Journal of Cloud Computing:
Advances, Systems and Applications

RESEARCH

Open Access

An accurate management method of public services based on big data and cloud computing

Jiamuzi Xu[1*]

Abstract

Information technology and resource grouping are developing rapidly thanks to governmental policies. Large-scale data mining is a hugely practical and scientific zone of "digital gold". This is not only a modern-day problem, but it also necessitates the rapid growth of service of publics. As a result, the benefits of information can be fully realized, service efficiency improved, and the service gap closed. Cloud computing has gained popularity due to its quick accounting, limited memory requirements, and efficient resource distribution. As a result, big data was employed to analyze the existing state of cloud-based service of publics in this paper, and the fuzzy evaluation process was used to analyze the accurate monitoring. Eventually, service of public organization was improved, and the path to the accurate organization of the entire service of public process initiated by big data was developed. The design value and data entropy of cloud-based services of public were growing exponentially, according to fuzzy comprehensive assessment; the value of average of the design value of accurate organization of cloud-based government services was around 4.35, and the average importance of data entropy was around 0.98. Furthermore, the organization control and detailed efficiency of big data-driven precision organization of social public social welfare outperformed traditional precision monitoring of cloud-based service of publics; suggesting that the effects were 7% higher, and overall capacity was 9% higher than the compared techniques.

Keywords Cloud-based service of public, Accurate organization, Fuzzy comprehensive, Cloud computing technology, Evaluation method, Big data driven

Introduction

In the latest days, society has progressively developed a comprehensive national basic service of public system, which has enhanced technological abilities and increased public satisfaction. Replying to people's requirement for cloud-based service of publics has now converted an essential method for overcoming severe social contradictions and accomplishing the main business strategy in the modern age. With the introduction of next-generation communication skills such as big data, cloud services, AI, and electronic services advancement is becoming more apparent. The government is emphasizing the use of modern technological technologies such as big data to better understand and meet the public's demand for cloud-based service of publics. Since big data technology can gather feedback on citizens' requirements quickly and effectively. If cloud computing is to be a growth enabler for big data applications, widespread cloud computing services are unique from big data applications. Generally, cloud computing services provide fine-grained, loosely coupled implementations that operate to serve a large number of clients who work separately, from numerous places, probably on their own, private, self-report information, and a massive portion of

*Correspondence:
Jiamuzi Xu
xujiamuzi@whu.edu.cn
[1] School of Political Science and Public Administration, Wuhan University, Wuhan, Hubei 430072, China

connections, rather than being primarily batch-oriented, and are usually fit to be migrated with rapidly evolving resource requirements. Despite these distinctions, cloud computing and big data architectures have several specifications in common, such as automated fine-grained organization resources and scaling problems [1].

Cloud-based service of publics is managed according to strict rules because they are a framework for providing services to people. James et al. [2] realized the advantages of public organization experimentations and illustrated their rapid evolution donation to study and experimentation. He provided a thorough examination of the relationship between experimentations and public organization theory, as well as the advantages of causal effects. The purpose was to demonstrate that public administration can be effective in helping people solve their daily requirements. Mikel et al. [3] proposed a new framework for e-government based on a fresh open framework to alter the current strategy. The trend is focused on the design, development, and implementation of cloud-based public applications and mobile applications, and it is built on collaboration between various interested parties. Breaugh et al. [4] research on the motivation of the public sector alternates the use of service of public motivation and self-determination theory to make a comparison, puts forward assumptions related to their assumptions, and discusses the relationship between them and job satisfaction.

Miao et al. [5] uses psychological empowerment theory to study the potential process of entrepreneurial leadership and service of public motivation shaping civil servants' innovative behavior. Stojic et al. [6] new model can assist national, local, and local authorities in selecting and determining passenger public transportation, as well as establishing the way and level of a sustainable public transport system. Schwarz et al. [7] studied the relationship between network governance methods and leadership, employees' service of public motivation, and personal work performance, and suggested that managers should encourage public employees to initiate and maintain external contacts to obtain relevant information that may not be available internally. Gong et al. [8] classified service of public influencing factors into two classifications: subjective factors as well as external factors. The study discovered that subjective factors have a significant impact on service of public satisfaction because people's subjective factors can clarify significant differences among districts as well as counties. All of the preceding studies emphasize the significance of cloud-based service of publics but do not pertain to the data of public customer service.

Besides the above, numerous businesses are developing effective and agile cloud resources as cloud computing starts to grow, and cloud services are continually growing their service portfolios [9]. Azure Marketplace, which runs Cloudera Company and Hortonworks Data Platform (HDP) in a virtual environment, and Azure Data Lake, which contains Azure HDInsight, Data Lake Predictive analysis, and Data Lake Store as systems integration, comprise Microsoft's cloud Hadoop providing. The system gives rich efficiency rooms for databases, data stores, cloud, excel sheets, cooperation, business analytics, OLAP, and developer tools to the Microsoft society, as well as an increasing Hadoop stack. Amazon Web Services is one of the industry leaders in cloud computing and big data remedies. Amazon EMR is accessible in 14 different countries around the world. Google Cloud Dataproc is a managed Hadoop and Spark cluster that allows you to use managed service cloud services like Google BigQuery as well as Bigtable. IBM distinguishes BigInsights through end-to-end analysis tools. IBM BigInsights is built on IBM's Sof Layer public cloud and is available in over 30 global data centers. IBM is investing heavily in Spark, BigQuality, BigIntegrate, and IBM InfoSphere Big Fit, which operate natively with YARN and can manage the most difficult Hadoop utilization situations [10].

