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Retraction

Retracted: Infrastructure Smart Service System Based on Big Data Information System

Mobile Information Systems

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Mobile Information Systems has retracted the article titled "Infrastructure Smart Service System Based on Big Data Information System" [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Re search Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process, and the article is being retracted with the agreement of the Chief Editor.

References

[1] D. Wang, "Infrastructure Smart Service System Based on Big Data Information System," *Mobile Information Systems*, vol. 2022, Article ID 9261023, 12 pages, 2022.
[2] L. Ferguson, "Advancing Research Integrity Collaboratively and with Vigour," 2022, https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/.

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Research Article

Infrastructure Smart Service System Based on Big Data Information System

Wang Dou

Department of Engineering Management, Sichuan College of Architectural Technology, Deyang 618000, Sichuan, China

Correspondence should be addressed to Wang Dou; douwang@scac.edu.cn

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With the acceleration of urbanization and the improvement of people's living standards, people pay more and more attention to the services provided by infrastructure. Smart services refer to the services provided by individuals or organizations using their wisdom for other people or organizations to facilitate people's lives. Wisdom is not only a tool of service but also the content of service. In fact, the rapid economic development and infrastructure construction did not develop in equal proportions. With the continuous progress of society, groups with different social attributes have emerged, and they have put forward diversified demands for public services in terms of both quality and quantity. This paper aims to study the research of infrastructure intelligent service system based on big data information system. It expects to use the big data information system to integrate the current infrastructure resources to meet people's needs. Big data refer to a large amount of diverse digital information that requires new processing modes to have higher decision-making power. This paper designs and develops a new smart community service system, hoping to provide people with more and more convenient services through this system. This paper explores public facilities services from the perspective of public facilities stakeholders to realize the value transformation of public facilities. The experimental results of this paper show that 67% of the people participating in the experiment believe that the protection of stair treads is very necessary, and 73% of people think that it is very necessary to install elevators in multistorey residences. According to the data, most consumers believe that smart services are very necessary and need to be equipped.

1. Introduction

As living standards improve, people's demands for infrastructure increase. Coupled with the advancement of science and technology, the technical content of infrastructure is getting higher and higher. This brings great convenience to people. Although the construction of infrastructure is currently attached great importance, the current infrastructure smart services still face many difficulties. For example, the cost of renovation is too high, the base of community residents is huge, and the time cannot be accurately grasped. It lacks a unified business system, there is no conclusion on how to establish a matching business process, and talent support is lagging behind. This paper aims to study the research of infrastructure intelligent service system based on big data information system. It expects the Amex big data information system to integrate the current infrastructure resources to meet people's needs.

The construction of smart infrastructure creates conditions for optimizing and facilitating the travel of citizens. It proposes the public facility service design principles and public facility service design strategies based on stakeholders. This provides a certain theoretical support for the transformation of public facilities design to public services in the context of smart cities. As the foundation and necessary condition for economic and social development, infrastructure can save energy and add stamina for development. The lag in construction may become a bottleneck restricting development.

This paper explores the infrastructure intelligent service system. With the help of the big data information system, an investigation was carried out on the infrastructure situation of the community in place A. From the perspective of the configuration of smart service supporting facilities, according to the survey data, 14% is equipped with elderly universities, and 81% is equipped with night lighting facilities. According to the data, the number of older universities is relatively small, and other infrastructures are more complete. Judging from the demand for various smart services, the demand rate of community hospitals is 62%. The demand rate of night lighting service was 62%, indicating that these two services are indispensable equipment for the community.

2. Related Work

With the improvement of the level of science and technology, more and more technological elements are integrated into life. Infrastructure services are the most common area. So far, there have been setbacks in choosing technical solutions relevant to local needs due to underestimation of the cost of technical solutions. It encounters a large number of incompatibilities between protocols and appropriate solutions, and utilities and suppliers have real problems. Zabasta et al. presented the study of creating a smart municipal system architecture in a local service cloud applying SOA and IoT approaches. He developed an application orchestration service and a proxy that resides on the gateway. Application Orchestration Service (AOS) can help people deploy applications to HUAWEI CLOUD with one click and simplify related cloud service management operations. The proxy provides adapter and protocol conversion functions. It also applies a tool that connects hardware devices, APIs, and online services [1]. The concept of infrastructure intelligent service system is proposed based on digital technology and the comprehensive construction and maintenance of infrastructure. Zhu et al. gave the definition of iS3. iS3 is an intelligent service system designed for integrated lifecycle data acquisition, processing, presentation, analysis, and infrastructure services. The goals and characteristics of iS3 are then displayed, indicating the relationship to existing systems such as BIM and GIS. iS3 consists of five layers, namely base layer, data layer, service layer, application layer, and user layer. In addition, iS3 is described in detail from the perspective of data acquisition, processing, presentation, analysis, and services [2]. Grisot *M* studied infrastructure in the context of the development of a national public e-health service in Norway. He worked on the design and development of new online communication capabilities between citizens and primary care physicians. It defines this case as an infrastructure redesign study to represent a specific infrastructure event. It requires the promotion of new logic in social networks and established technologies. To understand the peculiarities of reconstruction, it relies on research in infrastructure research. The study views embeddedness as a resource in the evolution of infrastructure. Infrastructure is proactive and fundamental. It is nontradable, integrally indivisible, and quasipublic goods. The provision of services or the provision of efficient infrastructure can only be achieved when infrastructure reaches a certain size [3]. Infrastructure development depends on resource allocation. It is often an imbalance between cities. Socioeconomic instability stems from this development gap, which affects decision-making processes focused on sustainable development. *Rana* et al. proposed a method for examining the time dynamics of infrastructure development gaps at various spatial scales. From the selection of spatial scales, time series and infrastructure development indicators suitable for the research requirements, the values of the Infrastructure Development Index (IDI) are calculated using sequential steps that include data normalization and evaluation of indicator weights using AHP. Segment, IDI, and variance analyzes were then performed using different coefficient (Cv) methods, changing the IDI time values and the Cv test/sample *t*-test, respectively. The results show that the proposed method works well in identifying growth gaps at different spatial scales [4]. Although these theories discuss infrastructure construction, they are not perfect in data processing. This paper combines infrastructure construction with big data technology, hoping to solve this problem.

