

The Exploration and Practice of the Internet of Things to Promote the Management and Service Construction of Smart Communities in the Epidemic

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Abstract: During the new crown pneumonia epidemic, my country's community emergency prevention and control management system exposed many problems. This article takes Shanxi Province as an example. After combing and analyzing the definition of the Internet of Things, in response to the current needs for the construction of smart communities, the SWOT model is used to analyze new types of things. The Internet of Things introduces a comparative analysis of the model of smart community management system construction and traditional community management system models, and draws on the application of existing Internet of Things technology in other fields, based on this, explores an effective path to introduce the Internet of Things into the construction of smart communities , And apply this model to different scenarios in other fields of urban smart construction, helping to build an efficient and convenient smart, service-oriented, and comprehensive modern city.

1. Introduction

The prevention and control of the new crown pneumonia epidemic has revealed that the community emergency prevention and control system in Shanxi Province is not yet perfect, and it is still facing many difficulties in terms of resource raising. The work report of the Shanxi Provincial Government in 2019 proposed that the establishment of high-growth industrial clusters of the Internet of Things, strengthening community governance, and pushing the focus of social governance to shift down, and doing emergency prevention and control work are contemporary needs. In the current human-based community emergency prevention and control system, the influencing factors are complex and changeable, and it is difficult to guarantee its prevention and control effect. The high-efficiency signal transmission brought about by the construction of the Internet of Things in the community has broken the traditional “people-to-people” direct information communication model. The community will definitely experience the “Internet of Things + People” regulatory reform, and it will be more adaptable to the community under the new situation. Emergency management needs. At the same time, this management model can also be promoted and applied to the construction of smart cities to help build efficient, convenient, smart, service-oriented, and comprehensive modern cities, which is of great significance to the development and construction of future cities.

2. Analysis on the Application and Development Status of Internet of Things Technology

After the Internet of Things technology is perfected, the corresponding sensor equipment can be installed in various facilities in the city, and the sensors will detect the status of the relevant facilities. In this way, all facilities will be connected through sensors and signal transmission equipment supported by the Internet of Things technology, which forms an Internet system of “things connected” in a general sense. First, this connection system is essentially completed by relying on Internet technology. Second, in the original traditional Internet and mobile Internet, the terminal of each Internet node is human. The Internet of Things is different, and all terminals become things. Therefore, the concept is defined as a network technology that detects the status and related information of objects through various information sensing devices, connects any objects

through Internet communication technology, and realizes various application functions.

International Data Corporation (IDC) recently released the “Global Internet of Things Device Data Report” to predict the number of Internet of Things connected devices data. It is estimated that there will be 41.6 billion Internet of Things connected devices worldwide in 2025. At present, the Internet of Things technology has gradually been verified and applied on a large scale in the fields of industry and medical treatment. The development of the Internet of Things industry in my country is entering a new stage of “cross-border integration, integrated innovation and large-scale development”. There are already many independent intellectual property patents in the field of communications and other related networks, and a relatively complete industrial chain from materials, technologies, devices and systems to networks, which provides a solid technology for the further development of my country's Internet of Things technology. Guaranteed. The introduction of the Internet of Things into the construction of smart cities has a certain foundation in my country. Southern cities with more developed economies, especially cities with more advanced Internet development, have taken the lead in the construction of smart cities. Typical city representatives are Hangzhou and Ningbo , Shenzhen, Guangzhou, Shanghai, etc.



Figure:the Amount of Global Iot Installed Equipment is Increasing Year by Year

3. Problems in the Development Status of the Internet of Things

The “human-to-human transmission” feature of the epidemic makes the control of densely populated communities an inevitable demand. At present, community emergency prevention and control management is mostly based on manpower. Visiting to learn about residents’ information not only increases the time cost and physical cost, but the mode of direct information communication between people adds many uncertain risks and risks. Resident information, targeted control, and reasonable deployment of materials have a long period of time, which is not suitable for efficient and convenient community emergency management needs. The Internet of Things can effectively aggregate and process information, improve the emergency control capabilities of the community, and better meet the needs of community emergency management under the new situation. But at present, there are still many problems in the development and construction of the Internet of Things in my country that need to be solved urgently:

3.1 Application Requirements Still Need to Be Improved

As far as the current development status of the Internet of Things is concerned, the demand for

the use of the Internet of Things in all walks of life in society is very low, and the corresponding application fields are also low-level applications. In other words, the application demand market of the Internet of Things is still in an undeveloped state, and the market demand needs further stimulation.

3.2 Insufficient Research and Development Capabilities of Core Technologies

As far as the development direction of the Internet of Things is concerned, the Internet of Things will inevitably develop on the basis of mature Internet technology. As far as the current global Internet technology is concerned, although my country's research and development capabilities for Internet technology have been significantly improved in recent years, there is still a big gap compared with many developed countries. The technical conditions are still immature, so there is currently no way to develop and apply similar developments and applications in the Internet of Things related fields.

3.3 The Standard System is Not Uniform

The Internet of Things is an emerging technology with rapid development, but the development time is limited, and many technical standards are not unified. This is another major bottleneck problem in the development of the Internet of Things in the new era. As far as the current development of the Internet of Things is concerned, the overall market share of the Internet of Things does not show a “dominant” or “dominant” situation. The industry is still in the development stage, and the conditions for unification of standards are still immature.