In addition to cloud computing, big data technology is an emerging technology that has a variety of uses. Hong et al. [11] mentioned each stage's relevant processes and data in terms of the social function actions. The use of big data in perfect planning was examined from two perspectives: data gathering and keep updating and data organization application. Fan et al. [12] identified the requirement for training objects using big data and created the most recent teacher data using cloud infrastructure to gather quantitative data from teachers such as through various channels. Liu et al. [13] examined the effects of big data on modern service of public and accuracy organization to determine various tactics that societies may use as well as the potential benefits that big data can offer to organizations in a variety of industries and functional zones inside organizations. Li et al. [14] suggested a trustable method based without confirmation based on service of public organization for data security storage and dissemination. In [15], the authors created a divergence-based big data delivery standard evaluation approach to enhance the model's consistency under variable conditions. The technique was used to evaluate the accuracy of service organization and the level of care provided. Li et al. [16] developed a large-scale advanced search key-value storage solution utilizing dynamic drives, as well as, an accurate service organization system that maps data to drive systems, which is utilized to reflect the actual data metadata and assist users' attribute search queries.

Nisar et al. [17] discovered that data decision-making abilities play a critical role in enhancing the efficiency and effectiveness of decision-making reliability, which benefited both service of public and accurate organization. Although, the preceding studies have explained the particular role of big data in administration, there are still numerous shortcomings in service of public organization.

Peoples should now adjust to the novel tendency of completely incorporating digital innovation into the culture and everyday life, as well as encourage innovation in cloud-based service of publics and community events, thereby hastening the formation of a government decision-making framework based on digital knowledge. The goal is to draw the public's attention to the public's requirements, thereby encouraging the implementation of accurate organization. The advancement of contemporary information technology has unlocked novel methods and means of meeting the requirements of cloud-based service of publics like accurate dynamic checking and big data forecasting based on cloud computing and radio frequency information. It can assistance organizations at all levels address service of public difficulties and meet the increasing requirement for cloud-based service of publics, enhancing citizens' feelings of accomplishment, well-being, protection, and identification. This paper's major contributions and innovations are listed as follows:

- The big data organization method of cloud computing is presented, and the building of a service of public cloud service based on the big data organization mode of cloud computing technology is investigated.
- It has created a service of public cloud system based on the big data organization framework of cloud computing technology.
- A data analysis of the public's service requirements was carried out using big data and cloud computing information gathering and recognition technology.
- It also evaluated the platform's response effectiveness in offering services to people who happened to come to accurate conclusions.

The remainder of this research work is organized as follows: Section 2 discusses cloud Computing and Service of public Organization Elements. Section 3 is based on the accurate path organization of cloud-based services of public determined by Big Data realization. Section 4 discusses the use of the fuzzy complete technique for accurate organization of cloud-based service of publics. Section 5 focuses on the assessment of accurate organization of cloud-based service of publics determined by big data, and Section 6 concludes the paper.

Cloud computing and elements of service of public organization

Cloud computing for the evaluation of service of public organization

The Cloud signifies a major shift in how IT systems are created, established, implemented, expanded, upgraded, retained, and compensated for. The Cloud guarantees to provide the functionality of current IT services while drastically lowering the upfront computing costs that prevent numerous organizations from utilizing numerous cutting-edge IT facilities [18]. This paper investigates and evaluates the service reply effectiveness of service of public organization using cloud infrastructure in the big data organization framework. This paper first constructs a service of public cloud forum for exchange service organization based on the big data organization framework and then tests the service quality of this cloud infrastructure. The testing results assess the effectiveness and efficiency of government service organization using the cloud infrastructure to deliver cloud-based service of publics. First and foremost, a service of public cloud framework based on big data organization is required for this paper's research. Figure 1 depicts the service of public organization in this paper using a cloud platform using the big data organization framework of the IoT. The design of the service of public cloud infrastructure for service of public based on the big data organization framework of the IoT can be seen in this Figure, and the proposed framework is also strongly related.

Organization of the elements of service of public

In this section, we briefly identify and elaborate various characteristics of the public service management systems and what are the major problems with existing public systems. Finally, we discuss the main causes of these issues.

Features of service of public organization

The accurate service of public requirement organization model, which is based on big data, puts more of an emphasis on meeting national requirements than the conventional service of public requirement organization approach, which is more concerned with supply and demand. As shown in Fig. 2, the big data demand for accurate organization of cloud-based service of publics mainly has three aspects. This is also mainly because information lag will affect the speed of service of public processing, the system platform will affect the accurate satisfaction of service of public demand, and social values will affect the comprehensive quality of cloud-based service of publics. One is data lag.

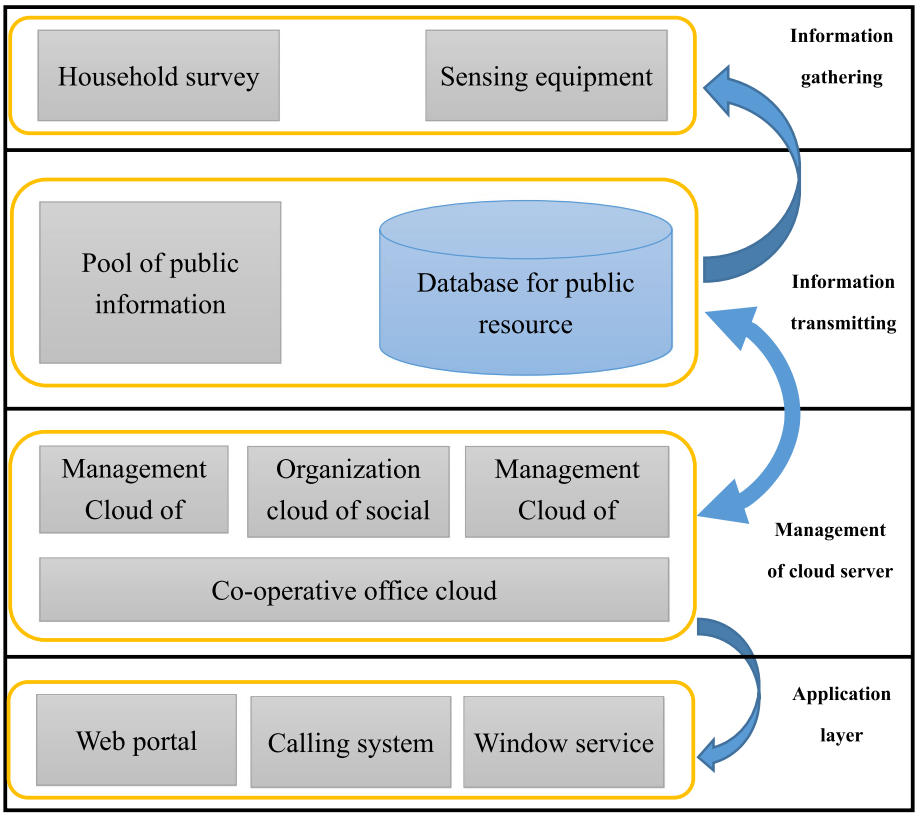

Fig. 1 Cloud design for public services management using big data management [19]