The promotion of Internet of Things technology has made the application of big data more and more extensive. Wang and Chen analyzed the legal framework of agricultural investment by Chinese enterprises in the context of big data. In big data method analysis, decision support systems are used to analyze policies, even in conflict with multiple entities and their problems, to choose the best judgment. At the same time, in the context of Big Data, based on an in-depth reflection on the history, status quo, problems, and institutional roots of the agricultural investment legal system, the experience and lessons learned of foreign agricultural investment legal systems complementary. From the point of view of economic law, it carries out a systematic analysis of the legal system of agricultural investments. Finally, through the analysis of the problems, it puts forward proposals for decision-making in agricultural investments, which refer to the following relevant studies [5]. Jia has provided an in-depth understanding and analysis of English teaching reform in colleges and universities through in-depth research and analysis of the role of Big Data technology in reform. Based on the background of the educational information age, this study examines the transformative value of integrating information technology and teaching activities. It also extends its relative implications to both theoretical and practical levels. The field of information technology integration and teaching technology activities and its transformative value are at the heart of the research. The integration of information technology and teaching activities is not only a simple overlay of information technology and teaching but also a process of exploring the role and impact of information technology in teaching activities through an in-depth investigation of the internal relationship between the two. It then completes the combination of information technology and teaching activities and finally realizes the complete development of the students' personality [6]. Because data are generated by a variety of devices in a short period of time, this data are characterized by different forms of storage and is generated quickly. This can be seen to a large extent as a big data problem. In order to provide a more convenient health and environment service, Zhang et al. has proposed a cyberphysical system for patient-centered applications and services based on cloud and big data analytics technologies. The system consists of a unified standard data acquisition level, a data management level for distributed storage and PCs, and a data-driven service level. The results of this study suggest that cloud and big data technologies can be used to improve the performance of healthcare systems [7]. The growing popularity and development of data mining technology have posed a serious threat to the security of sensitive personal information. The data mining process is an iterative process. If each step does not achieve the expected goal, it needs to go back to the previous step, readjust, and execute. In recent years, an evolving research topic in data mining, known as offset data mining (PPDM), has been extensively researched. Xu et al. has taken a broader perspective on data mining-related privacy issues and has explored various methods that help protect sensitive information. In this way, data mining algorithms can be executed efficiently without compromising the security of sensitive information contained in the data and can reduce the privacy risks posed by data mining functions [8]. Although these theories describe big data, they are not linked to infrastructure and are not practical.

3. Infrastructure Smart Service System of Big Data Information System

3.1. Public Infrastructure. With the acceleration of urbanization, the demand for urban infrastructure is also increasing. With the improvement of living standards, people's requirements for infrastructure are getting higher and higher [9, 10]. Public infrastructure is often referred to as public facilities, which evolved from the concept of urban home. The facilities and utensils that people will place in public places for public use are collectively referred to as public facilities [11]. Public infrastructure refers to some infrastructure that is set up for the public and can be shared by the public and is not allowed to be monopolized or exclusive by one person such as medical institutions, educational institutions, roads, and bridges. In the early stage of urban development, people paid more attention to the overall development of the city and paid less attention to the design of public spaces. But over time, people's way of life and ideas have changed. People are more and more dependent on public facilities, and social activities are becoming more and more complex, so the planning of public facilities is becoming more and more refined [12, 13].

In fact, the development level of public facilities reflects the comprehensive strength of the country. At the same time, different countries and regional cultures will have an impact on the local infrastructure construction [14, 15]. For example, residents of European cities prefer the outdoors. In addition, the governments of European countries continue to guide citizens to travel green and live in an environmentally friendly manner based on the sustainable construction of green development. Therefore, most European countries have bicycle lanes and associated facilities on the road. Judging from the design of public facilities in Asia, Japan is very concerned about humanization, and it can even be said that the concept of humanized design runs through all aspects of Japanese design [16]. Figure 1 shows its humanization in transportation.

China's infrastructure is very differentiated, with more technological elements integrated in places with a higher level of economic development. When a city has a strong historical and cultural heritage, its public facilities will have obvious cultural characteristics [17, 18]. However, with the development of science and technology, information technology service facilities bring more and more convenience to people, so such facilities are becoming more and more popular [19]. For example, new public facilities such as fast-charging piles for mobile phones at stations and smart bus stops with real-time information display are more in line with current needs and are more popular. Generally speaking, China has gone through different stages in the design of public infrastructure, which is illustrated using Figure 2:

3.2. Big Data Algorithms. With the promotion of Internet technology, more and more information appears together in life [20]. Although more information means more information can be found, too much information makes it impossible for people to accurately find the information they need and solve problems efficiently. In order to make better use of various information, it is necessary to preprocess the data. Figure 3 shows the brief processing structure of the data:

$$Y_a = \sum_{y}^{p} \sum_{p} \left| h_y - f_r \right|^3. \tag{1}$$

Formula (1) represents the data initialization structure. During data cluster analysis, data are divided into different categories. y represents the number of clusters.

$$Y_r = \sum_{y}^{a} t_y u * y. \tag{2}$$

In formula (2), $u * y$ represents the distance between data. When y is smaller, it means that the objects of the data are more concentrated.

$$u * y = \frac{4}{o_y \left(o_y - 2 \right)} \sum_{i} \sum_{l} \left\| u - u' \right\|^4. \tag{3}$$

Among them, o_y represents the number of objects in the data category. When the number is larger, the distance between the data is smaller.

$$SSE = \sum_{f}^{h} \sum_{g} l\left(g_f, a \right)^3. \tag{4}$$

Data are divided into different types during data analysis. The error sum of squares is usually used as the objective function to measure the clustering quality.

$$\mathrm{Cov}(W, T) = \frac{\sum_{u}^{o} \left(W_u - W \right) \left(T_u - T \right)}{o - 1}. \tag{5}$$

FIGURE 1: Humanization of transportation.

