of Artificial Intelligence

Lin Li[1], Yu Zhao[1], Ziyao Ma[1], Chao Ling[2] and Zengyu Han[1]

[1]School of Hebei University, Baoding 071000, China;

[2]Government of Tang County, Baoding 071000, China.

Abstract

Old-age care is an important livelihood project, which is related to the old people's living standards and workers' confidence in the future development. Now hebei Province and the whole country have a greater aging pressure, in the context of the rapid development of artificial intelligence in China, the development of intelligent community pension model will help effectively meet the challenges of aging. This paper analyzes that the pressure of aging and the needs of the people provide the basis for the old-age care of intelligent community, the strength of artificial intelligence and the development of intelligent old-age enterprises in China, and summarizes some national policies, as well as the status quo of the development of intelligent community old-age care in Hebei Province. However, there are problems such as insufficient policy system and greater risk of privacy leakage, so we should strengthen the top-level design of the government, promote the construction of network platform and strengthen the development of related enterprises.

Keywords

Smart Community Old-age; Wisdom; Service Platform; Top-level Design.

1. Introduction

Data released by the National Bureau of Statistics show that by the end of 2019, China's population aged 60 years and over has reached 253.88 million, accounting for 18.1% of the total population, of which 17.603 million people aged 65 and over, accounting for 12.6% of the total population. In order to effectively cope with the profound impact of the "silver wave" of aging on China's economic situation and social life, the CPC Central Committee has proposed at the 18th National Congress, 19th National Congress, "13th Five-Year Plan" and "14th Five-Year Plan" to actively deal with aging, speed up the construction of the old-age system, actively guide the development of social services industry for the elderly, and to cope with the aging of the population as a national strategy. The important conclusions of the CPC Central Committee systematically expound the strategic planning of aging work in the coming period, which is the general guidance of governments and academic circles for the study of aging theory and policy and the direction of market departments to promote the system and scientific development of the old-age service industry.

Community old-age care is a kind of old-age model put forward by the academic circles in the past, which is government-led, builds the old-age service platform in the urban community, provides the old people in the community with door-to-door or provides services in the community place, and tries to absorb other social resources to join the old-age model, aims to build a wallless nursing home that can meet the service and material needs of the elderly. Smart community old-age care is a new form of old-age care put forward in keeping with economic development, technological progress and social conditions. Relying on artificial intelligence (AI) for community old-age empowerment, with a new generation of information technology (5G), join the Internet of Things on the basis of high-tech intelligent products, to the intelligent community old-age cloud computing data center platform, big data computing through the Internet of Things collected including the elderly health indicators, elderly family members, community service agencies, other relevant organizations and enterprises and other information, the elderly service needs, providers and supervisors linked as a whole, in-

depth analysis of the elderly's physical condition, learning old people's habits, Predict the possible needs of the elderly, provide personalized and specialized services in the special circumstances of receiving demand or achieving settings, and retain the whole service log, monitor the quality of service, collect feedback on the services of the elderly, and strive to provide the elderly with the lowest cost, the highest efficiency of professional food, clothing and housing services.

2. A summary of the literature on the old-age care in the smart community

In the wisdom community old-age foundation theory, Chen Li, Lu Qin and so on (2016) think that the intelligent community old-age should rely on a new generation of information technology to integrate the data, analyze the needs of the elderly and provide door-to-door services, the formation of online and offline interactive, professional digital services; In the principle of service system construction, we should adhere to the government-led and provide system guarantee, market-oriented development to encourage the participation of all sectors of society. Wu Kun also believes that the government should play a leading role in providing legal, regulatory and policy support. And the information platform is an important part of the old-age service system (Pan Feng, Song Feng, 2015)

In the construction of intelligent community old-age service platform and system, the fine-grained old-age service system needs a set of intelligent community system, with policy guidance, economic and technical support, and active participation of social forces (Wang Hongyu, Wang Xiaoyu, 2018). Service system should set up service standards and corresponding evaluation system, evaluation indicators should be collectable, can be added, can be recognized (Liu Jun, 2012). The old-age service platform needs to establish a basic database (Wang Xin, Wang Mingshou, 2020), focusing on collecting basic identity information of the elderly, information on the needs of related old-age services, various health data that can be collected, information on immediate family members, etc. (Liu Zhenshan, Zhao Xiangrui, etc., 2017). The service platform should provide the following service functions: emergency services, trial monitoring services, remote health management services, home life services, old-age services, domestic services, care services, etc. (Chen Li, Luqin, etc., 2016)