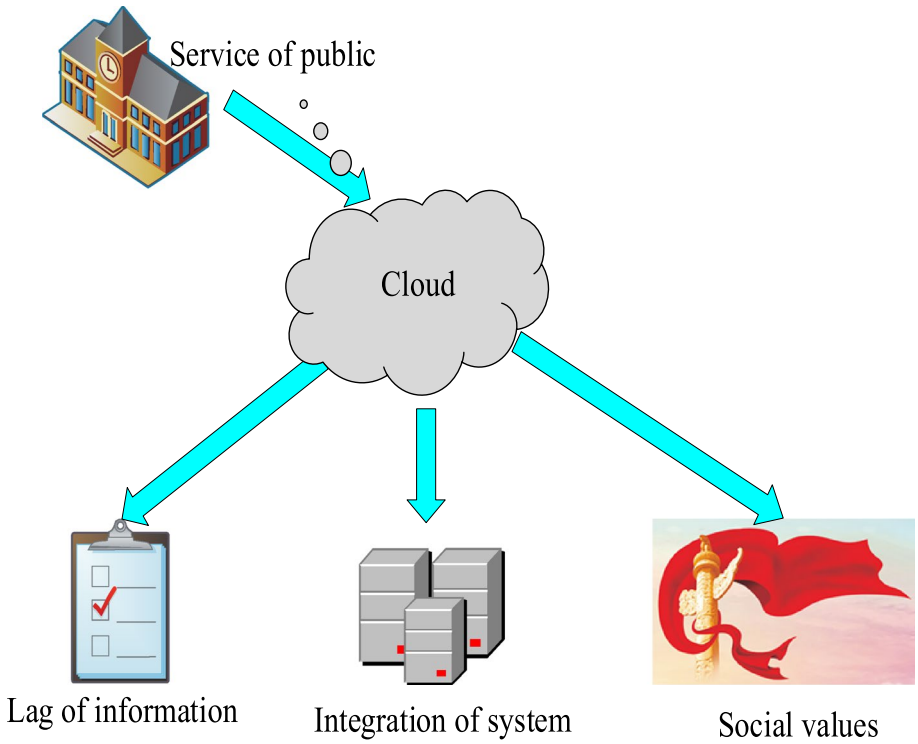

Fig. 2 Features of cloud-based service of public organization

It is challenging to evaluate and understand service of public requirement empirically using the technical definition due to information gaps, information lags, and a lack of data, which severely impedes scientific decision-making in the area of cloud-based government services. This eventually leads to problems such as differences in the ability of cloud-based service of publics to provide resources, inconsistent supply and demand of cloud-based service of publics, and unequal distribution of resources [20].

The next step is system integration. A cohesive system and framework integrating important elements, accurate evaluation, accurate computation, and accurate organization of public demands have been built by integrating channels and adding information for accurate organization of service of public demands. The third criterion is social values, which are used to assess, observe, and forecast the level of a society's advancement. Big data-driven usage for cloud-based service of publics can meet people's requirements for the variety and complexity of cloud-based government services through accurate data collection, quantification, gratification, and governance, particularly in remote, reverse, and vulnerable areas. This would assist the region in achieving higher cloud-based service of publics while also dramatically improving cloud-based public quality of service.

Difficulties present in service of public organization

The current problems in the administration of government cloud-based government services are primarily comprised of five elements, as illustrated in Fig. 3. First and foremost, the location is inaccurate. The placement of public functions is required for the proper delivery of cloud-based service of publics. Though, in public administration, the government's ambiguous condition causes issues such as choppy processes and inadequate government works [21]. Although finding short-term and rapid services in cloud-based service of publics is unavoidable, the lack of efficient organization control for basic services has severely harmed the source efficacy of cloud-based government services. 2nd, the identification is incorrect. Correctly identifying social requirements is a critical assurance for the effective running of local government

