

Optimization Method for Sustainable Development of Smart City Public Management Based on Big Data Analysis

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ABSTRACT

With the acceleration of the urbanization process, the traditional urban management has become increasingly unable to meet the needs of urban management and development. At the same time, with the rapid development of artificial intelligence (AI) and big data (BD), the use of AI and BD to analyze cities has been gradually emerging. Therefore, this paper used AI and BD to study the optimization method of sustainable development of smart city public management. The research showed that the respondents in N, Z, and S cities were 60.67%, 60.07%, and 60.31% satisfied with the handling of events by urban public management subjects, respectively. The experts' evaluation scores on the feasibility and effectiveness of urban public management optimization strategies were 88.79 and 92.82, respectively. The public's satisfaction with the smart city public management subject's handling of events was still not high enough. The optimization strategy for sustainable development of smart city public management proposed in this paper with BD had certain practical value.

KEYWORDS

Big Data, Sustainable Development of Smart City Public Management, Urban Analysis, Urban Public Management Entities

INTRODUCTION

Traditional urban management is unable to keep pace with the intensification of urbanization. Challenges related to urban public management include unreasonable economic management means, unreasonable legal management means, lack of definition surrounding the government's function in urban public management, and lags in urban management technology and equipment. This impacts the effectiveness of urban public management, hindering the formation of a harmonious and mutually beneficial social atmosphere or inclusive, sustainable urban development.

The smart communities mission aims to support towns that offer basic facilities, a good standard of living for residents, smart technologies, and a clean and sustainable environment. This article

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uses artificial intelligence (AI) and big data (BD) to explore strategies for optimizing sustainable development of smart city public management, hoping to provide valuable reference for relevant research.

Many scholars have studied urban management. Grossi et al. (2020) studied smart city management from the perspective of public management. Their work analyzed the basic concept of information service implementation in urban management. They also described the application of information services in urban management. Leonteva et al. (2018) compared urban management frameworks, explored the quantification of the framework, and studied its measurement indicators and weight distribution according to expert opinions. Biswas et al. (2019), after analyzing problems within the management of smart cities, offered suggestions on using digital means to manage smart cities.

According to Brandt et al. (2018), there are several obstacles in the use of smart buildings. These include the high price of developing software, lack of adaptability, mismanagement, safety, human resources, and energy consumption. Future urban ecosystems will be impacted by four primary factors: (1) growing populations; (2) industrialization; (3) infrastructure improvements; and (4) transformation of communication systems.

Du et al. (2018) discussed how to select existing algorithms when monitoring smart city applications. These efforts improve urban planning, governance, structural health monitoring, water pipe networks, traffic monitoring, and environmental monitoring. Cheela et al. (2021) formulated an indicative strategy for the development of urban waste management systems, planning an integrated solid waste management system for smart cities. Saberifar (2020) discussed the influencing factors of urban management intelligent organization model design, proposing the strategy of model design.

BD has been widely used in urban management. Xiao et al. (2021) explored the modern method of urban management with the use of blockchain and BD. Nica (2021) conducted an empirical study on urban BD analysis and sustainable governance network in integrated smart city planning and management. A city's intelligence must be evaluated both qualitatively and quantitatively. Evaluations include the way people live and govern, how people provide and receive energy resources, how people move and use transportation, types of business, and how they improve roads.

Chen et al. (2019) introduced the composition, characteristics, and application of BD in the transportation field. His work proposed a visual model of a self-organizing feature map neural network based on the graph theory. It provided technical support for guiding urban road planning and improving urban management level. Chen et al. (2019) analyzed the role of urban planning and urban management in achieving sustainable development goals. According to Wu et al. (2020), urban planning is a method to achieve objectives through improved approaches and tactics.

A separate matter is city administration. While urban planning is a strategy, city administration is a set of steps. Engin et al. (2020) made an interdisciplinary synthesis of the development, opportunities, and challenges of urban management and planning under the ongoing "digital revolution." After analyzing problems in urban noise management, Navarro et al. (2017) proposed a BD framework for the correct analysis of massive noise monitoring data. Susmitha and Jayaprada (2017) used BD to analyze the planning and management of smart cities, describing BD's role in solving challenges faced by smart cities.

Research has shown that BD plays an important part in urban management. A global grid can integrate modern techniques and data analytics to improve life quality, enhance local operations, and encourage economic development. The focus of BD falls on the utilization of (rather than the accessibility of) information. Gadgets within the internet of things (IoT) (i.e., embedded devices, lighting, and meters) are used in smart cities to gather information. Communities utilize this information to enhance facilities, welfare programs, and other programs or services. The demarcation and scale advantages that result from urbanism improve efficiency. Both governments and businesses can, therefore, benefit from scale economies.

This article explores problems in urban public management like unreasonable economic management means. It proposes strategies that optimize the public management of smart cities, such

as cultivating the awareness surrounding urban management and BD or using BD to improve the scientific nature of smart city public management. The research is carried out from the perspectives of public satisfaction in the handling of public management in smart cities. It also uses expert evaluation on the optimization strategy of public management in smart cities.

This analysis employs AI and BD to examine the sustained growth of a smart urban public administration. It finds that participants in N, Z, or S towns are respectively delighted with how urban public managerial themes handle occurrences (60.67%, 60.07%, and 60.31%). The effective implementation of urban public administration was rated by analysts on viability or efficiency (88.79 and 92.82).