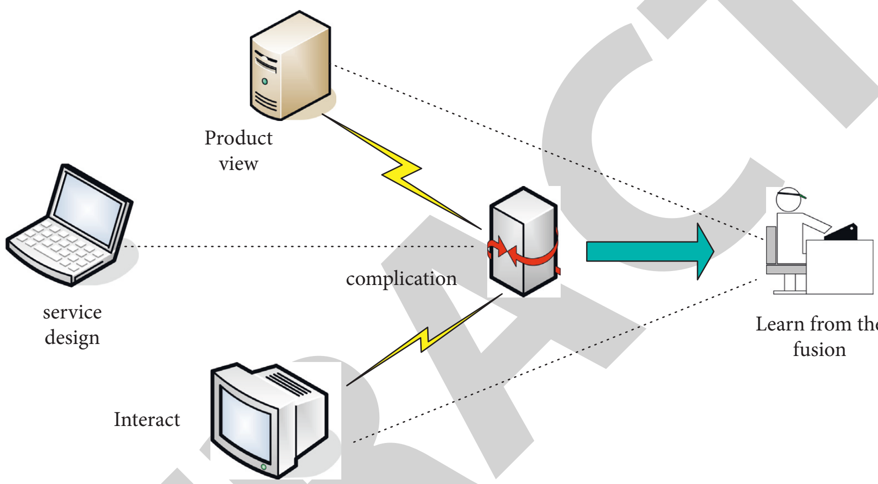

FIGURE 2: Concepts of different stages of infrastructure construction.

Formula (5) represents the covariance. It is usually used to calculate the overall error of the data.

$$G_{a,b} = \frac{P_{a,b}}{P_a P_b}. \quad (6)$$

Formula (6) represents the correlation coefficient of the data. It is often used to compare the closeness between data. Among them, P_a and P_b represent the standard deviation of the sample.

$$\text{cute}ff = 2 - \frac{QT}{QW}. \quad (7)$$

Formula (7) represents the truncation ratio of the algorithm operation, where QT represents the number of data clustering, and QW represents the number of clustering in the evolutionary process.

$$QW = \frac{YU}{BN}. \quad (8)$$

Among them, YU represents the maximum evolutionary algebra, and BN represents the population clustering interval algebra.

$$\text{centre}_h = \frac{\sum_o^u G_{kl}}{p}. \quad (9)$$

Among them, center_h represents the total number of data clusters, G_{kl} represents the components in the data set, and p represents the number of cluster centers.

$$l(u) = \sqrt{\sum_o^f \sum_k^b (p_{cd} - s_{cd})^3}. \quad (10)$$

Formula (10) represents the Euclidean distance of all objects to the cluster center.

$$\begin{aligned} Q(1) &= Q(h(a)) \\ &= \frac{1}{k} \sum_1^k h(a_1). \end{aligned} \quad (11)$$

Among them, $h(a)$ is an unbiased estimate of Q.

$$\beta(a) = \frac{w(a) = w_1(a_1) w_2(a_2|a_1) \cdots w_c(a_c|a_1 \cdots a_c)}{y(a) = y_1(a_1) y_2(a_2|a_1) \cdots y_c(a_c|a_1 \cdots a_c)}. \quad (12)$$

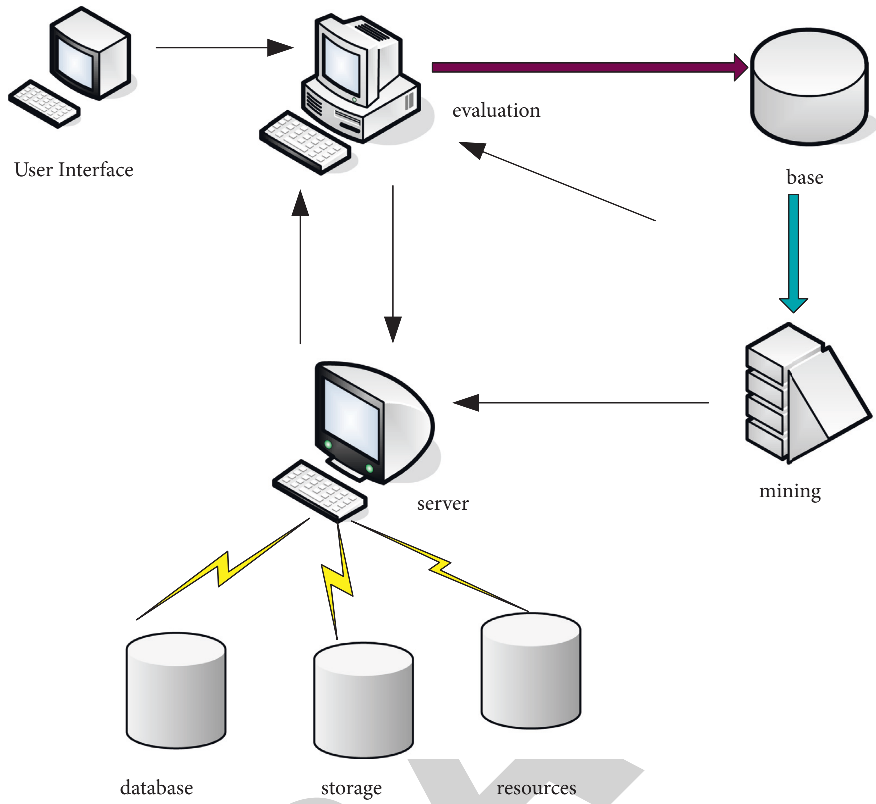

Figure 3: Data information processing structure.

