

Information Technology Empowers Smart City Construction: Discussion Based on Smart City Solutions of Operators

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Abstract:

Smart city is an advanced form of urban development that ADAPTS to the new social environment and meets the needs of citizens under the support of information Internet technology, based on the concept of open innovation, the integrated development of mobile technology and the democratization process of social development. The goal of smart city construction needs to make use of high-end technology and equipment and connectivity, and promote the refinement management level of cities through the construction of smart communities, smart parks, smart cities and other levels. In this process, enterprises will become the most important urban operation maintenance provider and the stable and lasting strategic partner of the government, and at the same time undertake corresponding social responsibilities.

Keywords: Information technology, Integration of cloud and network, Smart city.

I. INTRODUCTION

With the support of various national policies, the construction of smart city is developing from informatization to digitalization and intelligence [1]. With the acceleration of the wave of "new infrastructure", smart city will usher in a new peak [2].

Chinese operators are committed to the construction of smart cities and provide information-based innovative services of "integration of things, cloud and network" for the government and enterprises. Wisdom city construction involves the intelligence community, park, city safety in various fields, such as the carrier in the intelligence community, wisdom park, and other fields have certain solution accumulation, but in the practice of project faced with complicated segmentation, personalized needs more challenges, such as the need to further enrich the solution scenario, advancing scheme optimization of the ground.

Currently, Chinese operators are faced with the problems of fragmented application, lack of digital linkage and low application interface integration in smart city construction. It is urgent to overcome difficulties through innovative technologies such as capability development and component integration.

Therefore, the smart city awareness platform, the base of smart city platform strategy, will be built to provide smart city industry application components, data operation analysis, hierarchical IOC display, unified interactive framework and scenario-based application services, to build comprehensive applications and one-stop solutions to smart city construction problems[3,4].

II. USE INFORMATION TECHNOLOGY TO IMPROVE THE CONSTRUCTION OF SMART COMMUNITIES

2.1 Background Analysis: Promote the Digital Transformation of Community Governance

Under the background of the modernization strategy of national governance, the construction of smart community has entered a period of vigorous development. The information communication picture between the government's "top-down" demand for community governance and citizens' "bottom-up" demand for community service has become increasingly clear, and the nerve endings of grass-roots autonomy have been constantly activated. A new scheme is proposed to solve the problem of community governance and community service supply crossing the "last mile".

Smart community is a new form of community operation. Starting from meeting people's needs for a better life and promoting the modernization of community governance capacity, smart community uses cutting-edge technology to provide a safe and convenient living environment for community residents. Provide population information and other business support for public security and other government departments; To provide a more scientific and convenient way of community management for property.

With the development of social economy, science and technology, people have higher and higher requirements for living environment and quality of life. In addition to meeting the basic housing needs, it should also bring residents a sense of security and satisfaction, and assist the government departments to do a good job in grassroots social governance, which presents new challenges to community management and services. Deepening community security measures has become an important task in the construction of social security prevention and control system.

Government responsibility, nongovernmental support and public participation, democratic consultation, the rule of law, security, science and technology support system of social governance, adhere to and perfect the system of social governance of work sharing, maintain social stability, safeguarding state security, stressed that "science and technology support" is to "improve the level of social governance intelligence" to the more prominent strategic position [5].

Any information and intelligence in the field of upgrade is inseparable from the "people-oriented" concept and principle of intelligent community on this concept, should be integrated use of modern information technology, based on the actual, in the overall awareness and on the basis of Internet, integrating various resources, to improve community infrastructure, improve the level of community service and management, strengthen community convenient and beneficial service ability, It provides the

foundation for the realization of smart city

2.2 Modernize Community-Level Governance

By giving full play to the online and digital advantages brought by the new generation of information technology, the construction of smart community can strengthen the perception, analysis, decision-making and early warning capabilities of community grass-roots units [6]. For example, it can be applied in the fields of serving people's livelihood, community security, disaster prediction, emergency management, etc. Combined with big data mining and analysis technology, Will greatly improve the accuracy of all kinds of key crowd service management, the harnessing of the key areas and outstanding problems timely screening effect, at the same time of improving the efficiency of governance will also be able to reduce the possibility of danger happening, reduce the cost of community governance to a great extent, improving the quality of governance provides a powerful guarantee, bring new opportunities for the transformation of community governance.

Community governance is the central link of social governance [7]. It is the entry point and breakthrough point that the people care most about and solve the most urgent problems. Through residents' visits, information reporting, ledger sorting, property supervision, consultation and other contents in the work of smart community, unified display and management can be achieved through "one map of community" to improve the refinement level of community governance.

2.3 Specific Plans for Smart Community Construction

Smart community solutions focus on community-level governance, including key population alarm, early warning of group rental, management of elderly people living alone, tenant management, personnel files, house-owner association map, grid paperless inspection, key risk reminder, residents report, electric vehicle management, etc., to improve community-level governance.