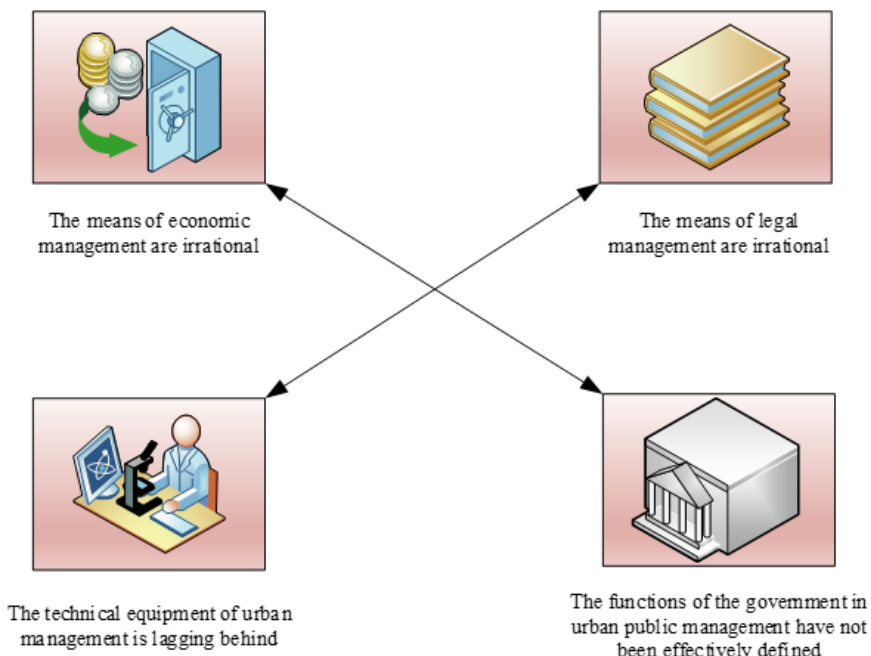
CHALLENGES IN THE PUBLIC MANAGEMENT OF SMART CITIES

Challenges related to the public management of smart cities include unreasonable economic management means, unreasonable legal management means, the functions of government in urban public management, and a lag in urban management technology and equipment (see Figure 1). In addition to reducing the requirement for taxation, a productive and effective public system maximizes the impact of expenditure on the administration's aims, particularly productivity. The growing urban concentration and its requirements negatively impact environmental health through lack of groundwater, waste disposal issues, and excessive energy use.

Unreasonable Economic Management Means

At this stage, the economic means of relevant departments for the public management of smart cities cannot adapt to the pace of urban development. Under the current public management mechanism of smart cities, relevant departments often use economic leverage to constrain the economic management of individual cities. This has also become the reason for individuals to question the motivation of

Figure 1.
Problems in the public management of smart cities



relevant departments to carry out urban public management activities, resulting in resistance to urban public management. Relevant departments pay more attention to the means of economic punishment when conducting public management of enterprises in cities. However, the problem of urban environmental damage caused by enterprises is often ignored. The effectiveness of economic punishment on urban environmental management is not emphasized.

Unreasonable Legal Management Means

In terms of the legal basis for urban management, the urban management behavior of the urban public management subject lacks an independent and complete legal basis. The laws and regulations on which urban management behavior is based are scattered in various legal provisions. In the implementation of urban management laws, some urban managers have problems related to simplifying law enforcement, hostility to violators, and use of punishment rather than management. This leads to the deterioration of any relationship between urban management subjects, individuals, and enterprises.

Government and Urban Public Management

People once believed that government was the only subject of urban management. With the development of urban management practice, people have realized it is not feasible to view government as a single urban management subject. The term “urban management” is often employed to describe the ways in which urban governmental institutions deal with issues faced by cities. It focuses on how urban operations are delivered in an interconnected, planned, and productive way by managing administration and quality.

Government should play a leading role in urban public management, establishing the urban public management system in partnership with other urban management subjects. The urban management mode is, thus, transformed to adapt to existing urban development planning. Metropolitan planning and new strategies, as well as municipal strategies, are distinct development tiers. The basic strategy acts as a guide throughout the creation of other strategies.

Some local governments are involved in urban management. In fact, even the management concept has been integrated into urban management. These behaviors of paying attention to punishment and neglecting management makes urban management disorder and economic market order imbalanced.

Urban Management Technology and Equipment

Urban management technology and equipment updates are slow, failing to meet the needs of urban management in a timely manner. The degree of modern information technology used by urban management subjects in urban management activities is too low. The integration of information resources among urban management subjects is also low.

Environmental harm caused by urban-based manufacturing, usage, and environmental pollution is among the most critical elements of environmental urbanization. This injury happens within every town and its surrounding areas.

Urban management relies on manual supervision and inspection, lacking the application of modern information technology.

REASONS FOR PROBLEMS IN PUBLIC MANAGEMENT OF SMART CITIES

There are three main reasons that influence problems found within the public management of smart cities (see Figure 2). These include ideological factors, economic system factors, and economic and technological development level factors. Key managerial responsibilities for metropolitan authorities include oversight of drinking water, sewage, cleanliness, waste disposal, infrastructure, health-related practices, police, the protection of facilities, and job creation. Political theories focus on how to run a civilization and how (or the means) to get there.