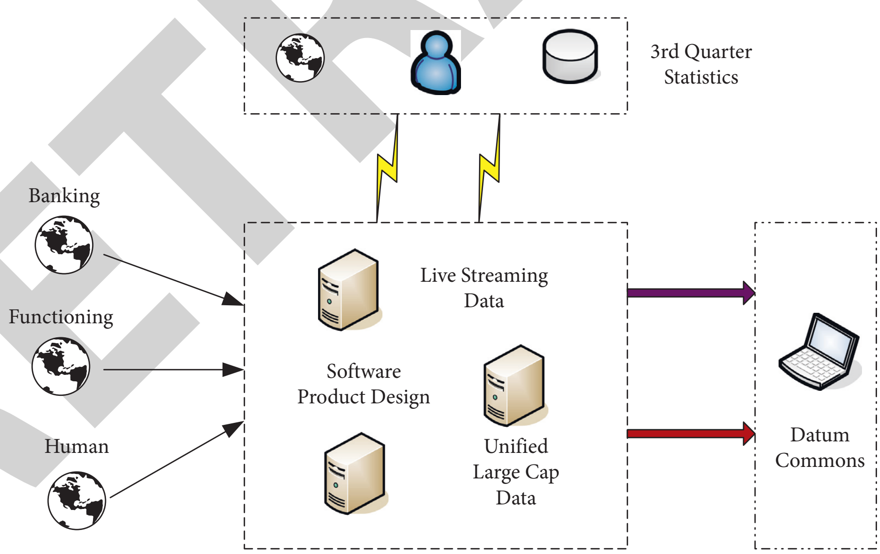

Figure 4: Basic structure of information sharing in the whole system.

In order to analyze the data objectively, the data need to be analyzed in detail. It compares one-level elements two by two for quantitative description:

$$W = (w_{op}) = \begin{bmatrix} w_{11} & w_{12} & \cdots & w_{1k} \\ w_{21} & w_{22} & \cdots & w_{2k} \\ w_{31} & w_{32} & \cdots & w_{3k} \end{bmatrix}. \quad (13)$$

Formula (13) represents the judgment matrix function expression.

$$\text{New\_}R(U, C_s) = \sum_c \frac{|U_l|}{|U|} R(U_l). \quad (14)$$

Formula (14) represents the functional expression of the information entropy of the subtree, and U_l represents the attribute feature of the sample.

For mixed feature datasets, it needs to be handled in a different way.

$$D_s(O_i, O_j) = \sum_{k=1}^{m} \frac{n_{h_{ik}} + n_{h_{jk}}}{n_{h_{ik}} \cdot n_{h_{jk}}} \sigma(x_{ik}, x_{jk}). \quad (15)$$

Among them, x_{ik} and x_{jk} are the corresponding kth of o_i and o_j ($1 \le k \le m$). $n_{h_{ik}}$ and 4 $n_{h_{jk}}$ are the number of h_{ik} and h_{jk} for attribute h_k in the dataset, respectively. Figure 4 shows the basic structure of information sharing throughout the system:

$$D(O_i, O_j) = \mu D_s(O_i, O_j) + D_n(O_i, O_j). \quad (16)$$

Among them, μ is the weight of the adjustable character attribute, and $D_n(O_i, O_j)$ is the Euclidean distance of n numerical attributes.

$$\beta'' \in \left(f_u - \|\beta\| * \left(\frac{\eta}{3}\right), f_u + \|\beta\| * \left(\frac{\eta}{3}\right) \right). \quad (17)$$

Formula (17) represents the shrinking sampling space of the data. Among them, u represents the attribute, and $\|\beta\|$ represents the original value length of the attribute.

$$\frac{\mathrm{Var}(T_a)}{\mathrm{Var}(W_a)} \ge 2 + \left(G\phi + \frac{G^3\phi^3}{\phi} \right). \quad (18)$$

ϕ represents the smoothing coefficient, and $0 < \phi < 1$.

$$\frac{\mathrm{Var}(T_a)}{\mathrm{Var}(W_a)} \ge 2 + \left(\frac{G}{c} + \frac{3G^3}{c^3} \right). \quad (19)$$

At this point, the variance of the function is in an independent distribution state.

$$W_2 = \frac{Q_3}{Q} \left(- \sum_{k}^{n} \frac{Q_{3i}}{Q_3} \log_2 \frac{Q_{3i}}{Q_3} \right). \quad (20)$$

Among them, $3i$ represents the number of classifications, and the values obtained at this time are all approximate information gain values. In probability theory and information theory, information gain is asymmetric and used to measure the difference between two probability distributions P and Q. Information gain describes the difference between coding with Q and coding with P.

3.3. Big Data Information System. Big data is one of the hot topics of the moment. As we all know, the essence of big data lies not in the scale of data, but in the increasing amount of data that can be utilized, processed, and analyzed by people. Through the analysis and mining of these data, people can gain insight into new laws, acquire new knowledge, and create new values. The big data processing process mainly includes data collection, data preprocessing, data storage, data processing and analysis, data display/data visualization, data application, and other links. Big data is not just data but also a capability and resource. It is the ability to deduce information from simple data resources and sublimate information into knowledge. Simply put, big data is the ability to quickly obtain valuable information from various data.