Community governance is based on grid management, community oriented managers from the underlying integration of various kinds of grid data and resources, mastered the basic community information through information means, to the community of family planning, civil affairs, labor insurance, culture and education, health information such as the unified management, realize the social governance, peace and security, prevention and control system of comprehensive coverage. The following modules are highlighted:

2.3.1 Housing management

This module is the basic module of community governance, realizing the centralized management of the community's actual population, building houses, enterprise sites and other information, grasping the community's actual population information data, building houses data, and realizing the association and binding.

2.3.2 Supervision of key personnel

People released after serving their sentences, community correction personnel, patients with serious mental disorders, drug addicts, petitioners, cult members and AIDS patients shall be supervised through information-based means, the dynamic situation of key personnel shall be regularly recorded, and the management and control level of special groups shall be improved.

2.3.3 Community portal

To standardize portal configuration management, quickly generate community publicity portal. The information of each work of the community is widely released to the public, and the online propaganda position of the community is established.

2.3.4 Community office

By building an online office system for the daily work of the community, it can meet the needs of daily office work, realize the complete online office, reduce the circulation of paper, and realize the collection, processing, flow and sharing of office information between streets/communities.

2.3.5 Community work management

To realize the information support for the daily business work of the community, including the registration and management of comprehensive governance, family planning, civil affairs, labor security, culture and education information in the community.

2.3.6 Palm community work pass

Provide mobile work APP for community workers and grid members, and extend basic data maintenance work such as population basic information management, permanent population management, floating population and rental house management to mobile terminals, so as to facilitate community inspectors to walk in the street, find problems, report work and maintain basic data in real time.

2.3.7 A map of the community

Through the combination of GIS map technology, all kinds of information in the community can be displayed intuitively on the map. At the same time, it can mark and locate various elements of the community data (population, housing, etc.) on the electronic map, and improve the management level through visualization.

2.3.8 The residents of the community are self-governing

It is an integrated "micro community" public platform with wechat public number as the carrier, providing online information consultation, community services, industry committee election, residents voting and other public platforms for residential residents. Let residents participate in community management interaction, integrate property, community to provide integrated services for residents.

2.3.9 Portrait app

Combined with face recognition technology, the facial feature information of people in and out is automatically captured by the camera and archiving automatically, forming people in and out record and image library, and through the platform to realize the monitoring of special people or key population in and out, and fast location of the information of lost people in the community.

III. USE INFORMATION TECHNOLOGY TO IMPROVE THE CONSTRUCTION OF SMART PARKS

3.1 Background Analysis: Security Construction in the Park has become an Urgent Problem to be Solved

Smart parks are the "pacemaker" of smart cities. As the main battlefield of economic development, smart parks have advantages such as good informatization foundation, high innovation consciousness and rich construction funds compared with communities. Because of these innate advantages, both Internet companies and operators have seen the dividend of the construction of smart parks, and have begun to deepen their efforts in the construction of smart parks, hoping to export capacity mainly in the fields of security, fire protection and service based on existing technical capabilities[8].The security for the wisdom of a park construction is an exemption from a scene, but now the security construction still exist in the process of utilization rate is low, data retrieval, information isolation, linkage, space area is large, many problems such as difficult to inspection, how to better solve the campus security become the more urgent need to solve the problem?

3.2 Market Analysis: Unique Advantages of Operators in Security Construction of the Park

In order to better solve many problems in the process of promotion, Internet companies dominated by Huawei began to build a safe ecology, the integration of security ecological resources, to achieve data integration, so as to create a perfect security system. However, operators have unique resource integration capabilities in terms of resource integration and will be the main force in the future security construction of the park. For example, operators in the campus sector have some unique advantages and opportunities, which are as follows:

Data basis: Operators have been involved in the market expansion of large, medium and small schools in the territory for a long time, and more or less participate in the construction of basic data capacity of the campus in the process of expansion. Therefore, once operators integrate data, they can quickly form a data-supported integrated management platform.

Integrated operation: Relying on the existing investment mode in the process of infrastructure construction, operators can integrate local ecological resources to participate in the construction of security in the park, creating a virtuous cycle of development mode planned by the government and invested by enterprises.

3.3 Specific Plans for Smart Park Security Construction

At present, there are many ecological partners participating in the construction of smart parks, but there are many disadvantages of integrated construction in the process of participating in the construction. Some large IT enterprises have begun to pay attention and start to transform to the field of integration based on their strong resource integration ability, which is also favored by many regional digital government construction units. Therefore, in order to realize the strong coupling of data, we should make full use of years of data basic ability. This time, our team will conduct further research on the campus and industrial park with strong advantages and sort out corresponding solutions.

Based on different types of parks, the solution can be optimized from three aspects. One is to supplement and increase the functions of basic common parts, including property management, online operation and maintenance, and one-card service for consumption in the park. Second, the extension of security and other basic functions, such as vehicle management, combined with the business of the park, to provide guidance and standardized driving, etc.; Third, according to the attributes of the park, it provides functional modules corresponding to its operation process, such as goods handover and goods management in the logistics park.

Wisdom city sensing platform, based on the ability of daily security management based on extended, industrial park management mainly consists of people, vehicles, the corresponding management and coordination, so we are in the process of scheme design platform based on the urban perception ability, realize the park the original demands rapid formation of the three fusion at the same time, ultimately to achieve efficient management of park.