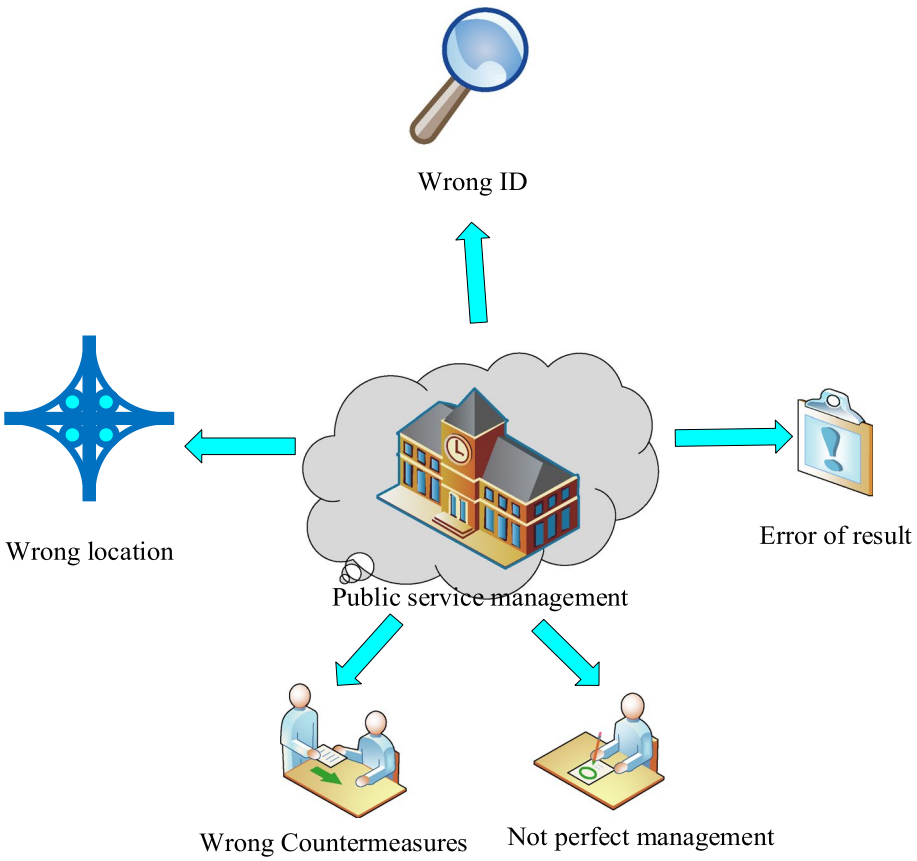

Fig. 3 Difficulties in cloud-based service of public organization

services. Meeting social requirements is a critical factor in enhancing the performance of cloud-based government services. It is simple to fall into a scenario where market forces are incongruent and unbalanced if demand is not properly defined. Third, the defensive measures are ineffective.

The local governments are frequently unable to ensure the precision of supply decisions due to the variety of information flow and the sophistication of supply chains. The fourth issue is poor organization. The government is hesitant to update the organization approach and continues to use the traditional simple managed services model, adapting to the procedure for providing services at all levels of the government. Fifth, the outcome is incorrect. On the one hand, this is due to an unfair framework showing the relationship; on the other hand, profits and losses and service consistency are unrelated.

Details for the presence of difficulties in cloud-based service of publics

Through the analysis of the current service of public organization model, it is found that the current service of public organization has certain deficiencies in terms of system and information technology. This is also because the local government does not pay enough attention to the requirements of the public and does not pay enough attention to technology and supervision. Figure 4 depicts the four main causes of the existing service of public problems. First and foremost, the system is imperfect. In the project implementation, the imperfect solution of service of public delivery not only leads to the issue of inaccurate demand but is also challenging to identify accurately. At the moment, the source of cloud-based government services is hampered by inadequate supply and inadequate identifying connections, both of which decrease the efficiency and performance of cloud-based service of publics. Second, the method is standardized, and the authorization process is time-consuming. It extends the time required to fulfill public social service requirements and diminishes operational plans to some degree [22].

This would lead to a rapid decline in the quality of cloud-based service of publics and procurement efficiency, which would greatly reduce the quality of services for people. Thirdly, the level of digitization is limited. The skill level of engineers and processing of data experts depends on the area [23]. Furthermore, detailed technical support and implementation of big data and network-related innovations are lacking. Governments at every level remain in the research phase while providing services, and ability necessary and information systems levels must be managed to improve. Fourth, supervision is inadequate. As per criteria and service results, the application capacity and level of data technology are not ideal, which invariably impacts organization efficiency and hinders carried-out careful advancement.

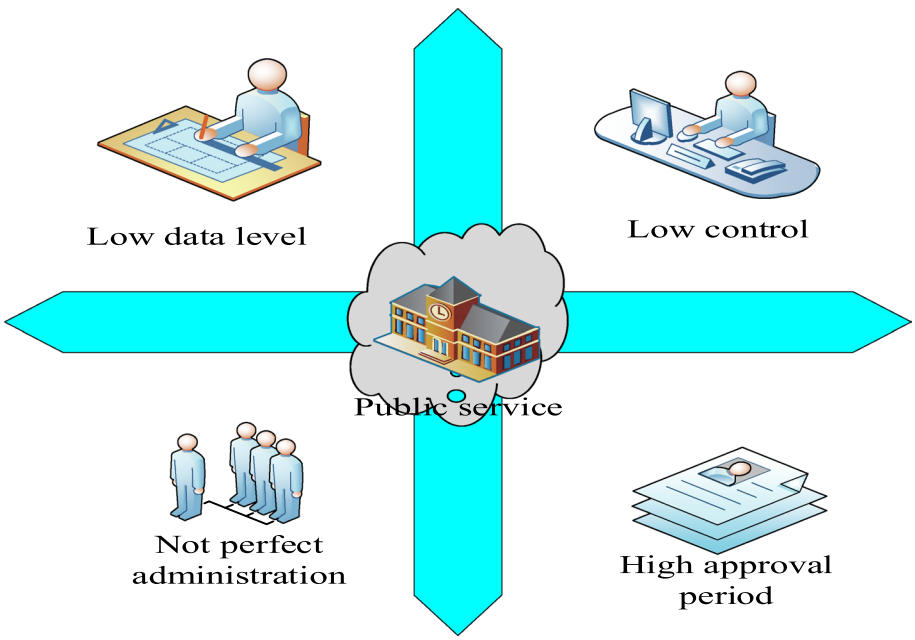

Fig. 4 Reasons of difficulties in cloud-based service of public

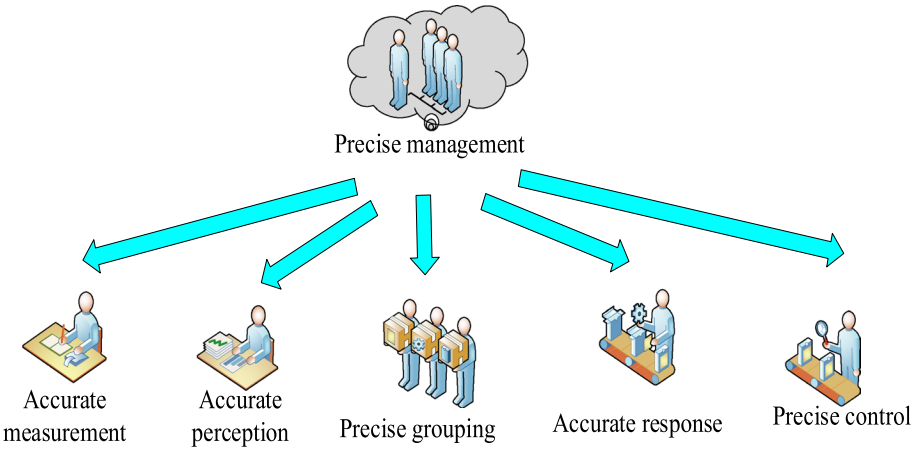

Fig. 5 Design of detailed organization of cloud-based service of publics determined by big data

Comprehension path of detailed organization of cloud-based service of publics determined by big data

A design for accurate organization of cloud-based service of publics determined by big data

Figure 5 depicts the five components of the template for accurate administration of cloud-based service of publics powered by big data.