3.4 Vacancies in Business Models

As far as the current development of the Internet of Things is concerned, people are basically at the stage of research and development, and many technologies are in the process of research and development. As an emerging thing, the Internet of Things has a good development prospect. Many industries have also invested a lot of research and development expenses on the Internet of Things, but they are still in a vacant state in the promotion of the business model of the Internet of Things, which directly causes the difficulty of promoting the Internet of Things. Awkward situation.

3.5 Security and Privacy Issues

Another bottleneck problem of the Internet of Things is that the protection of personal information is not comprehensive enough. The protection of many security and privacy issues is still temporarily unable to be resolved reasonably. As we all know, the Internet of Things can realize a full-process tracking of “things”. Under such a system, the Internet of Things will inevitably involve a lot of personal privacy information. Once this information is improperly kept, it is easy to cause some social problem. Therefore, if the Internet of Things wants to popularize and develop, security must be put in the first place, and the issue of security maintenance is the bottleneck problem of the development of the Internet of Things in the new era.

4. Use the Swot Model to Compare and Analyze the New Smart Community Management System and the Traditional Community Management System Model

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| Strength: 1. People-oriented, more satisfying people's needs in the Internet age 2. Efficient and convenient, improve the efficiency of community control | Weakness: 1. At present, the Internet of Things technology is still in the process of popularization and construction, and the basic resources are relatively weak 2. The initial construction cost is relatively high |
| Opportunity: 1. Driven by the 5G wave, the popularization of smart devices such as mobile phones and tablets provides a good opportunity for the construction of the Internet of Things in the community 2. National policy support for the promotion of the Internet of Things technology construction | Threat: Posing a certain threat to the traditional human resources-based community management and control model |

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| 3. Realistic needs to improve the efficiency of community and urban management and control | |
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5. Policy Recommendations to Promote the Construction of the Internet of Things in Smart Communities

5.1 The Implementation Path to Promote the Construction of the Internet of Things in Smart Communities

(1) Questionnaire survey. First, conduct online questionnaire surveys in some communities to understand the shortcomings exposed by community emergency management during the epidemic from the perspective of residents. Use the obtained data to conduct scientific analysis and grasp the residents' expectations for the new community emergency management model, so as to adjust the project plan in a targeted manner to make it more suitable for residents' needs.

(2) Network promotion. In the early stage of project implementation, the WeChat platform can be used for publicity, and the advantages and prospects of the Internet of Things can be introduced in detail by publishing the scientific analysis results of the preliminary survey data, and the current status of the community management mode and the new "Internet of Things +" management mode. The PEST model conducts comparative analysis, and presents the analysis results in easy-to-understand text, so that residents can gain insight into the convenience brought by the Internet of Things to promote community construction, thereby increasing residents' acceptance of the implementation of this project.

(3) Community pilot projects. Select a few communities with different characteristics that are affected by location factors, conduct full negotiation and communication with the community management unit, and after obtaining consent, conduct pilot projects in the community.

(4) Project promotion. On the basis of feasible pilot projects in some communities, the project implementation plan will be adjusted and perfected and then promoted and used in various communities. At the same time, make full use of the WeChat platform and the platform for information communication between the original community and the residents to carry out in-depth publicity and increase the acceptance of residents. For example, during the epidemic period, community residents can use their mobile phones to scan codes to enter and exit the community according to the number of times specified by the community, and vehicles can travel through the code to achieve efficient control.

(5) Feedback. During the operation of the project, it is necessary to actively follow up on the progress of the project, regularly through online questionnaire surveys, field visits and surveys, etc., to understand the operation of the project and residents' opinions, and constantly adjust and improve the community IoT information management system to make it more Meet the needs of residents.

5.2 Promote the Construction of the Internet of Things in the Community to Help Build a Smart City

In the report of the 19th National Congress of the Communist Party of China, General Secretary Xi Jinping pointed out that it is necessary to enhance the protection and improvement of people's livelihood, strengthen community governance, promote community governance to the grassroots level, and give play to the role of social organizations. As a basic part of the city, communities can be used to implement the people-oriented policy requirements to create a community efficient management model and provide convenient services for the purpose of building a new type of community with a "cloud management" model through the "Internet of Things+" approach through the WeChat platform. Under the current 5G tide, this efficient and convenient management model is not only the needs of the community. If the community pilot effect is obvious, it can be extended to the construction of various fields in the city to create a smart, service-oriented, and comprehensive Modern cities, thus contributing to the construction of smart cities.

6. Conclusion

With the arrival of the 5G era, the Internet of Things technology has developed rapidly. In this new environment, my country is paying more and more attention to the construction of smart cities. Therefore, it is necessary to make full use of advanced Internet of Things technology to realize smart grid, transportation, medical treatment and education. This plays a very important role in promoting the healthy and sustainable development of smart cities in our country. However, it is a grand proposition to introduce the Internet of Things technology into the construction of smart cities. At present, the Internet of Things technology is still in the development stage, and there are many application scenarios that need to be achieved with the improvement of related technology. But from an overall point of view, it is of great significance to strengthen the application research of the Internet of Things technology in the construction of smart cities under the background of the 5G era.

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