With the continuous development of computer technology, the concept of big data has gradually emerged. Although big data has been used in many fields, there is currently no internationally recognized concept. Big data has its own unique understanding in various fields. For example, some scholars believe that big data refers to the scale of data sets involved that has exceeded the ability of traditional database software to acquire, store, manage, and analyze. Regardless of the definition of big data in various fields, it cannot be denied that people are now in the era of big data, and their surroundings are closely related to big data. Figure 5 shows the basic structure of the big data system:

As an innovative technology, big data continue to lead the transformation of the industry. However, the combination of urban planning and big data is still in its infancy. Although the application of big data in the urban planning industry has been explored for several years, the application of big data in research on public service facilities is rare. There are still many problems with the combination of the two, for example, there is a lack of effective communication between users, maintainers, and managers of public facilities. The damage and failure information of public facilities cannot be obtained. The design of public facilities is mostly based on the subjective assumptions of planning decision-makers. It lacks access to the deep needs of users of public facilities. Figure 6 is a schematic diagram of infrastructure construction under the blessing of big data technology:

4. Infrastructure Smart Service System Experiment

4.1. Exploration of Experimental Objects. Infrastructure is the necessary material basis for social production and life. With the development of society and economy, people's living standards are getting higher and higher, and the requirements for the infrastructure of communities and cities are also getting higher and higher. Different social roles living in cities view infrastructure differently. In order to talk about the views of different people, a survey was carried out on citizens of different identities. The details are shown in Table 1;

According to the data in Table 1, the questionnaire survey method was used to analyze the community infrastructure. According to the survey data, there are 133 men in the survey group, accounting for 44.3%. There are 173 women, and the proportion is 57.3%. It can be seen from the data that the difference between the proportions of men and women is small, and the sample is more scientific. Judging from the age of the respondents, there are 57 people between the ages of 17 and 25, accounting for 19%; There are 96 people aged 26–37, which is 32%. There are 117 people aged 38–47, which is 39%. There are 30 people over 47 years old, and the proportion is 10%. According to the revised data, the number of people aged 26–47 is the largest. Most of the people in this group are labor groups, and they have more say in the level of local infrastructure services, and their views are more valuable.

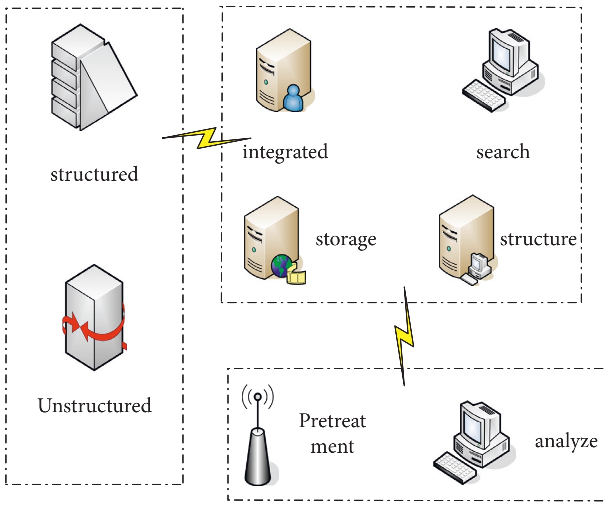

Figure 5: Flow chart of the big data work phase.

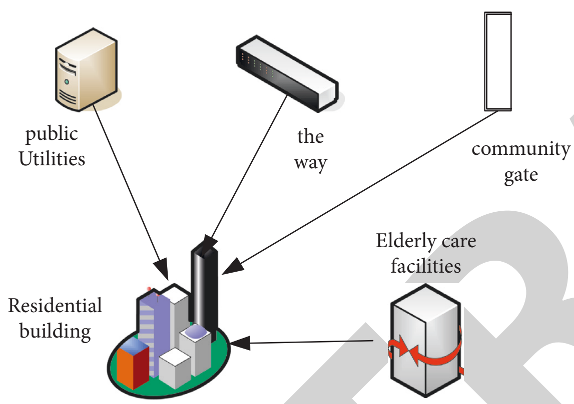

Figure 6: A simplified diagram of infrastructure construction under the blessing of big data technology.

Table 1: Analysis of the basic situation of the experimental subjects.

Item	No.	Category	Number of people	Proportion
Gender	1	Male	133	44.3
	2	Female	173	57.7
Age	1	17–25 years old	57	19
	2	26–37 years old	96	32
	3	38–47 years old	117	39
	4	More than 47 years old	30	10

According to the data in Table 2, the occupation of the people who participated in the survey was investigated. According to the data, there are 12 employees in state-owned enterprises, and the proportion is 4%. There are 67 employees in private enterprises, which is 22.4%. There are 27 full-time technical personnel, accounting for 9.2%. There are 61 service staff, and the proportion is 20.3%. There are 24 workers, which is 8%. There are 9 agricultural production personnel, accounting for 3%. There are 39 unemployed persons, accounting for 13%. There are 60 other personnel, accounting for 20.1%. According to this data, staff at all levels of the investigators are involved. The data obtained are more realistic and in line with the purpose of this survey.

4.2. Investigation on the Educational Level of the Experimental Subjects. An individual's perception of infrastructure is related to an individual's experience. People with different educational backgrounds have different views on the same infrastructure. People with higher education have a more multifaceted view of infrastructure and will not draw conclusions on one aspect, but the overall level of facilities is higher. People with lower education have lower overall effect on the facility, but it is easy to draw conclusions from one aspect. In order to investigate the local infrastructure, the educational background of the people who participated in the investigation was analyzed. The details are shown in Table 3:

According to the data in Table 3, it can be seen that the educational background of the surveyed subjects has been classified differently. According to the survey, there are 24 investigators with a master's degree or above, accounting for 8%. There are 69 people with a bachelor's degree, and the proportion is 23.1%. There are 55 people with college degree or above, the proportion is 18.4%; There are 97 people with high school education and above, and the proportion is 32.4%. There are 51 people with junior high school education and below, and the proportion is 18.1%. According to the distribution of educational backgrounds of the investigators, the number of persons with a high school education or above is the largest. It shows that there are more respondents with lower-educational level, and 31% of them have higher-educational level. From this, it can be seen that in the survey group, there are a certain proportion of the number of people at each educational level, and the information obtained is more realistic.

4.3. Annual Income Level. The annual income level refers to the salary level of an individual in a year. Groups at different salary levels have different perceptions of local infrastructure. When the personal salary level is higher, there will be higher requirements for the local infrastructure. Individuals have different perceptions of infrastructure as they play different roles in society.