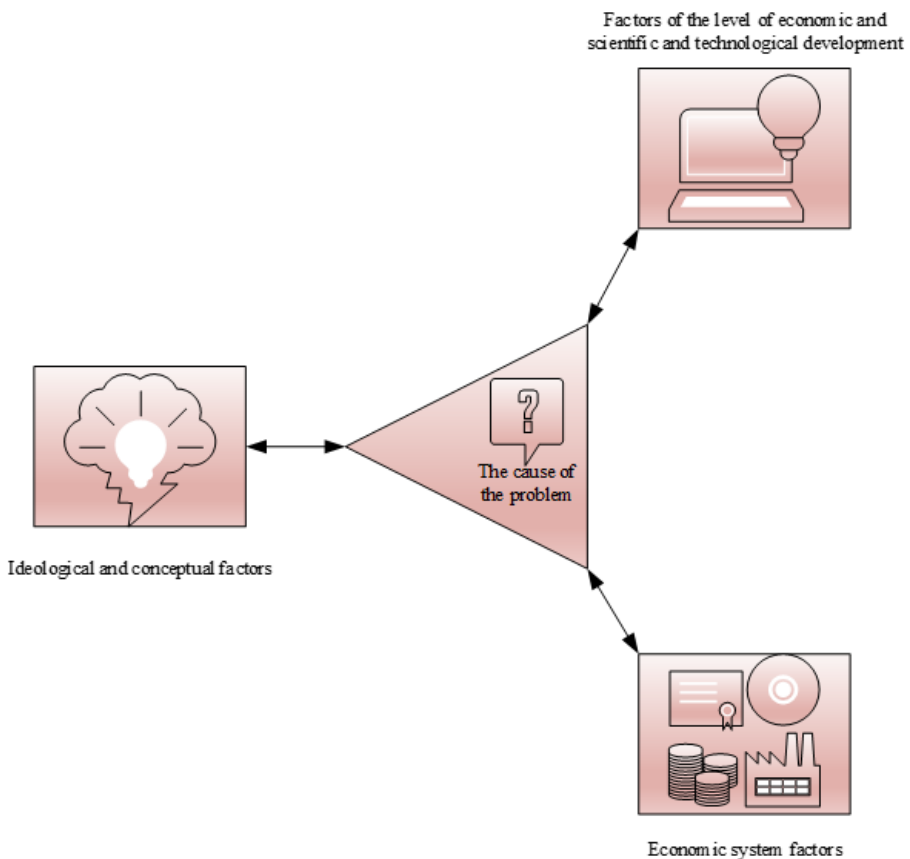
Ideological and Conceptual Factors

Urban management subjects do not fully understand the concept of urban management, spending too much time on various urban management methods. The urban development department highlighted obstacles to achieving its aim, including congestion, pollutants, urban drainage, management, healthcare, or protection.

Urban management activities are not carried out from the perspective of urban ecological management. There are six factors to consider: (1) global warming; (2) biodiversity; (3) agricultural usage; (4) biogeochemistry; (5) water contamination; and (6) air quality. Practically all regions within a city are altered and maintained by humans; therefore, there are seven distinct “organic” urban ecosystems within a biosphere, including trees planted, riding mowers, urban forests, agricultural lands, marshes, lakes/seas, and waterways. Emerging economies face severe urban ecological difficulties due to urbanization, demographic increase, an inability to adequately address climatic or ecological hazards, ineffective administration and resource stewardship, bribery, and lack of funding.

The process of urban management is too focused on the management plan. It ignores the development status and characteristics of a city. In addition, the ideological and conceptual factors are reflected in the fact that the urban management subject fails to support the relationship between urban construction and management. The urban management subject has an insufficient understanding of the complexity and difficulty of urban management.

Figure 2.
Analysis of the causes of problems in urban public management



The individual's ability will be supported through more effective products and services. Technological innovation includes procedures and standards that represent formalized information. Technologies aid in gaining a complete understanding about the effective use of capital to generate items and services.

Economic System Factor

An economic system plays a leading role in the formation of urban management. Therefore, the operation mechanism of urban management should adapt to the economic system.

Economic and Technological Development Level Factors

The economic level and technological level of a city are closely related to the urban management level. There is an intricate connection between urbanization and economic growth. As provinces shift from an agrarian-based system to an urban economy, economic expansion frequently means the transformation of farmland to urban usage like housing, corporate, or commercial.

Beggary, thievery, robberies, lack of job opportunities, hunger, and other societal problems are rampant among rural immigrants. Valuable farmland is being encroached upon by urban development.

As noted, the higher the economic and technological level, the higher the urban management level. However, urban management subjects generally have lack knowledge in technology and equipment, which impacts urban management.

OPTIMIZATION STRATEGY FOR SUSTAINABLE DEVELOPMENT OF SMART CITY PUBLIC MANAGEMENT IN COMBINATION WITH BD

The optimization strategy for sustainable development of smart city public management combined with BD includes five contents, as shown in Figure 3. Creative is an intelligent, pleasant place. It uses information and communication technologies to enhance the standard of living for citizens and increase the efficiency of urban processes and services. In addition, it increases its economic viability while ensuring that it satisfies the financial, sociological, ecological, and historical requirements of current and upcoming generations. CDSs promotes local economies and alleviates urban poverty by strengthening local governance. They also help to bridge the gap between strategic priorities for urban regeneration and regional interests.

The five contents include: (1) cultivating awareness surrounding urban management subject BD utilization; (2) using BD to improve the scientific nature of smart city public management; (3) training BD urban public management talents; (4) strengthening the financial security and policy support of urban public management using BD technology; and (5) promoting standardized and harmonious law enforcement.

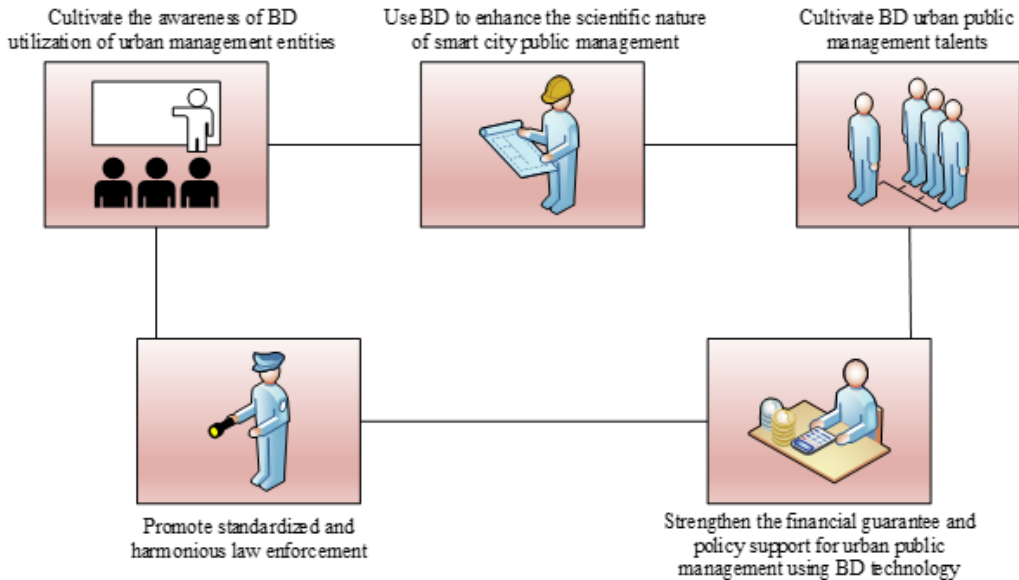
Cultivate BD Utilization Awareness of Urban Management Subjects