Accurately apparent service of public necessities

Big data technology has inherent advantages that conventional forms of identifying the requirements of the public sector cannot complement in the digital age. The huge amount of information gathered in the Service of public Dataset is a reliable source of information about government service requirements. Simultaneously, big processing of data innovation can address the issue of low utilization of service of public data as a result of technical deposits and operational responsiveness. Utilizing network infrastructure to assess the reliability of service of public information flow, the government service requirement can be accurately estimated.

Accurately gathered service of public requirements

Big data-driven data collection of cloud-based government services can also mix and examine data about community service requirements from the standpoint of data gathering, and evaluating the public's requirements for offerings, goods, and regulations from the standpoint of various request objects. Big data gathering techniques make it simpler for government agencies to identify various types of cloud-based government services, allowing for the collection of correct info about service of public requirements. It can achieve a precise grouping of government service necessities and serve as a benchmark data set for assessing service of public necessities by gathering necessary information about cloud-based service of publics.

Accurate amount of service of public requirements

Following the integration and identification of service of public requirements, the quality and quantity of service of public requirements must be accurately measured using innovations such as big data information gathering, insightful analysis, and parallel systems, and the significance and immediacy of service of public requirements must be empirically differentiated. A multiple-stage assessment of service of public supply is decided to carry out to establish a basis for assessing the decrease in service of public demand, predicated on more accurate service of public market information and the implementation of innovations such as big data user pictures. Furthermore, the procedure of successfully handling government demands can accurately assess the population's requirements.

Accurate reply to cloud-based service of public requirements

One of the primary objectives of delivering high-quality cloud-based service of publics is to meet the requirements of citizens [24]. Accurate requirement organization can be elevated by analyzing the direction and objectives of service of public supply to enhance the science decision-making capacity of cloud-based government services and the improvement of urban allocation of resources effectiveness, thereby ensuring the reliability of cloud-based government services and making a contribution to meeting government service requires [25]. As a consequence, digital perfectly matched technology and machine intelligence have evolved from traditional

service of public fulfillment to quick response cloud-based government services.

Accurately skillful cloud-base service of public requirements

The utmost element for further accurate organization of the service of public demand is close regulation of government service supply. Simultaneously, it combines a clearer understanding of government service supply with the formation of a closed chain in the organization of service of public requirements to collect more accurate data. Thorough knowledge of service of public important for marketing can be accomplished by using deep learning methods to develop real-time forecasting and monitoring models of the public's supply [26, 27]. The creation of a service of public research study and feedback platform, as well as increased public engagement, would not only assist the platform in giving actual analysis and information but would also successfully and exhaustively reflect the requirements of cloud-based government services, allowing it to accurately construct a structure for accurate organization and enhance service of public necessities.

Optimization path of accurate organization under big data

Figure 6 depicts the five major paths to accomplishing accurate organization with big data. The first step is to develop a sound organization approach and to promote theoretical advancement in service of public organization control. In the new phase, it is essential to adhere to people-oriented policy objectives and resolve the major social inconsistencies in the area of service of public demand. The internal law of government service requirement adjustment is investigated, and a scientific idea of service of public organization control is developed. Second, to meet the requirements of government service networks, media facilities will be established to provide cloud-based essential facilities. It can accurately manage government service requirements by incorporating digital systems including using big processing of data innovation to acquire big data. Data integration technology, for example, aims to use communications technology to integrate rich data resources from various areas of cloud-based social programs to realize the interplay between society and the government [28–30].

The third step is to create a vibrant system of service of public demand. Upon extracting the service of public requirement data layer, it is essential to identify the data classification, source, and form. Artificial intelligence is used to analyze data prerequisites, that is then transformed into data using natural-language processing methodologies. Subjective texts are then processed and analyzed using supervised classification and message motion tracking [9]. The fourth goal is to emphasize the importance of cloud-based service of publics. The requirement for cloud-based general populace services at every level was analyzed using data released by the government on the Internet and the method of data collection, and then a service of public requirement database was formed. It is used to obtain and input data on public customers' requirements, as well as to analyze Internet customer insights and media opinions to provide an accurate evaluation of cloud-based service of publics.

The fifth goal is to create an about the development for forecasting and monitoring service of public requirements instantaneously. To accurately identify government service requirements and raise the caliber of cloud-based service of publics, a science, direct democracy, and efficient dynamic feedback controller is formed with the aid of big data technology. Based on the open and public platform, an engaging service of