In terms of the potential legal risks of the intelligent community pension, look at the policies that have been put in place from a global perspective and find that most of them are descriptive policies, with problems such as fragmentation, multiple political outposts and difficulties in landing (Yu Wenya, 2018), which greatly reduces the final effect of the intellectual community pension. Then pull the line of sight back to the intelligent community pension specific implementation process, the standard of old-age service is not unified (Liu Xueting, 2020), due to the lack of intelligent community old-age service industry entry threshold and supply-side basic conditions requirements related laws and regulations arising from the legal risk of service provider qualification (Pan Liping, 2019); because of the model there are multiple subjects and responsibilities of unclear risk, such as in telemedicine accidents, in addition to the traditional medical platform construction, Legal relationships between platform providers and medical institutions (Sun Leiyang, Sun Jingjing, 2018); In the legal concept of traditional law is not adapted to the new form, the lag of legal rules and the forward-looking wisdom of technology there is a natural conflict (Zhu Hailong, Tang Chenming, 2020). In terms of specific operation, the ownership of intelligent old-age products is generally a special object and whether some special products have a "personality", these theoretical differences lead to the current stage of accountability and legal application difficulties (Tang Chenming, 2019)

Through consulting a large number of literature, it is found that intelligent community old-age is also a huge system engineering, can be cut into understanding from many angles: from a technical point of view, smart community old-age care focus on communication technology, Internet of Things, artificial intelligence and other technologies of a large number of applications; from the perspective of needs, smart community endowment is committed to providing professional and personalized physical care, life help and spiritual communication In short, intelligent community old-age care is to adapt to scientific and technological progress and changes in old-age needs of the new business, therefore, we should invest more energy to study it in detail, for China to meet the challenges of aging, to ensure the elderly living standards and human dignity to provide theoretical support and guidance.

3. The necessity and feasibility of developing a new model of smart community pension

3.1 Necessity

More than 40 years of reform and opening-up, with the rapid development of the domestic economy, the improvement of people's living standards, medical technology has been iteratively upgraded, China's life expectancy in 2019 has increased to 77.3 years, accompanied by this phenomenon is the number and proportion of the elderly population is increasing. The number of 65-year-olds nationwide increased from 134.735 million in 2011 to 140.05 million in 2019, representing an increase in the total population ratio from 9.12% to 12.57%. Correspondingly, the number of 65-year-olds in Hebei Province increased from 50.53 million in 2011 to 77.67 million, and the proportion increased to 19.3%, surpassing the national level. After adding a series of important policy factors such as "Healthy China" strategy and "Comprehensive Two-Child" policy to the forecast plan, Du Peng and Li Long calculated that China's elderly population will maintain a growth trend until 2050, and the scale will reach 4.12 by 2035 With 200 million people and 480 million by 2050, the peak will remain around six years and then enter post-growth, about 30 years later than the peak in total population size, meaning China faces at least 30 years of negative population growth and an ageing population.

In addition, the society's huge demand for intelligent, systematic and warm old-age model is also a great driving force for the development of intelligent community old-age care. First, our country is currently in the economic shift period, but also encountered the impact of the domestic new crown epidemic and the impact of the foreign round after round of the epidemic, a variety of factors mixed together to cause various industries have produced different degrees of "inner volume", workers employment pressure is greater, lack of sufficient energy to continue to maintain the family pension model. Second, under the influence of family planning policy and the change of conception of fertility, China has realized the miniaturization of families, the average size of households in 2019 has dropped to 2.92 people, the same period in Hebei Province 3.1 people, this form also requires other subjects to assist in old-age care. Third, regardless of domestic and foreign, the elderly are more inclined to choose home old-age care, such as the previous argument that home-based old-age care has been more difficult, and intelligent community old-age care is just a good compromise. Fourth, our country is striving to build a well-off society in an all-round way, children and the elderly want to get a higher level of old-age services, intelligent community old-age model is not only the comprehensive use of intelligent technology and meet the spiritual needs of the elderly, so, whether from the large social form or specific old-age needs, the development of intelligent community old-age care is necessary.