There are two reasons for the low use of BD by urban management subjects. First is the poor quality of urban data. Second, the consciousness of urban management subject to use modern technology to solve urban management problems is not strong enough. In addition, there is a lack of strong atmosphere for BD utilization. Faced with this situation, the government should guide other urban management subjects to cultivate the awareness of using BD analysis to manage cities. Thus, urban management subjects can abandon the habit of making urban management decisions based on empiricism. In addition, the government should cultivate the awareness and habit of purchasing information services and using BD analysis for urban management.

Use BD to Enhance the Scientific Nature of Smart City Public Management

BD can help people mine useful data from huge amounts of data. AI can provide intelligent solutions for communication technology, which plays an important role in improving urban life (Voda & Radu,

Figure 3.
Smart city public management optimization strategy



2018). AI can assist urban planners when choosing pathways that contribute to improved traffic control, accessible public transit, and more efficient services. AI can help urban planners create livable cities that are productive and responsive to residents. Both BD and AI can create a good urban management decision-making environment for urban management subjects.

The urban management subject can use BD technology, AI technology, communication technology, and computer technology to realize the collection and sharing of urban management data. In doing so, the information held by the urban management subject will be more comprehensive and accurate. The urban management subject can use BD analysis to build a new urban management analysis model and comprehensively analyze the factors that affect the urban management effect. From the urban data, the data resources that are meaningful for urban decision making and urban management are mined to provide technical support for urban management decision making of urban management subjects. This promotes the continuous improvement and further improvement of urban scientific management level.

Cultivate BD Urban Public Management Talents

BD analysis compound talents must master rich urban management knowledge, have high-level urban management abilities, and hold high-level BD collections, integration, mining, and analysis abilities. They also need to have the ability to integrate the use of BD into urban management. BD analysis compound talents are the link between urban management business and BD analysis technology. Facing the problems existing in the current BD talent training, the government should continue to cultivate BD compound talents applied to urban management, to ensure the high-quality quantification and sustainability of urban public management.

Strengthen the Financial Guarantee and Policy Support of Urban Public Management by Using BD Technology

The strengthening of financial support is an important measure to ensure that urban public management subjects use BD technology to carry out urban management activities. The government should take the lead

in establishing the urban management fund guarantee system, so that other urban management subjects can clarify their respective responsibilities. The application goal of BD technology is understood to realize the effective utilization of the urban management fund guarantee system. Speed up municipal agreements in selected regional areas as well as all main cities, establish a Municipalities Advisor Committee to assist municipalities plan better for major infrastructural initiatives, and establish a Council for Collaborative Study on Sustainable Communities. The government can set up special funds for BD technology to provide financial support for BD enterprises facing urban applications. The government can encourage financial institutions to give priority to credit support to urban-oriented BD enterprises and encourage guarantee institutions to reduce guarantee rates for BD enterprises. In terms of policy guarantee, the government information department should establish a BD urban management coordination mechanism to achieve the unified integration and scheduling of urban management BD. The government should establish a professional BD urban management expert committee to provide decision-making support for urban public management activities. They should establish reasonable urban data collection, data transmission, data storage, data development and data protection specifications. They should also formulate scientific preferential policies related to urban management of BD to give policy support to BD enterprises to increase the preferential strength of land, water, electricity and other aspects of enterprises.

Promote Standardized and Harmonious Law Enforcement

Promotion of standardized and harmonious law enforcement can be carried out from three aspects: (1) changing the concept of law enforcement; (2) strengthening the publicity of law enforcement; and (3) enhancing the construction of law enforcement forces. Each municipality in mainland China has a municipal federal agency titled the urban administrative and law enforcement bureau. The organization handles the city's urban administration. Regional regulations, urban aesthetic rules and regulations, environment, cleanliness, worker protection, pollution prevention, healthcare, or compliance in development, forestation, business and trade, environmental regulation, municipality issues, and freshwater in big cities are included.

Changing the Concept of Law Enforcement

The main body of urban management makes clear that the fundamental purpose and significance of urban public management law enforcement is to facilitate rather than govern the people. Based on this, the urban management subject should gradually eliminate the concept of punishment vs. management. Instead, it should combine urban public management law enforcement and urban public management services to provide convenient services. In the actual law enforcement process of urban public management, the urban management subject should conduct diversified, open, fair, and people-oriented urban management law enforcement activities.

Strengthening Law Enforcement Publicity

Urban management subjects should make citizens fully aware of their urban management law enforcement concepts and the significance of urban management law enforcement. Thus, citizens can change their stereotype of urban public management subjects to truly understand and support the urban management activities of urban public management subjects.

In terms of specific publicity methods, urban public management subjects can hold regular talks between citizens and urban management law enforcement personnel. This is not only conducive to citizens' in-depth understanding of the concept, significance, and behavior of law enforcement, but it is conducive to solving problems encountered by citizens in urban production and life.

Strengthening the Construction of Law Enforcement Forces

Urban management subjects should strengthen the awareness training of urban management law enforcement personnel to ensure that urban management law enforcement personnel always adhere to the concept of providing convenient services. Empathy between urban management law enforcers

and citizens should be cultivated so they can master the appropriate law enforcement in the process of urban management law enforcement. Thus, they can achieve coordination between the completion of law enforcement and provision of convenient services.