According to the data in Table 4, the social roles and family income of the investigators were analyzed. First of all, from the perspective of social roles, there are 100 people in this part of the group, of which there are five people in the management part, and the proportion is 11%. There are 21 people in the design unit, and the proportion is 41%. There are 24 people in the organizer, and the proportion is 48%. According to the data, people from various departments are involved, the collected results are more diversified, and the data are more real.

Judging from the family income of the investigators, there are 54 people with family income between 10,000 and 20,000, accounting for 18%. There are 132 people with family income between 20,000 and 70,000, and the proportion is 44%. There are 60 people with household income between

Table 2: Occupational composition survey.

Item	No.	Category	Number of people	Proportion
Career	1	Employees of state-owned enterprises	12	4
	2	Private company staff	67	22.4
	3	Professional and technical staff	27	9.2
	4	Service workers	61	20.3
	5	Workers	24	8
	6	Agricultural production workers	9	3
	7	Unemployed	39	13
	8	Others	60	20.1

Table 3: Analysis of the survey on the education of the masses participating in the survey.

Item	No.	Category	Number of people	Proportion
Academic qualifications	1	Master or above	24	8
	2	Bachelors	69	23.1
	3	College and above	55	18.4
	4	High school and above	97	32.4
	5	Junior high school and below	51	18.1

Table 4: Household income and social role survey.

Item	No.	Category	Number of people	Proportion
Social role	1	Management	5	11
	2	Design unit	21	41
	3	Contractor	24	48
Income level	1	1–2 million	54	18
	2	20–70,000	132	44
	3	70–120000	60	20
	4	Greater than 120,000	66	22

70,000 and 120,000, and the proportion is 20%. There are 66 people with a household income of more than 120,000 yuan, and the proportion is 22%. According to the data, people from all income groups are involved in the survey group, and the survey object has a wide range. The information collected comes from different classes, and the data is more authentic. This is more conducive to reflecting the local infrastructure situation, and the view of local infrastructure is more objective.

5. Infrastructure Smart Service System

5.1. Infrastructure Configuration. With the development of economy, people's requirements for life are getting higher and higher. This requires the surrounding infrastructure to be more complete. In order to explore the local infrastructure configuration, a brief survey was conducted on the infrastructure of the local elderly living places, and the local residential facilities were analyzed. The specific situation is shown in Figure 7:

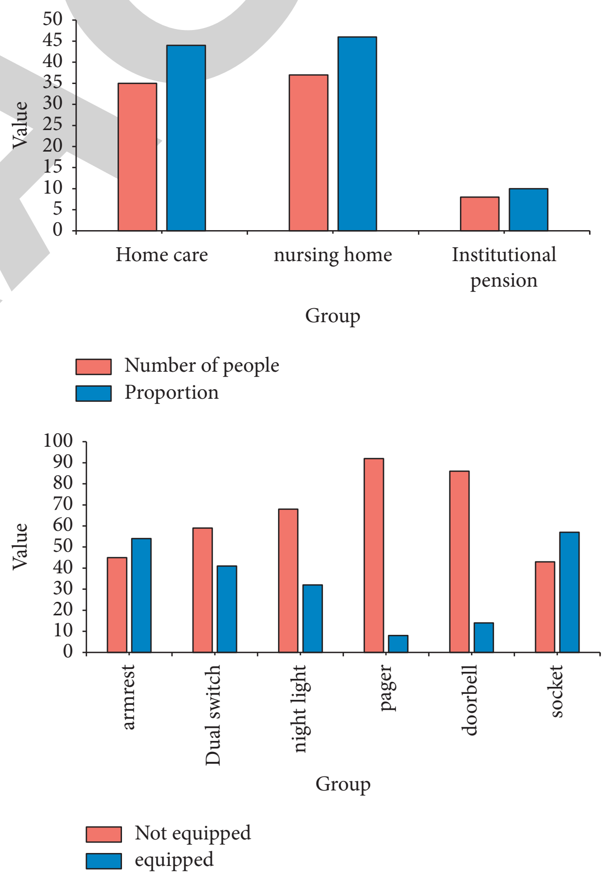

Figure 7: Elderly people's retirement preference and smart infrastructure deployment.

According to the data in Figure 7, a survey was conducted on the local elderly's tendencies and places for retirement, as well as the local smart infrastructure configuration. First of all, 80 volunteers who participated in the survey were surveyed from the perspective of the elderly's tendencies to care for the elderly at that time. Among them, 35 people want to live at home, the proportion is 44%. A total of 37 people want to retire in the community, the proportion is 46%. A total of 8 people want to retire in institutions, and the proportion is 10%. According to the data, there are more people who want home-based care and community-based care, except for personal family reasons. It

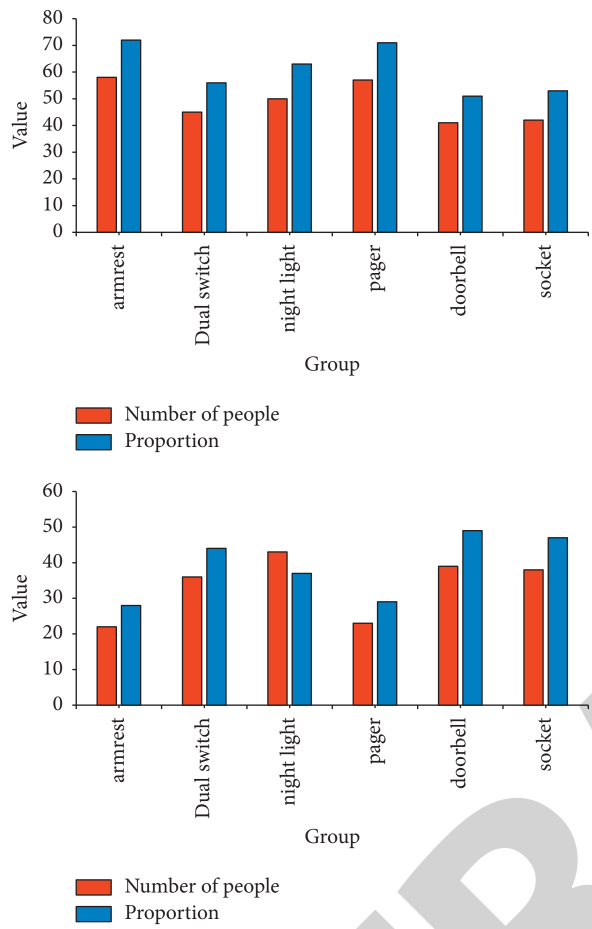

Figure 8: Analysis of the needs of the elderly for interior design and intelligent facilities.