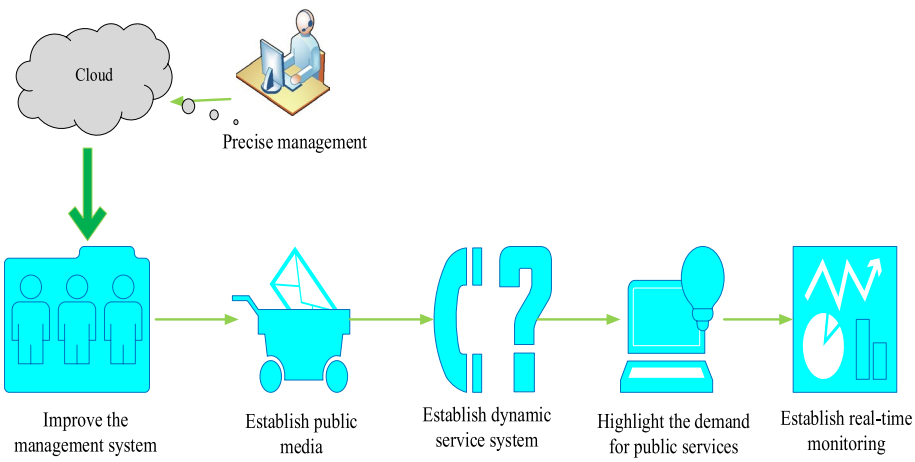

Fig. 6 Application path of precise organization determined by big data

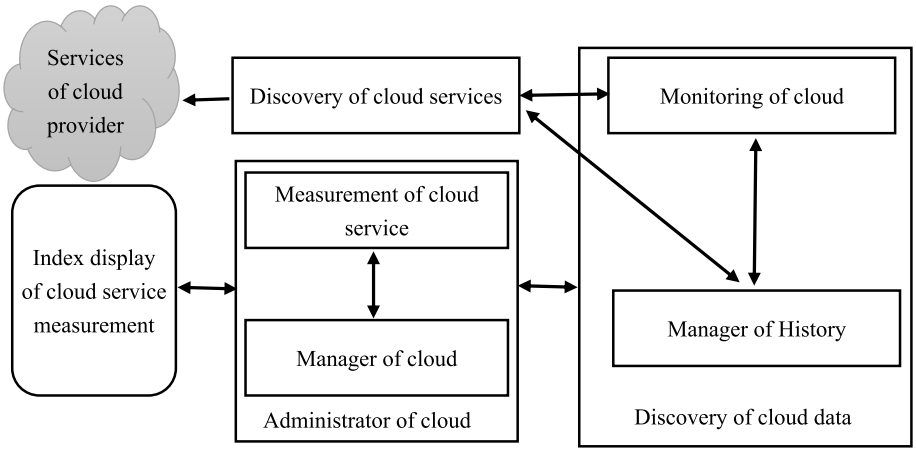

Fig. 7 Framework of raking and evaluation

public real-time surveillance platform is created to create good use of requirement possesses and accurately modify service of public demand. Service of public requirements can be accurately modified by utilizing the characteristics of the public's demand behavior analyzed by big data.

Now, as illustrated in Fig. 7, we will explain how to evaluate QoS using the raking framework. This diagram depicts the framework's components, which include cloud manager, cloud data revelation, cloud service revelation, and cloud services. Cloud manager is made up of two parts: cloud service standard measure and cloud manager. To gather the necessary service parameter data, the cloud administrator element conveys the cloud data revelation element. A cloud monitor element and a historical manager element comprise the cloud data revelation element. The suggested scheme does not always choose the most cost-effective, i.e. lowest-priced, cloud service provider when assessing and ranking a cloud service. This is because the provider measurement is dependent on several other variables that directly or indirectly influence the costs of the service. The cloud administrator element is in charge of calculating cloud service QoS by producing cloud service rankings in the form of indicators. The customer's request for a cloud service assessment is received by the cloud service monitoring element. It collects all of their demands and uses other elements to explore and rank appropriate suppliers. The cloud manager element keeps track of customers' SLAs with Cloud providers as well as their fulfillment background. The cloud service measurement element generates a provider index based on one or even more QoS parameters to determine which cloud service best meets the user service request specifications.

The cloud manager element oversees the collection of data from the cloud administrator element and forwards it to the cloud service evaluation element. The cloud data revelation element is in charge of collecting the necessary service-level data to calculate the QoS of cloud service ranking. The cloud monitor element first identifies Cloud services that can meet the user's critical QoS requirements. The achievement of the Cloud services is then monitored. The history manager element stores the background of cloud provider services [31]. The cloud monitor element collects information like VM speed, memory, scaling delay, storage achievement, network congestion, and network throughput. It also monitors how the Cloud provider is meeting the Demands of former clients. For every cloud vendor, the history manager element stores past customer feedback, conversation, and quality service data about the cloud service. The cloud service revelation component saves the services and features listed by different Cloud providers. Cloud service providers offer data on vendors who offer cloud-related facilities. The flowchart of cloud service evaluation element employs an organized decision-making technique, as shown in Fig. 8.

Role of fuzzy complete technique in accurate organization of cloud-based public facilities

The fuzzy proper evaluation method is employed to assess the performance of accurate administration of cloud-based government services to comprehend its effectiveness in handling big data. The purpose of fuzzy detailed assessment is to assess the level of service of public organization by developing an affiliation matrix. Initially, the pointer set A that moves the excellence of cloud-based public facilities is created, and A can be gained as:

$$A = \{a_1, a_2, \cdots, a_m\} \tag{1}$$

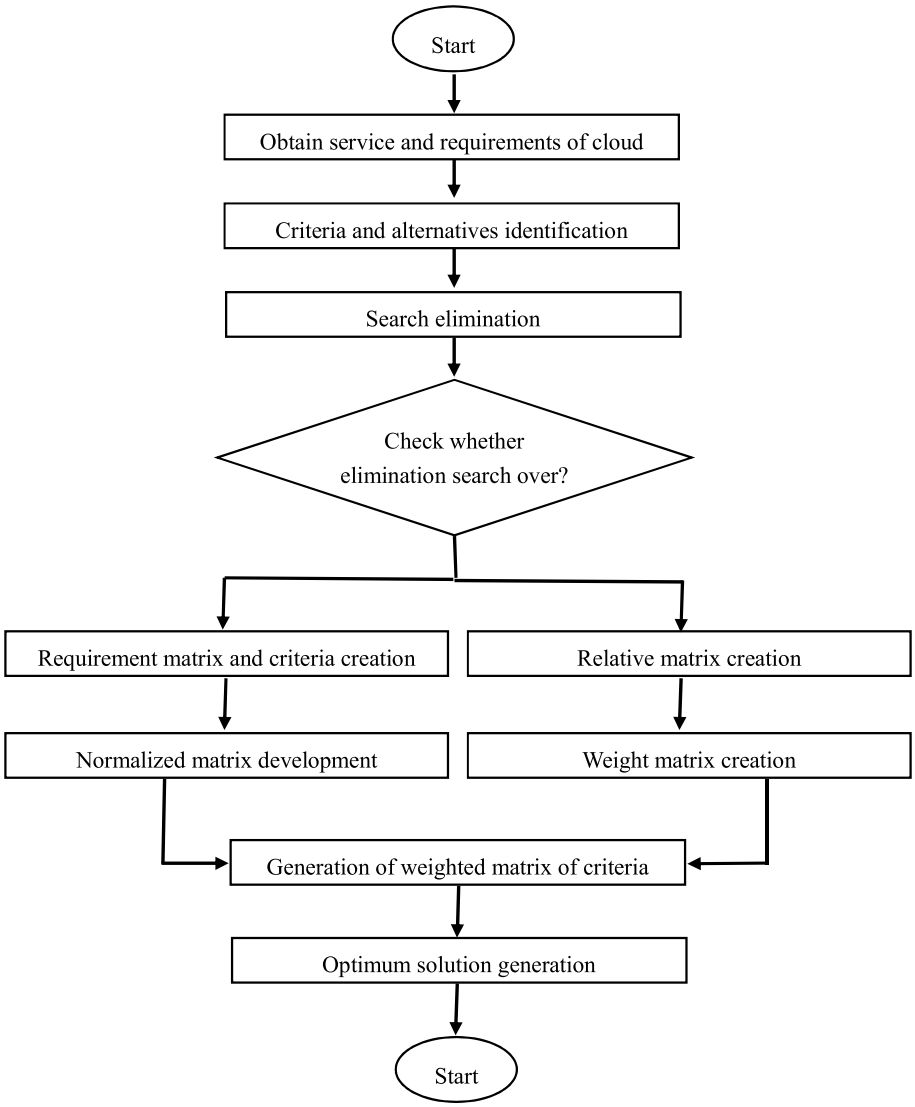

Fig. 8 Flowchart of cloud service evaluation element employs an organized decision-making technique

Among them, $a_1, a_2, \cdots, a_m$ are the assessment pointers. Next, the observation set B of the effect assessment index is created, which can be gained as:

$$B = \{b_1, b_2, \cdots, b_m\} \tag{2}$$

Among them, $b_1, b_2, \cdots, b_m$ are remarks on cloud-based public facilities. Afterward, as per the assessment pointers and remarks, the assessment set C of the assessment pointers can be recognized as:

$$c_i = \{c_{i1}, c_{i2}, \cdots, c_{im}\} \tag{3}$$

As per the assessment set, the assessment matrix C of service of public is created as:

$$C = (c_{ij})_{m\times n} = \begin{bmatrix} c_{11} & c_{12} & \cdots & c_{1n} \\ c_{21} & c_{22} & \cdots & c_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ c_{m1} & c_{m2} & \cdots & c_{mn} \end{bmatrix} \tag{4}$$

The essentials in the matrix are standardized to satisfy the Eq. (5), then there are:

$$\sum_{i=1}^{m} c_{ij} = 1, j = 1, 2, \cdots, n \tag{5}$$

Over Eq. (5), the weight set H of service of public assessment can be gained as:

$$H = \{h_1, h_2, \cdots, h_m\} \tag{6}$$

$$\sum_{i=1}^{m} h_{ij} = 1, h_i \geq 0 \tag{7}$$

Equation (7) is the standardization and non-negativity fulfilled by the weight. By utilizing fuzzy complete assessment to assess the service excellence of accurate organization, the fuzzy assessment vector X can be gained as:

$$X = H_0 C = \{x_1, x_2, \cdots, x_n\} \tag{8}$$

As per the possessions of the matrix, the fuzzy assessment matrix of X can be gained as:

$$X = (h_1, h_2, \cdots, h_m) \circ \begin{bmatrix} c_{11} & c_{12} & \cdots & c_{1n} \\ c_{21} & c_{22} & \cdots & c_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ c_{m1} & c_{m2} & \cdots & c_{mn} \end{bmatrix} \tag{9}$$

Using the assessment matrix, the unipolar assessment design X_i can be gained as:

$$X_i = H_i \circ C_i = \{x_{i1}, x_{i2}, \cdots, x_{in}\}, i = 1, 2, \cdots, s \tag{10}$$

Next, utilizing the single-factor assessment consequences, the association matrix R can be gained as:

$$R = \begin{bmatrix} X_1 \\ X_2 \\ \vdots \\ X_s \end{bmatrix} = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1n} \\ x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \vdots & \vdots \\ x_{s1} & x_{s2} & \cdots & x_{sn} \end{bmatrix} \tag{11}$$

The affiliation matrix is a collection of relationships between service of public organization and service levels. Lastly, the second-level complete assessment design T can be gained as:

$$T = H \circ C = \{x_1, x_2, \cdots, x_s\} \tag{12}$$

Using the two-level assessment design, the data entropy R of the service of public excellence can be intended as:

$$R = \frac{1}{\ln X} \sum_{i=1}^{s} X_i \ln X_i \tag{13}$$

Evaluation of accurate organization of cloud-based service of publics determined by big data

This research work evaluates the impact of accurate organization of cloud-based service of publics influenced by big data to better comprehend the impact of accurate organization. Initially, three societies in a city were explored for their fulfillment with data-driven organization. Every society had 100 people, and the level of satisfaction was divided into three categories comfortable, overall, and unsatisfied. Table 1 displays the specific results of the survey.