Several dimensions are essential to the development of future cities. These include ecology and electricity, governance and schooling, and lifestyle (i.e., healthcare, security, or mobility). The urban management subject should also strengthen the ability training of urban management law enforcement personnel and enhance the professional quality and law enforcement ability of urban management law enforcement personnel to promote the sustainable development of smart city public management.

PUBLIC MANAGEMENT PERFORMANCE OF SMART CITIES

The performance of smart city public management includes three aspects: (1) public satisfaction; (2) completion of urban public management subject's handling of events; and (3) efficiency of the urban public management subject. The overall performance of smart city public management is calculated from the aspects of people, streets, and districts. The regression formula is used to establish a smart city public management performance model from the level of complaint handlers, streets, districts, etc.

Complaint handler level:

$$per_{p,q,c,e} = \chi + \gamma * dem_c + \lambda * LnInfra_c + \nu_{p,q,c,e} + \zeta_q + \sigma_{p,q,c,e} \quad (1)$$

Among them, p refers to urban management cases. q is the complaint handler. c is the street and e is the area. ζ_q is the fixed effect coefficient of different complaint handlers.

Street level:

$$per_{p,q,c,e} = \chi + \nu_{p,q,c,e} + \mu_c + \sigma_{p,q,c,e} \quad (2)$$

Among them, $per_{p,q,c,e}$ refers to the performance of the pth complaint handled by the qth individual in the c street and e district. μ_c is the fixed effect coefficient of different streets.

District level:

$$per_{p,q,c,e} = \chi + \gamma * dem_c + \lambda * LnInfra_c + \nu_{p,q,c,e} + \zeta_q + \sigma_{p,q,c,e} \quad (3)$$

Among them, $LnInfra_c$ is the logarithm of the public facilities density of street c. dem_c is the demographic characteristics of street c. τ_e is the fixed effect coefficient at the district level.

For satisfaction and completion, the following formula is used for dimensionless quantification:

$$score_p = \frac{\{coeg_p - \min(coeg_p)\}}{\{\max(coeg_p) - \min(coeg_p)\} * 100} \quad (4)$$

For dissatisfaction and efficiency, the following formula is adopted.

Dimensionless quantitative processing:

$$score_p = \frac{100 - \{coeg_p - \min(coeg_p)\}}{\{\max(coeg_p) - \min(coeg_p)\} * 100} \quad (5)$$

EXPERIMENT ON SUSTAINABLE DEVELOPMENT OF SMART CITY PUBLIC MANAGEMENT

This article uses questionnaires to investigate problems in the public management of smart cities. The public management performance of smart cities in cities N, Z, and S is investigated from three aspects: (1) public satisfaction with the smart city public management subject's handling of events; (2) completion of event handling; and (3) efficiency of event handling. Four experts in the field of smart city public management were invited to evaluate the optimization strategy of sustainable development of smart city public management. The survey was conducted three times; 100 questionnaires were distributed each time. The effective questionnaires are 93, 97, and 96, respectively, with a total effective rate of 95.33%. The basic characteristics of the respondents are shown in Table 1.

As shown in Table 1, the average age of the respondents in the first survey is 46.35 years old, with 56 males and 37 females. In the second survey, the average age of the respondents is 42.67 years old, with 63 males and 34 females. In the third survey, the average age of the respondents is 45.8 years old, 69 men and 27 women.

Investigation on Problems in Public Management of Smart Cities

Problems include economic management means, legal management means, the failure to effectively define the government's functions in urban public management, and the lag of urban management technology and equipment. The results are shown in Figure 4.

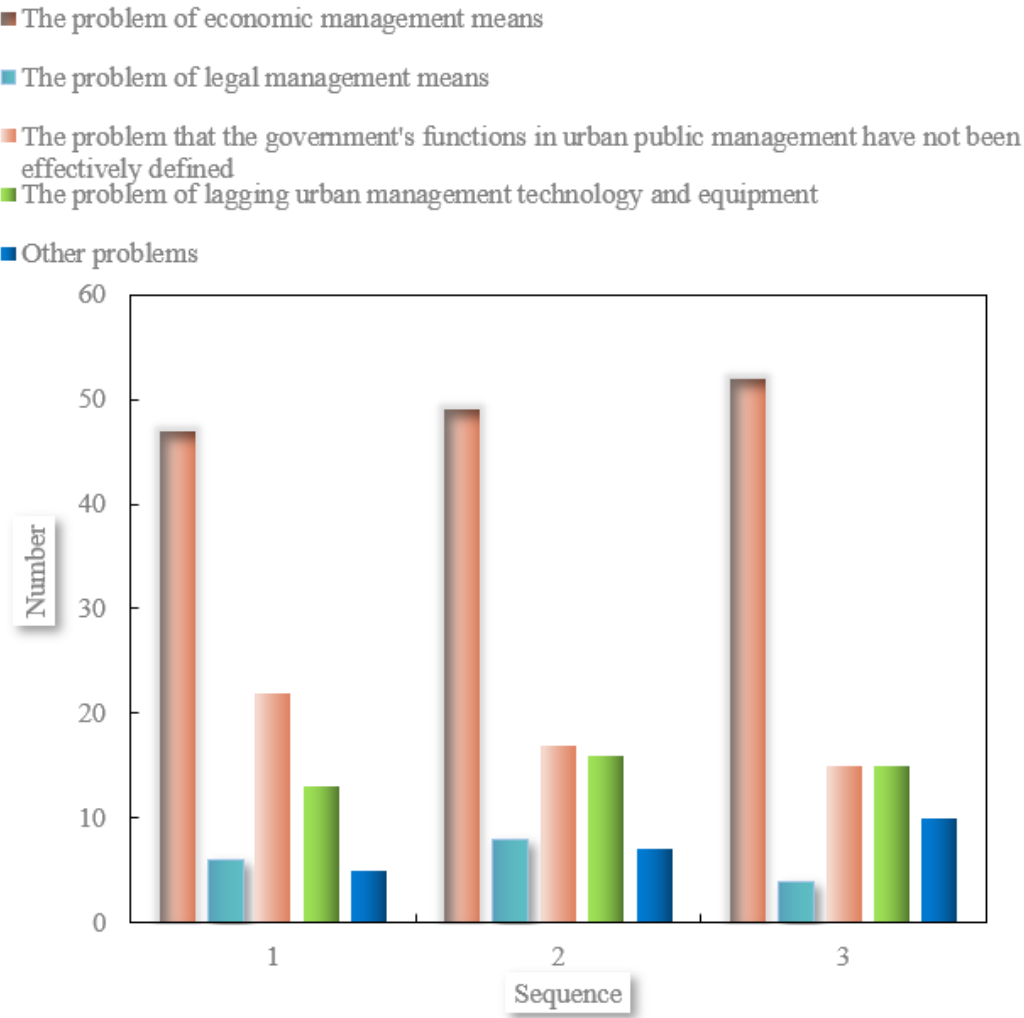
The first survey results showed that 47 respondents believe there are unreasonable economic management methods in urban public management. Twenty-two respondents believed government functions have not been effectively defined in urban public management. Thirteen respondents felt there was a lag in urban management technology and equipment in urban public management.