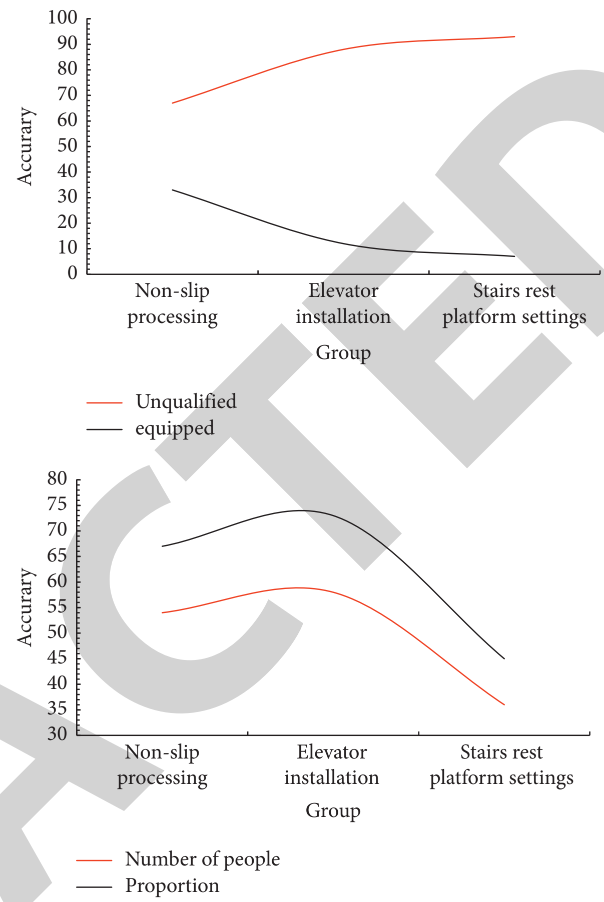

Figure 9: Analysis of leisure intelligent infrastructure.

can also show that the infrastructure of the community is getting more and more complete, and people can also enjoy high-quality services in the community.

From the perspective of local infrastructure smart services, 54% of the surveyed groups reported that there are enough handrails in the local area. A total of 45% of people report that the local handrails are not adequate. A total of 59% of people reported that the local area is equipped with dual-control switches. A total of 41% of people reported that the local area is not equipped with dual-control switches. A total of 32% of people reported that the local area has night lights. A total of 68% of people reported that the local area is not equipped with night lights. A total of 8% of people reported that the local area is equipped with a pager. A total of 92% of people report that the local area is not equipped with a pager. A total of 14% of the people reported that the local area is equipped with a smart doorbell, and 86% of the people reported that the local area is not equipped with a smart doorbell. A total of 57% of the people reported that there are sockets in the local area, and 43% of the people reported that there are no sockets in the local area. According to the data, in these infrastructures, except for pagers and smart doorbells, other facilities are relatively complete. But there are still some communities that have not been installed. To explore consumer demand for these devices, the perceptions of the respondents were analyzed.

According to the data in Figure 8, the needs of local consumers have been explored and analyzed. First of all, from the perspective of the need for smart services provided by these infrastructures, 58 people think that they need to be equipped with sufficient handrails, and the proportion is 72%. For the elderly, handrails are needed, which can help the elderly provide physical support. Forty-five people believe that dual-control switches are needed, and the proportion is 56%. The dual-control switch can provide different services according to the actual user's needs, providing convenience for the actual user. A total of 50 people think that night lights are needed, and the proportion is 63%. Nightlights can provide lighting at night to ensure safety. A total of 57 people think pagers are needed, which is 71%. The pager can call personnel in time and provide help to consumers in time. A total of 41 people believe that a smart doorbell is needed, and the proportion is 51%. Forty-two people think they need sockets, which is 53%. According to the data, most people think that these smart facilities are very necessary. They believe these facilities can help when necessary and reduce danger.

It also investigates from the point of view that smart services are not required. According to the data, only a small