3.2 Feasibility

The Party's positive attitude towards artificial intelligence and the series of documents issued by state ministries strongly support the development of the model of old-age care in smart communities. In 2018, General Secretary Xi Jinping pointed out the need to strengthen the in-depth application of artificial intelligence in areas such as health care, assisting the disabled and providing innovative services, and Premier Li Keqiang has repeatedly given full recognition to artificial intelligence technology in the Report on the Work of the Government. Between 2011 and 2019, the State Council of the central government issued a series of documented policies covering the Internet of Things, Internet plus, artificial intelligence, pension service system construction, intelligent old-age care and industrial products, and issued policies jointly by single-sector, multi-sectoral and even more than ten departments, showing that China has put "science and technology and old-age" to an unprecedented height, and this kind of preferential policies together provide an unprecedented development environment for the new model of smart community old-age care.

Entering the 21st century, especially in the last 10 years, the world's science and technology have made great progress, in recent years, China has been increasing investment in scientific research, coupled with the world's most complete industrial chain, has achieved considerable results. First of all, a variety of photosensitive sensors, sound sensors, gas-sensitive sensors, chemical sensors and

other sensors more and more stable, more and more accurate, frequency response more and more fast, so that the machine collected more and more accurate data. Secondly, China's 5G technology and network construction are in a leading position, in the government and Huawei and ZTE led by the joint efforts of the communications enterprises, China's probable first to build a cost-effective 5G network covering the whole population; In 2019, the Chinese Academy of Sciences released a ranking list of global artificial intelligence companies. There are a total of 7 Chinese companies on the list, only lower than the 9 companies in the US. In the global AI patent ranking in 2020, there are 5 Chinese companies in the top 10 and 9 Chinese companies in the top 20. This shows that China's artificial intelligence strength has been the world's leading level. Finally, with the help of the development of Internet enterprises, a variety of intelligent equipment springing up to enter the market, such as smart bracelets, intelligent blood pressure meters, intelligent robots, relying on the strong industrial chain integration strength can also quickly produce products that have not yet been involved in the field, the future will have more Internet of Things intelligent products to enter the market. Strong artificial intelligence computing power and rich intelligent products have provided strong support for the development of intelligent community pension model.

4. The current situation of the development of old-age care in the smart community of Hebei Province

In order to form an effective interface with the relevant policies issued by the central government, the Hebei provincial government has formulated more characteristic policies to study the "provincial situation" of the province in depth, and has provided strong support for the realization of the goal of intelligent old-age care and the promotion of the development of intelligent community old-age care. In 2013, it issued the Implementation Opinion on Speeding Up the Development of the Old Age Service Industry, which pointed out that we should strengthen the construction of old-age service facilities in urban and rural communities, promote Internet of Things technology and develop products for the elderly, and improve the quality of life of the elderly. The notice on the issuance of the Measures for the Administration of Funds for the Construction of the Old Age Service System in Hebei Province clearly stipulates the provision of operating subsidies for old-age institutions, subsidies for the construction of community-based old-age service facilities, old-age services and nursing subsidies for the elderly with economic difficulties, subsidies for the construction of the information platform for the "Internet and Smart Old-age Services", subsidies for elderly service personnel.

In Hebei Province, the city under the jurisdiction of different ways to promote the development of intelligent community old-age care. Tangshan Guzhi District to create a "Internet plus health care combined" service model, the Internet platform, primary health care institutions and Sanjia hospital organic integration, effectively solve the medical resources allocation "last kilometer" this problem. The elderly can enjoy life care, telemedicine and other services through modern media means, and special elderly groups such as incompetence and living alone are equipped with specific mechanisms to solve their eating difficulties. The establishment of intelligent old-age information service platform and the region's nanny, primary medical institutions and other information collection, so that the Internet of Things, big data and other new generation of information technology in the field of old-age play a role. Yantai City will extend the concept of "smart city" to "smart community", make full use of 5G, Internet of Things, cloud computing and other high-tech, form an information-based, intelligent community, so that the community people fully enjoy the smart home, home care, personal health and other experiences. Congtai District is the development of mobile phone APP - "community butler", the elderly only need to operate mobile phones can get free medical examination at home, but also choose online warranty, appointment maintenance and other services, committed to building a smart community including smart health, smart old-age and smart property.

In the pilot demonstration list of smart healthy old-age application published by the Ministry of Civil Affairs, the first batch of pilot Hebei Province has only one company on the list of smart and healthy old-age demonstration enterprises, five streets list of demonstration streets, selected as a model base

for old-age care. None of the second batch of lists announced in 2018 will be on the list, with one company in each of the three or four batches in 2019 and 2020. Of these three enterprises, the first enterprise mainly medical equipment sales, the price cap of 12,000 yuan, the vast majority of the product price is not more than 3500 yuan. The second enterprise's main business is to develop related software. The third company offers a wide range of solutions and platforms, such as smart city solutions, big data solutions, and more. The three enterprises belong to different sub-sectors, which can develop harmoniously and achieve win-win results under the model of intelligent community old-age care. But overall, the number of pilot applications for smart and healthy old-age care in Hebei province is still too small, far lower than in other provinces.