The second survey showed that 49 respondents believe there are unreasonable economic management methods in urban public management. There were 17 respondents who believe that government functions are not effectively defined in urban public management. Sixteen respondents believe there is a lag in urban management technology and equipment in urban public management.

Table 1.
Basic characteristics of respondents

	1	2	3
Mean age (years)	46.35	42.67	45.8
Male personnel (person)	56	63	69
Female personnel (person)	37	34	27
City N (person)	32	37	28
City Z (person)	33	31	35
City S (person)	28	29	33

Figure 4.
Investigation of problems in smart city public management



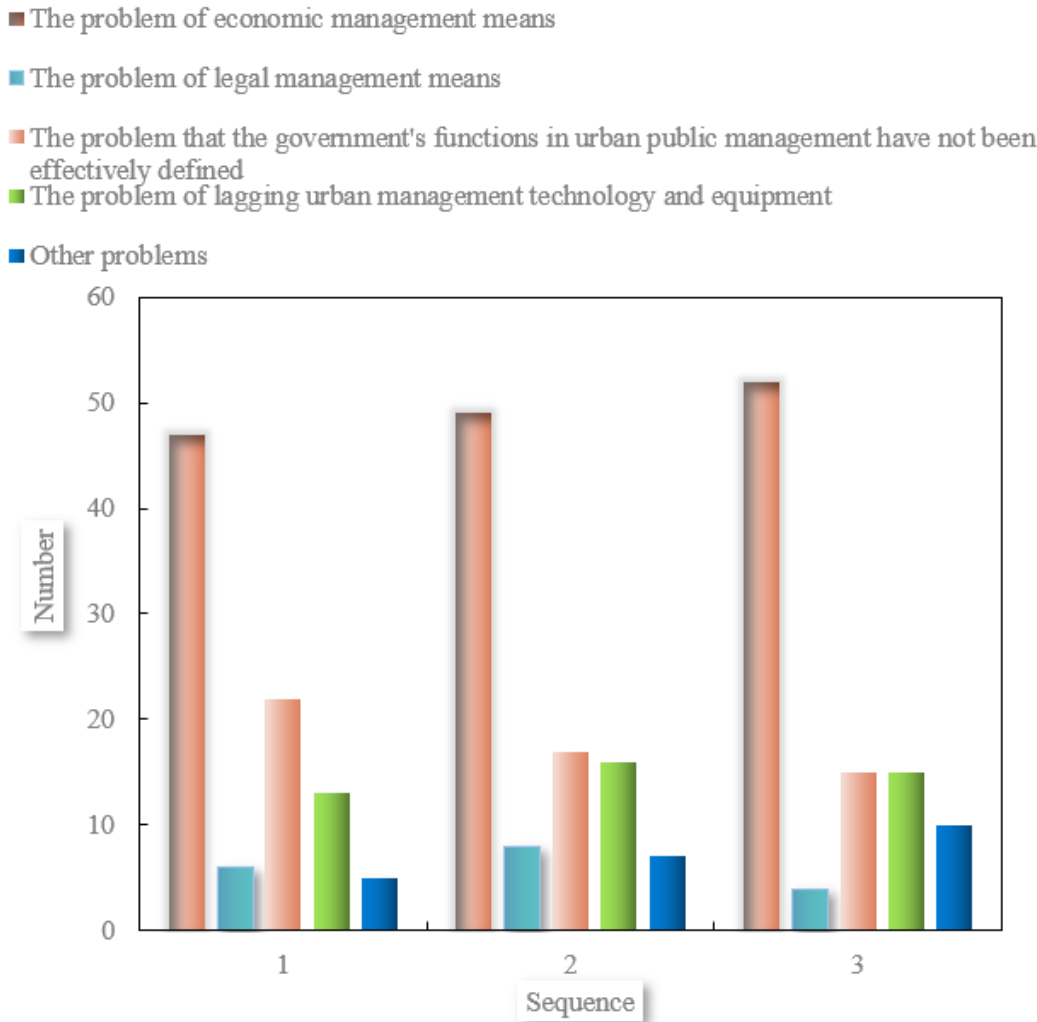
The third survey showed that 52 respondents believe there are unreasonable economic management methods in urban public management. Fifteen respondents believe government functions are not effectively defined in urban public management. Similarly, 15 respondents believe there is a lag in urban management technology and equipment in urban public management.

Satisfaction of Handling Incidents in Three Cities

Public satisfaction in cities N, Z, and S is investigated regarding the handling of events by public management subjects in smart cities. The value range of satisfaction is 1% to 100%. The specific results are shown in Figure 5.