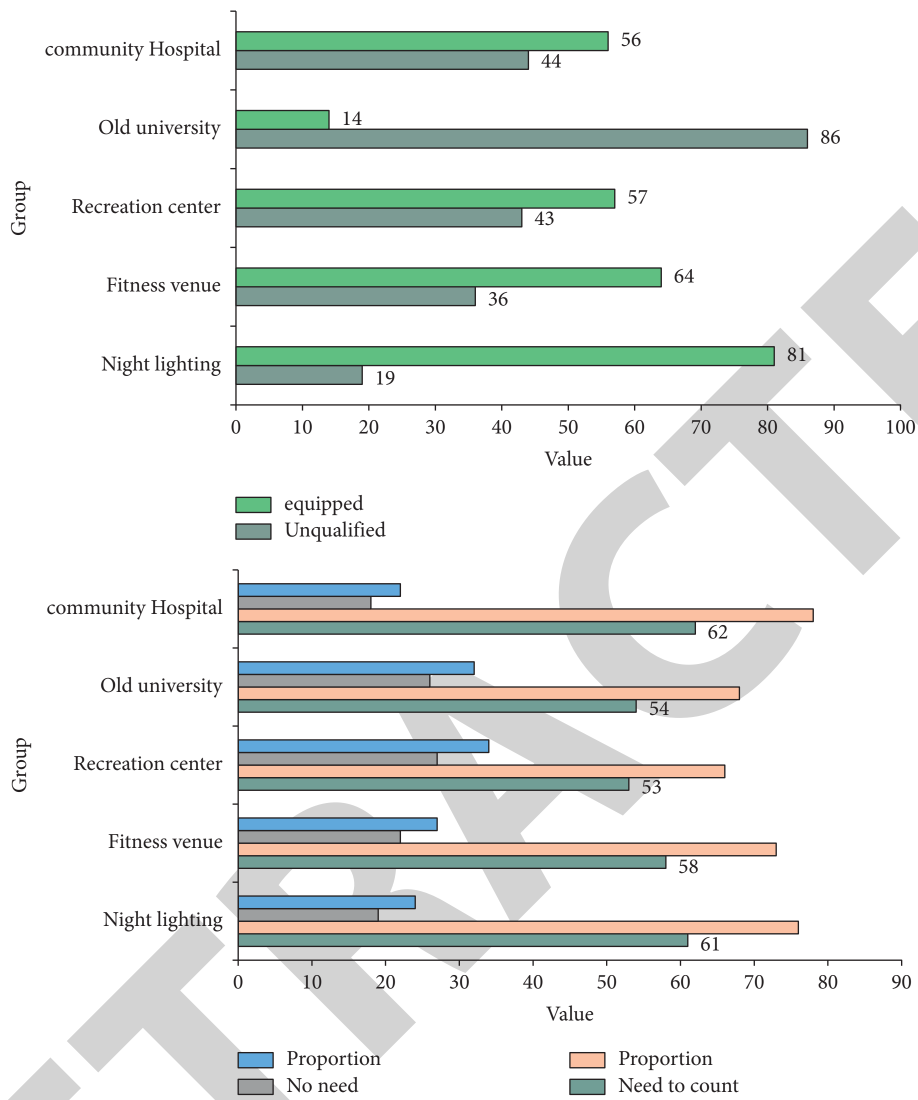

Figure 10: Analysis of the preparation of community intelligent supporting facilities.

number of people think these facilities are optional. They believe that in the event of danger, the services provided by these facilities are minimal and cannot bring timely assistance. Moreover, these facilities cost a lot when equipped, and the investment is not proportional to the income, so there is no need to pay too much attention to them. This kind of thinking is wrong. The services provided by smart infrastructure are not to help when harm occurs, but to reduce the probability of harm from the root cause.

5.2. Casual Intelligence Infrastructure. With the progress of the economy, people's living standards continue to improve. The leisure and entertainment facilities in daily life also need to be constantly upgraded. For older people, recreational facilities do no't need to be new. Ensuring safety is the most important consideration. In order to explore the local configuration of smart facilities to ensure the safety of the elderly, a survey was conducted on the local configuration. The specific situation is shown in Figure 9:

According to the data in Figure 9, the local security infrastructure was investigated. Among them, only 33% are equipped with stair tread protection treatment, and 67% are not equipped. Only 12% are equipped with multistorey residential elevators, and as high as 88% are not equipped. Only 7% are equipped with stair rest platforms, and as high as 93% are not equipped. According to this data, it can be seen that there are great deficiencies in the antiskid treatment of the stairwell and the configuration of the rest facilities. These smart services need to be provisioned in time to meet consumer demand.

In order to explore the extent of consumer demand for local smart services, a survey was conducted among those participating in the experiment. Among them, 54 people think that the protective treatment of stair treads is very necessary, and the proportion is 67%. A total of 58 people think that it is very necessary to install elevators in multistorey houses, and the proportion is 73%. A total of 36 people think that the stair rest platform is very necessary, and the proportion is 45%. According to the data, most consumers believe that smart services are very necessary and need to be equipped.

5.3. Configuration of Intelligent Supporting Facilities in the Community. Complete supporting facilities and consumers are very important. Meeting the diverse living and living needs of the elderly is also inseparable from complete community facilities. In order to analyze the local basic smart service situation, the local infrastructure situation was investigated. The specific situation is shown in Figure 10:

According to the data in Figure 10, first of all, from the perspective of the configuration of smart service supporting facilities, according to the survey data, 56% are equipped with community hospitals. A total of 14% are equipped with older universities. A total of 57% are equipped with entertainment venues. A total of 64% have a fitness center. A total of 81% are equipped with night lighting facilities. According to the data, most other smart services are available except for the elderly universities. Especially the night lighting facilities are basically available in all regions and can provide more complete services at night.

Judging from the demand for various smart services, the demand rate for community hospitals is 62%, and the demand rate for night lighting services is 62%, indicating that these two services are indispensable for the community. From the perspective of the demand for senior colleges, more than half of the people believe that senior colleges are necessary. It can provide the necessary spiritual needs for the elderly, spread antifraud knowledge for the elderly, and reduce the rate of being cheated. In addition, the local people's fitness needs are also large, indicating that people's health awareness is constantly improving.

6. Conclusions

With the advancement of science and technology, people expect science and technology to be linked with life services to provide people with more convenience. With the acceleration of urbanization and the improvement of people's living standards, people pay more and more attention to the services provided by infrastructure. However, the smart services provided by the current infrastructure cannot meet people's needs. This paper aims to study the research of infrastructure intelligent service system based on big data information system. It expects the Amex big data information system to integrate the current infrastructure resources to meet people's needs. Although some achievements have been made in this paper, there are still many shortcomings: the selection of experimental data in this paper is not representative. This data can only represent the status quo of local smart service supply and cannot represent the entire industry.

Data Availability

No data were used to support this study.

Conflicts of Interest

There are no potential competing interests in our paper, and all authors have seen the manuscript and approved to submit to your journal. The authors confirm that the content of the manuscript has not been published or submitted for publication elsewhere.

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