5. The main problems existing in the old-age model of intelligent community in Hebei Province

5.1 The central government's promotion and lack of top-level design coexist

General Secretary Xi Jinping and Premier Li Keqiang have repeatedly spoken on important occasions in support of new technologies and models such as artificial intelligence and smart old-age care, and the central government and its ministries have issued various policy documents to promote the development of smart old-age care in the last 10 years. Enough to show the central government's attention to intelligent old-age care, the central government's attention and support will provide strong support for the intelligent community old-age care.

The policies promulgated concerning the old-age care of the intelligent community lack the top-level design, the system is severely divided, and the central government and the local government lack effective and smooth information communication and data sharing mechanism in promoting the cause of the old-age care of the smart community, can not promote the standardization of the old-age model of the intelligent community, and the various departments are separate so that the "smart old-age" system can not maximize the superposition effect of the Internet. In the legal system, only a few laws make principled provisions on the legitimate rights and interests of the elderly in community old-age services, and the lack of supporting administrative regulations, so that the departure of violations of the lack of operability, is not conducive to the healthy development of intellectual community old-age care.

5.2 The overall strong artificial intelligence and the middle-class intelligent pension enterprises coexist

As can be seen from the foreword, the strength of several artificial intelligence enterprises in China has belongs to the world's cutting-edge level, the people are well-known Internet giants are also increasing investment in artificial intelligence, cloud computing and network security and other high-tech fields, and the development of a variety of Internet software to provide people with convenience to live, from the world's response to them can be seen that China's artificial intelligence strength has been not to be underestimated. Although the government encourages social enterprises to participate in the development of the old-age industry, but the old-age is a people's livelihood, doomed to low yield and high investment parallel, from the current social acceptance of the situation is still suffering from certain social risks. To some extent, these factors prevent risk-heavy head Internet companies from entering the smart pension industry.

Artificial intelligence enterprises focusing on the field of intelligent old-age care have a big gap with head enterprises in product production, application research and development, big data computing, smart platform construction. Limited by the overall level of economic development in Hebei Province, the income of the elderly in Hebei Province is low, which in turn affects the acceptance of intelligent old-age products and the willingness to consume, the silver-haired economy can not show its due market size, enterprises will not be able to sell products to withdraw funds, and can not obtain effective financial support. Finally, this part of the enterprise research and development investment is insufficient, can not provide efficient, preferential solutions, can not rely on their own strength to promote the development of intelligent equipment industry chain, upgrade sensors and update

products, and since then into a vicious circle and delay the development and progress of enterprises, so that it can not meet the needs of the intelligent community in the first time.

5.3 The phenomenon of information silos and the risk of information disclosure coexist

Information silos, that is, information data lack of sharing mechanism, the modern intelligent old-age model to achieve full effectiveness of the necessary premise is the existence of a unified big data resource base, which includes a variety of statutory information, to maximize the efficiency and level of services in the old-age service sector. In order to reduce the computational error of the old-age service system, reduce the prediction error to the maximum, and protect the elderly from the consequences of system errors, it is necessary to require the database to have sufficient amount of information, which is necessary to ensure the calculation of big data. And the domestic government information technology for a long time to the department as the center, the lack of data sharing mechanism between departments, coupled with data is regarded as "private property", and ultimately led to the departments to master the limited and open old-age data intelligence, it is difficult to achieve real sharing.

The risk of information leakage also seriously hinders the development of the old-age model of smart community. At present, information leakage can be broadly divided into two categories: active disclosure and passive disclosure. Active disclosure refers to the system's internal information master to seek private illegal profits and disregard the national laws and regulations to actively choose to sell pension data through various means. Passive disclosure refers to data leakage caused by the theft of databases by illegal individuals and institutions by illegal individuals and institutions because electronic information data protection technology cannot meet the actual needs. In addition, there is a lack of domestic laws and regulations on data protection, although in 2017 promulgated and implemented the People's Republic of China Cyber Security Law, but it is only a programmatic law, lack of intelligent community governance provisions, and not many use cases. Various reasons raise the risk of information leakage, it is true that information leakage does not only occur in the field of old-age care, but its impact in the field of old-age care is even worse.