At the time of the first survey, the respondents in City N were 62.31% satisfied with the handling of events by urban public management subjects. The respondents in City Z were 58.36% satisfied with the handling of events by urban public management subjects. The satisfaction of respondents in City S was 61.23% regarding the handling of events by urban public management subjects.

Figure 5.
Handling incident satisfaction in three cities



In the second survey, the respondents in City N were 59.42% satisfied with the urban public management subject's handling of the incident. The satisfaction of respondents in City Z with the handling of events by urban public management subjects was 61.28%. The satisfaction of respondents in City S with the handling of events by urban public management subjects was 58.67%.

In the third survey, the respondents in City N were 60.28% satisfied with the handling of events by urban public management subjects. The respondents in City Z were 60.57% satisfied with the handling of events by urban public management subjects. The satisfaction of respondents in City S with the handling of events by urban public management subjects was 61.02%.

From the average satisfaction of the three surveys, the average satisfaction of the respondents in City N with the handling of events by urban public management subjects was 60.67%. The average satisfaction of respondents in City Z with the handling of events by urban public management subjects was 60.07%. The average satisfaction of respondents in City S with the handling of events by urban public management subjects was 60.31%.

To sum up, citizens in cities N, Z, and S are not satisfied with the handling of events by public management subjects in smart cities. Smart city public management subjects should make full use of BD analysis to enhance their urban public management capabilities and improve public satisfaction.

Completion of Event Processing in Three Cities

The completion degree of event handling in cities N, Z, and S was investigated. The value range of the completion degree of event handling was 1% to 100%. The specific results are shown in Figure 6.

In the first survey, the respondents in City N believed the completion degree of event handling of urban public management subjects was 62.35%. The survey object of City Z believed that the completion rate of event handling of urban public management subject was 60.33%. The survey object of City S felt the completion rate of event handling of urban public management subject was 61.24%.

In the second survey, the respondents in City N believed that the completion rate of event handling of urban public management subjects was 65.42%. The survey object of City Z felt the completion rate of event handling of urban public management subject was 60.57%. The survey object of City S felt the event handling completion rate of urban public management subject was 63.27%.

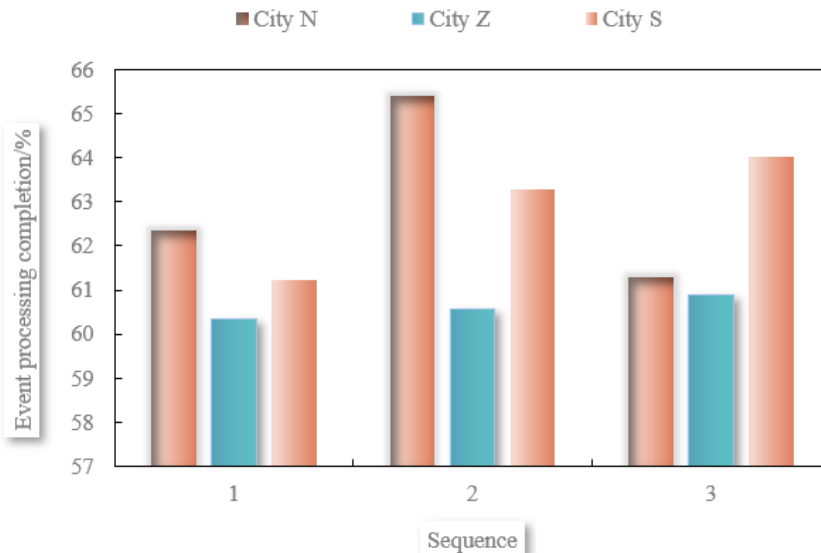
In the third survey, the respondents in City N believed the completion rate of event handling of urban public management subjects was 61.29%. The survey object of City Z thought the completion rate of event handling of urban public management subject was 60.89%. The survey object of City S felt the event handling completion rate of urban public management subject was 64.01%.

According to the average event processing completion of the three surveys, the respondents in City N thought the average event processing completion of urban public management subjects was 63.02%. The survey object in City Z felt the average event handling completion rate of urban public management subject was 60.6%. The survey object of City S thought the average event handling completion rate of urban public management subject was 62.84%.

Event Handling Efficiency of Three Cities

The incident handling efficiency of City N, City Z, and City S was investigated. The value range of event processing efficiency was 1% to 100%. The specific results are shown in Figure 7.

Figure 6.
Event processing completion in three cities



In the first survey, the respondents in City N believed that the event handling efficiency of urban public management subjects was 73.56%. The respondents in City Z thought the event handling efficiency of urban public management subject was 75.22%. The respondents in City S felt the event handling efficiency of urban public management subject was 69.97%.

In the second survey, the respondents in City N believed the event handling efficiency of urban public management subjects was 78.29%. The respondents in City Z thought the event handling efficiency of urban public management subject was 74.23%. The respondents in City S felt the event handling efficiency of urban public management subject was 71.26%.

In the third survey, the respondents in City N believed the event handling efficiency of urban public management subjects was 71.34%. The respondents in City Z thought the event handling efficiency of urban public management subject was 71.06%. The respondents in City S thought the event handling efficiency of urban public management subject was 73.15%.

From the average incident handling efficiency of the three surveys, the respondents in City N believed the average incident handling efficiency of urban public management subjects was 74.4%. The respondents in City Z thought the average incident handling efficiency of urban public management subjects was 73.5%. The survey object in City S felt the average incident handling efficiency of urban public management subject was 71.46%, which shows there is still room for improvement of the incident handling efficiency of urban public management subject. BD analysis technology can play a certain role in improving the event handling efficiency of urban public management subjects.

Expert Evaluation on the Optimization Strategy

The four experts were Expert Q, Expert W, Expert E, and Expert R. The evaluation score ranged from 1 to 100. Figure 8 shows the evaluation scores of the four experts on the optimization strategy of smart city public management.

