Original Research Article

Construction of smart city in Xining City

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Abstract: The concept of smart city was first proposed in 2008. It has attracted widespread international attention and has become a common choice for countries around the world to promote urbanization, improve urban management levels, and enhance the quality of public services. Smart city has become a major means of sustainable urban development and has gained broad recognition and application. Xining City has vigorously promoted the construction of smart cities and took the lead in achieving innovation in the management model of provincial capital cities in 2018. However, compared with cities that started earlier, the construction of smart city in Xining has developed relatively slowly and faces many difficulties and challenges. Taking Xining City as a case study, this paper analyzes the latest progress in the construction of smart city in this city and extracts valuable lessons learned. It identifies the problems existing in the process of smart city construction in Xining. Furthermore, it puts forward specific measures to improve the level of smart city construction in Xining, namely accelerating the construction of a service-oriented government and consolidating the foundation of people-oriented digital technology.
Keywords: smart city; Xining urban governance; countermeasures

1. Introduction

1.1. Research background

China's economy is in a stage of transformation and development, shifting from high-speed development to high-quality development, facing diverse social needs. New technologies will continue to promote innovation in urban governance and make urban development smarter. Xining City is the capital of the Qinghai-Tibet Plateau and an important city in the Northwest region. Keeping pace with the times, Xining has formulated a number of policy documents since 2013 to effectively promote the construction and development of smart cities. In the "14th Five-Year Plan", comprehensive planning has been carried out in various aspects such as infrastructure, government affairs, transportation, and medical care.

2. Definition of the smart city concept

2.1. The smart city concept

In 2008, IBM first proposed the concept of "Smart Earth", which quickly spread and developed, subsequently giving rise to the concept of "Smart City". In 2012, the Ministry of Housing and Urban-Rural Development issued the "Interim Measures for the Administration of National Smart City Pilot Projects", which defines a smart city as follows: A smart city is an innovative urban governance model that strengthens the integration and utilization of information resources through the introduction of advanced information technology, fully coordinates business application systems, and deeply considers urban construction planning to optimize and innovate urban governance methods.

3. Current status of smart city construction in Xining

3.1. Basic situation of urban development in Xining

Xining currently faces many challenges in urban development and construction. In particular, the efficiency and timeliness of public data and information collection are low, which greatly limits the initiative in smart city construction planning and refined management. Facing these difficulties, the Xining Municipal Committee and Government have clearly proposed the strategic goal of building a smart city management system, aiming to create an information technology architecture that is "technologically

advanced, fully functional, resource-sharing, beneficial to people's livelihood, efficient and practical, safe and reliable". This move aims to further consolidate the information technology foundation of Xining's smart city construction and stimulate its innovation capability.

3.2. Progress in "Three Unifications" and "Seven Ones" infrastructure construction for smart city in Xining

Xining actively promoted pilot projects for rural electronic information and data services, achieving a fiber optic access rate of 97% in rural areas, while urban residential areas and commercial areas have achieved full coverage of optical networks[1]. Secondly, Xining achieved unification in cloud platform construction, migrating the application systems of more than 20 units to the government cloud platform and allocating virtual resources and cloud hosts to them, with the system operating stably. Finally, in terms of database unification, Xining's big data basic platform project has entered the implementation stage, the geographic information database construction has been completed, and the information database construction project for relevant market entities has successfully completed bidding and is being implemented steadily.

In the practice of the "Seven Ones", Xining has achieved remarkable results: First, it completed the integration of the 12345 hotline (One Line), effectively integrating existing government public service hotlines and undertaking non-police affairs from 110, with public satisfaction reaching 98.7%. Second, it optimized the "Smart Xining" APP (One Terminal), achieving system updates and iterations, successfully launching it after internal testing, while continuously improving its sustainable operation strategy[2]. Third, it promoted the "Snow Bright Project" to high standards and launched the city's "One Grid" management project. Fourth, it achieved the goal of "Internet + government services" (One Window, One Number, One Network), completing the sorting, standardization, and clarification of the public service item catalogs of more than 30 government agencies and public institutions. Fifth, it advanced the unified construction planning of the citizen card (One Card) and accelerated the implementation of specific work.

4. Problems existing in the construction of smart city in Xining

4.1. Deepening digital divide and lack of user participation

low citizen participation at the decision-making level is also a major obstacle, which not only weakens the social foundation of smart city construction but also limits the broad representativeness and scientific nature of policy formulation[3].

4.2. Lack of sustainability in the construction model

Building a smart city is by no means an overnight task, but a long-term endeavor requiring continuous financial investment and technological innovation. However, in the process of promoting smart city construction, Xining faces the difficulty of insufficient sustainability of the construction model, which directly leads to project stagnation and reduced effectiveness[4].

4.3. Lack of convenience, efficiency, and humanization in government services

In the field of smart government affairs, Xining still has room for improvement, especially in terms of the convenience, efficiency, and humanization of government services. This not only increases the difficulty and cost for citizens to handle affairs but also reduces their satisfaction and expectations for smart city construction[5].

4.4. Dual concerns over data privacy and security

The construction of smart cities cannot be separated from the support of massive data, but in the process of data collection, processing, and analysis, personal privacy protection has become an issue that cannot be ignored. Xining still needs to strengthen data privacy protection[6].

5. Analysis of countermeasures for problems in smart city construction in Xining

5.1. Promote digital technology education and facilitate educational innovation

To bridge the digital divide, Xining needs to actively promote the popularization of digital technology

education, covering all levels from schools to communities, from teenagers to the elderly, to comprehensively improve citizens' digital literacy and application skills[7].

5.2. Clarify construction goals and scientifically plan paths

By extensively collecting public opinions and deeply studying the current situation and future trends of urban development, Xining can more accurately grasp the urgent needs and key areas of smart city construction, such as smart transportation, smart healthcare, and smart education, thereby ensuring the effective allocation of resources and precise implementation of projects[8].

5.3. Accelerate the construction of a service-oriented government

offline activities such as designed questionnaires and field experiences, to broaden public participation paths, deepen government-citizen interaction, comprehensively grasp public needs, and absorb wisdom from the people[9].

5.4. Consolidate the people-oriented foundation of digital technology

It should focus on meeting the needs of the masses, developing more digital technology modules closely related to and serving people's livelihoods, such as in public safety, healthcare, employment services, public transportation, and public education, ensuring that technology truly serves the people and promotes the harmonious coexistence of technology and humanity[10].

5.5. Establish unified standards and strengthen data sharing

To effectively break down data silos and promote the comprehensive development of smart city construction, Xining should actively adopt a series of measures, among which the formulation and promotion of unified standards for smart city construction is particularly important[11].

This not only helps improve the scientific nature and precision of government decision-making but also helps stimulate market vitality and promote innovation and development in smart city applications[12].

5.6. Strengthen data privacy protection and safeguard citizens' rights

At the same time, enhance regulatory efficiency, establish and improve the data security supervision system, and implement effective monitoring of data processing activities through means such as regular audits and random inspections, ensuring the transparency and accountability of data use, and preventing the occurrence of risk events such as data leaks and misuse[13].

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