6. To promote the healthy development of the intelligent community old-age model of countermeasures to explore

6.1 Do a good job in overall planning and improve the construction of policies and legal systems

In order to promote the healthy development of intelligent community old-age care, the higher-level government should do a systematic top-level design and principle planning from the development direction to the whole process of safeguard measures, so that the policies are connected with each other and reduce the loopholes between the policies. Local governments should raise the level of attention and awareness of the elderly in smart communities, and formulate the implementation rules of higher-level government policies in the light of the current situation of local economy and society, so that the tasks can be implemented. Efforts should be made to solve the fragmentation of policies related to the elderly in smart communities, with local governments directly leading or selecting specific institutions to take full responsibility for related matters, and establishing intergovernmental information communication and data sharing mechanisms. And set out to establish a unified industry standards, such as market access standards, information collection standards and old-age service standards, to strengthen the coordinated development of the industry, promote the integration and optimization of resources, so as to reduce the phenomenon of "information island" and avoid vicious disorderly competition.

Under the background of ruling the country according to law, strengthen the construction of laws and regulations related to the old-age care of the intelligent community, provide a solid legal basis for the development of the old-age care in the intelligent community, and strengthen the legal guarantee. We should promote the legislative work in the field of artificial intelligence, clarify the application norm system of artificial intelligence in the old-age system in the Internet age, and especially clarify the division of the relevant responsibilities of legal subjects. Update the definition of personal privacy in

the relevant laws, classify personal data as personal privacy rather than platform company private property in the Internet age, include it in the scope of personal privacy protection, and make corresponding adjustments to the relevant punitive provisions. Establish an efficient regulatory mechanism, strive to improve the level of regulatory technology, select a team of experts in the industry for professional and irregular supervision, to achieve effective supervision. Protecting the privacy of older users in accordance with the law may minimize the risk of personal privacy disclosure.

6.2 To promote the construction of a smart community old-age service platform in an integrated manner

First of all, the government should promote the construction of the basic database. The basic database is the necessary basis for providing service advice to government and community service departments through cloud computing and improving service quality, old age and children's access to service advice, and the government should lead the way in combining work experience, examining changes in residents' lives and carefully considering the recommendations provided by the smart old-age service platform builders to design a comprehensive basic database. At the same time, we should integrate the data information that already exists among departments, make full use of the existing resources to avoid waste of resources and reduce the inconvenience of the elderly.

Then we should promote the scientific construction of service platform. For the construction of the old-age service network platform actively borrow market forces, give full play to the comparative advantages of science and technology enterprises. For specific services, the government actively coordinates the access of property, hospitals and other related service institutions to the smart community pension service network, and limits the price increase. Fully consider the development differences in Hebei Province, the network service platform modular, developed cities can choose to access more modules, more backward cities can choose access to fewer modules, fully combined with the local economic development situation for the elderly to provide intelligent old-age services. At the same time, minimize service level differences.

Finally, the operation software and operating system construction should be optimized. In most cases, smart community old-age service demand side needs to rely on smart devices to achieve, while the elderly internet smart devices use less ability and lack of willingness to learn. Therefore, smart device providers should combine the thinking logic of the elderly as far as possible to simplify the process of device operation, the development of voice operating system, reduce the learning difficulties of the elderly. Governments should also organize learning activities to help older people learn to use smart devices in order to bridge the "digital divide" and enjoy the "digital dividend".

6.3 Strengthen the development of enterprises in the corresponding markets

The government should formulate and implement preferential policies for smart old-age enterprises, provide them with appropriate tax incentives, tax relief and financial support, make efforts to reduce the operating pressure and financing difficulties of enterprises, and relax the capital constraints of smart old-age enterprises.

Enterprise level should continue to research artificial intelligence technology, constantly optimize their own algorithms, improve the elderly service platform construction, maintenance, security capabilities, do a good job of information support and information security. At the same time increase investment in smart device research and development, develop more categories of intelligent old-age products, iteration of existing product lines, promote intelligent equipment system upgrades, so that the elderly enjoy a more comprehensive and higher level of intelligent services. Finally, we should strengthen the construction of professional personnel team, improve the welfare treatment of employees in the old-age service industry, attract more service personnel and developers to join, improve the construction of the personnel training system, focus on the training of intellectual old-age needs of professionals and composite talents.

Acknowledgements

Hebei Province Social Development Research Project in 2020: Research on the Construction of Old-Age Services in Smart Community in Hebei Province (20200302064)

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