IV. USE INFORMATION TECHNOLOGY TO IMPROVE URBAN SAFETY CONSTRUCTION

4.1 Policy Background: to Establish an Integrated Air/Ground Urban Safety Management System

Since 2019, Sichuan, Jiangsu, Yunnan, Beijing and other provinces and cities have issued the implementation opinions on promoting the development of the urban security, request to strengthen the construction of urban safety supervision information, strengthen urban operation security, Accelerate the

systematization and intelligentization of urban safety management, and effectively prevent accidents.

Governments at all levels to ensure the security of urban infrastructure construction and operation as a top priority of government work, various cities in China are increasing investment to accelerate the construction of urban safety operation regulation system, encourage the production of safety science and technology innovation, covering the underground pipe network, roads, water, environment, buildings, such as air integration scenarios, An urban safety management system of "comprehensive monitoring, intelligent early warning and emergency linkage" has been formed. Combined with safety facilities and supervision capabilities, the three target application scenarios are combined for underground pipe network monitoring, ground road and bridge monitoring and aerial UAV monitoring.

4.2 Market Demand: Strengthen Source Governance and Establish a Risk Management Platform

In recent years, China's urban governance system and public security management model have been constantly improved, but the monitoring of public security risks and hidden dangers, early warning of emergencies, emergency linkage and other links are still relatively weak [9].

City safety management needs to strengthen source management, fully using the 5 g, the Internet of things, cloud computing, big data, spatial geographic information integration and information technology, establishing the three objectives on the cover of the underground, ground, air application scenario for safety monitoring facilities, strengthen urban operation safety monitoring information acquisition, through the monitoring and early warning, intelligent inspection and security system to strengthen the safety and accident prevention and control, Smart city construction will lead the safe development of cities.

On the basis of establishing city safety monitoring facilities, establish risk information management platform, resource integration, information sharing, intelligent analysis, assistant decision levels need to further strengthen and improve, to achieve comprehensive, accurate and real-time dynamic grasp of all kinds of risks, and prevent and control the possibility of early risk of accidents and emergencies; At the same time, after the crisis, information sharing and coordination are needed to realize the full integration of people and technology and improve the safety management level of smart cities.

4.3 Specific Plan: Use Drone Monitors to Strengthen Urban Security Management

In underground pipe network and the ground bridge safety monitoring and early warning, operators through collecting non-contact monitoring equipment to conduct a comprehensive perception of the monitoring, relying on large data, cloud computing, AI algorithms such as preventive analysis, in the water/gas/water drainage pipe network monitoring, bridge safety monitoring, road surface collapse monitoring, road slope monitoring and other fields has established multiple objects segmentation scheme, To realize monitoring - early warning long-term management mechanism.

In terms of unmanned aerial vehicle monitoring, the uav industry in our country is developing rapidly in recent years, unmanned aerial vehicle (uav) in areas such as public security management, traffic patrol, emergency rescue gradually play a huge role, unmanned aerial vehicle monitoring by the traditional stand-alone operations, evolution up to the platform, digital direction is to build a safety management system is an important part of city. However, the UAV industry is still in its infancy and still faces many problems in terms of technology and application, such as more requirements for uav flight control system and task load customization in multiple scenarios, as well as the connection and coordination of monitoring scheme formulation, background command and scheduling, emergency plan preparation and execution and other multi-systems[10]. Therefore, the construction of uav urban safety monitoring platform, the realization of general flight management, integration of upstream and downstream industry chain, integration of multi-scene application solutions has become the focus of the program.

Uav airborne surveillance, cloud network resources based on operators, the unmanned aerial vehicle (uav) airborne edge gateway adapter, universal flight management, at the same time, based on the ability to open platform, through the Internet of things, cloud, intelligent and AI algorithms, etc., to realize monitoring command and dispatch plan formulation, the background, contingency plans, monitoring and implementation of systematized intelligent control, To provide customers with pilot call, airspace report and other professional operation services and multi-scene application solutions.

V. CONCLUSION

Urban construction is to make the city more wisdom, by integrating various resources, and the wisdom of breakthrough department management obstacle boundary and interests platform construction, improve the awareness of urban system, reaction, learning, improving, service ability, realize the traffic more convenient, live more comfortable, environmental friendly, facilities more security, management and economy, urban life better, This construction concept began to form a consensus. A group of companies representing cutting-edge technological innovation, especially state-owned enterprises, is leading the way. Some operators through suqian community projects, luzhou wisdom school id card project, China merchants logistics park, the west new material industrial park, Guangzhou city a drone city management project of a batch of practical operation of the project, leading the city management operation mode innovation through technology, real-time and efficiently provide city decision-making, operation, management and service plan, confirming, The enterprise will become the main city operation and maintenance business. Urban computing capacity and professional talents with strong advantage of the enterprise will be to strengthen the government stable, persistent, relying on strategic cooperation partners, in wisdom city construction, operation, maintenance, and constantly expand the livelihood of the people oriented service areas, to play a leading role, at the same time for data security and protect the right of the number of corresponding social responsibility.

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