Over, expert evaluation scores on the feasibility and effectiveness of urban public management optimization strategies were high. From the data, Expert Q scored 85.69 on the feasibility of urban public management optimization strategy and 91.2 on the effectiveness of urban public management

Figure 7.
Event processing efficiency in three cities

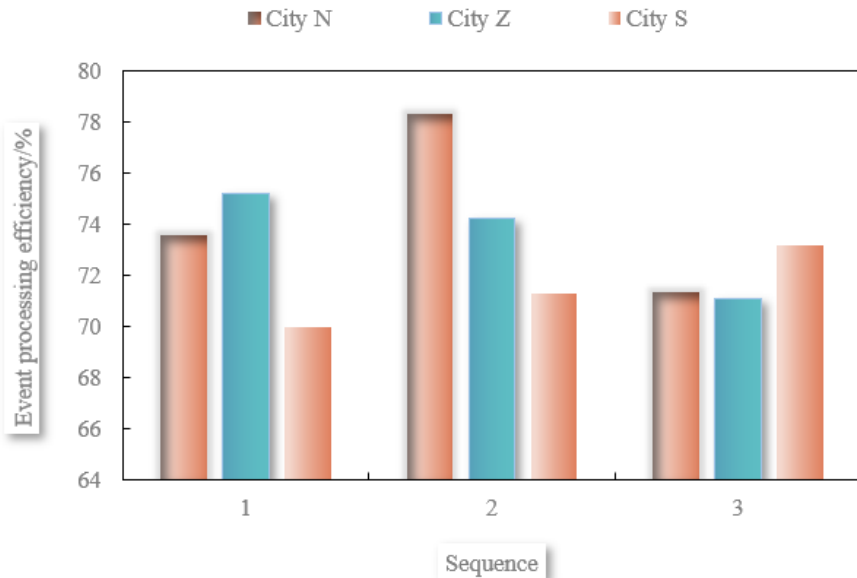
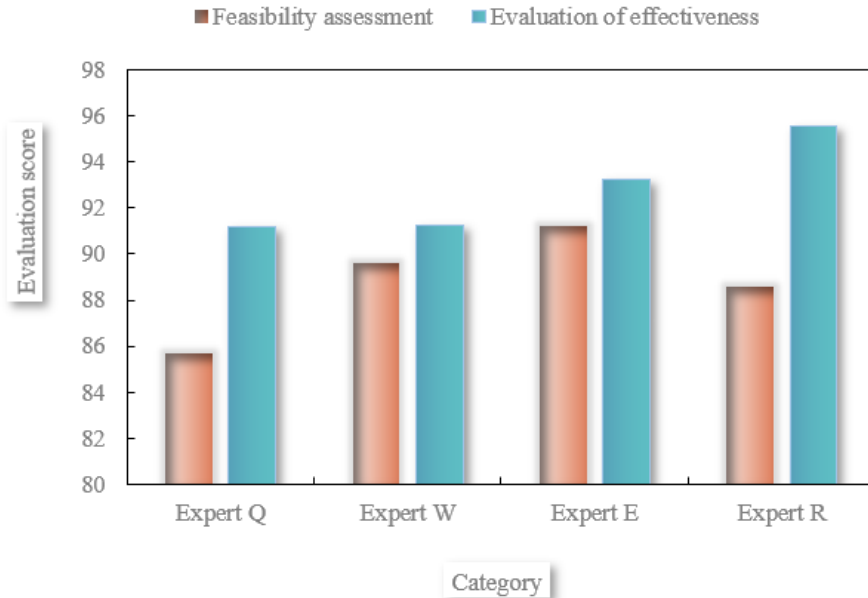


Figure 8.
Expert evaluation of smart city public management optimization strategy



optimization strategy. Expert W scored 89.63 on the feasibility of urban public management optimization strategy and 91.27 on the effectiveness of urban public management optimization strategy. Expert E scored 91.25 on the feasibility of urban public management optimization strategy and 93.26 on the effectiveness of urban public management optimization strategy. Expert R scored 88.59 on the feasibility of urban public management optimization strategy and 95.54 on the effectiveness of urban public management optimization strategy. From the average data, the average feasibility evaluation score of the four experts on the urban public management optimization strategy was 88.79. The average effectiveness evaluation score of the urban public management optimization strategy was 92.82.

Discussion

This article's proposed strategies for optimizing the public management of smart cities included cultivating the awareness of the urban management subject to use BD to improve the scientific nature of smart city public management. Research was carried out from the aspects of public satisfaction, event handling of the public management subject of the smart city, and expert evaluation on the optimization strategy of the public management of the smart city. The urban management subject should also strengthen the ability to train urban management law enforcement personnel and enhance the professional quality and law enforcement ability of urban management law enforcement personnel. This will help to promote the sustainable development of smart city public management.

Result

The research showed that the respondents in N, Z, and S cities were 60.67%, 60.07%, and 60.31% satisfied with the handling of events by urban public management subjects, respectively. The expert evaluation scores on the feasibility and effectiveness of urban public management optimization strategies were 88.79 and 92.82, respectively. The public's satisfaction with the smart city public management subject's handling of events was still not high enough. The proposed optimization strategy for sustainable development of smart city public management with BD had certain practical value.

CONCLUSION

This article summarized the problems in the public management of smart cities, including ineffective government functions and outdated urban management technology and equipment. The reasons for challenges in urban public management, such as ideological factors and economic system factors, have been analyzed. The optimization strategy for sustainable development of smart city public management and BD has been proposed. This includes training BD urban public management talents and strengthening the financial security and policy support of urban public management with BD technology. Conclusions were drawn through experimental research.

The citizens of cities N, Z, and S were not satisfied with the handling of events by public management subjects in smart cities. The citizens of cities N, Z, and S felt the completion of the event handling of the urban public management subject was not high enough. The citizens of cities N, Z, and S thought the efficiency of event handling of the urban public management subject was not high enough. The optimization strategy of urban public management has high feasibility and effectiveness. In the future, the efficiency of this study will be improved with the help of novel technologies.

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