Table 1 Three communities' satisfaction with precision organization influenced by big data

Categories	Comfortable	Overall	Unsatisfied
Category 1	85	10	8
Category 2	87	7	9
Category 3	86	12	5

According to the data in the preceding Table, people in the 3 categories were comparatively pleased with the quality of cloud-based service of publics powered by big data. Category 1 satisfaction was 85%, category 2 satisfaction was 87%, and category 3 satisfaction was 86%. The overall satisfaction of the three categories was 86%, with 6.5% dissatisfied. People in this category who were satisfied assumed that cloud-based service of publics can fulfill the majority of their cultural, living, and tourism requirements, as they can not only offer targeted service contracts but also bring diverse and accurate services. People who were dissatisfied believed that their data would be supervised and potentially leaked even though big data technology would monitor requirement data in real-time and feedback analysis results to a large database.

Analysis of technical and service level of cloud-based service of publics determined by big data

This research paper examined the technical level and service level of cloud-based service of publics under big data during a week of practice in order to understand the effect of big data-driven cloud-based service of publics. Figure 9 depicts the specific analysis.

The data in the aforementioned Figure illustrates how the technical and service levels of public cloud-based services have been steadily increasing over time. The mean for the service level was 0.90, and the 7th day was 0.14 better than the first; for the technical level, the mean was 1.44, and the 7th day was 0.9 better than the first. The improvement in service level and technical level demonstrated that big data-driven requirement recognition of cloud-based service of publics was more accurate, and the quality of service of cloud-based service of publics might be managed to improve by tracking service of public requirements in real-time.

Experimental assessment of a detailed fuzzy assessment approach for managing accurately cloud-based service of publics

This paper used a fuzzy proper evaluation method to analyses the model value and knowledge entropy of

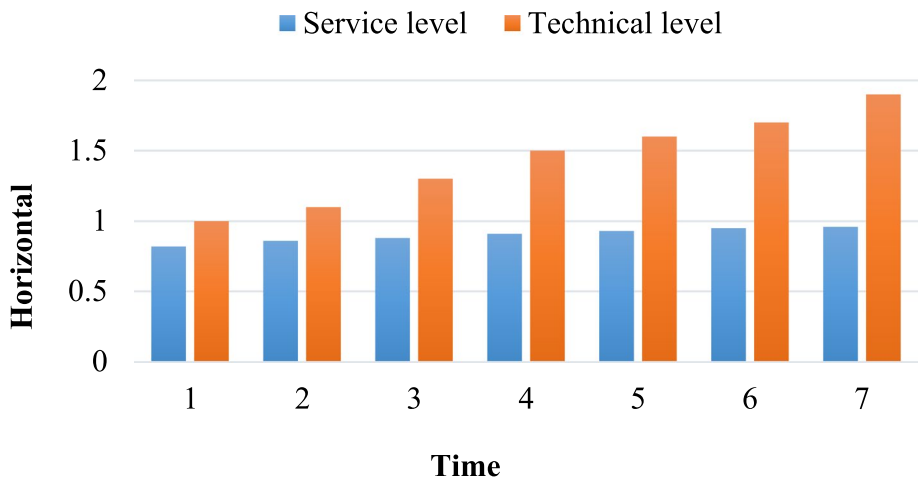

Fig. 9 Analysis of technical and Service level of cloud-based service of publics determined by big data

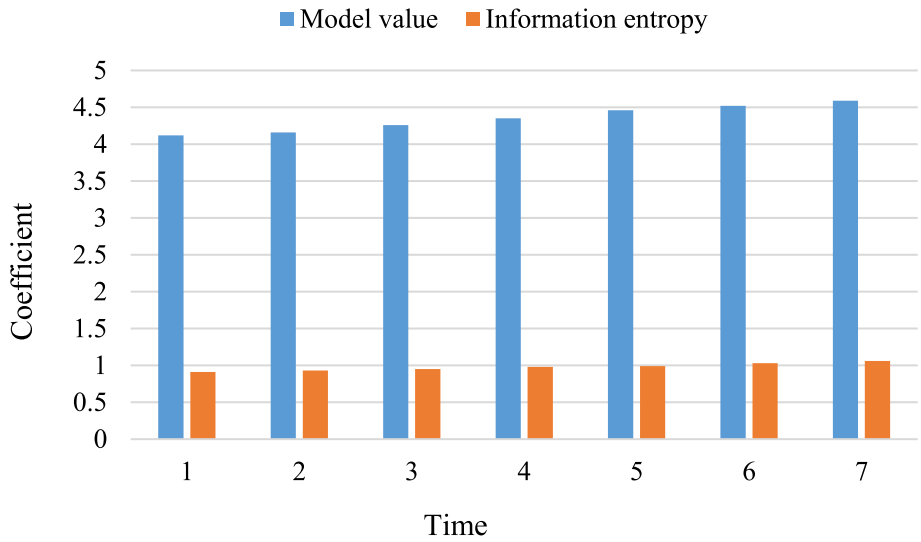

Fig. 10 An experimental investigation of the fuzzy thorough evaluation technique in the accuracy organization of cloud-based service of publics

accuracy organization in order to comprehend the organization effect of cloud-based service of publics. Figure 10 depicts the detailed evaluation.

The data in the preceding Figure show that as time passed, the value of model and data entropy of cloud-based service of publics increased. The average design value of accurate organization of cloud-based service of publics was around 4.35, and the associated level of entropy was around 0.98. This demonstrated that accurate organization of cloud-based service of publics using big data was implemented successfully. Furthermore, the precise organization system was more in line with the requirements of the individuals and could better address the issue of the people's diverse requirements. According to data entropy, the gathering of information on community demands under cloud-based service of publics was also very rapid and accurate, allowing for a more accurate meeting of public requirements.

Comparison of the response time and efficiency of the cloud-based service of publics

This section compares the cloud-based service of public's response time and efficiency. These services include job searching, education, insurance, medical care, entertainment, and relaxation. This test was carried out as follows: Cloud clients were chosen at random to take part in this experiment. They will use the framework to acquire the services that they require and will record the response period of the chosen user's cloud-based service of public to offer these clients the cloud services they require.

Fig. 11 Comparison of cloud-based services (first and second) response time and efficiency

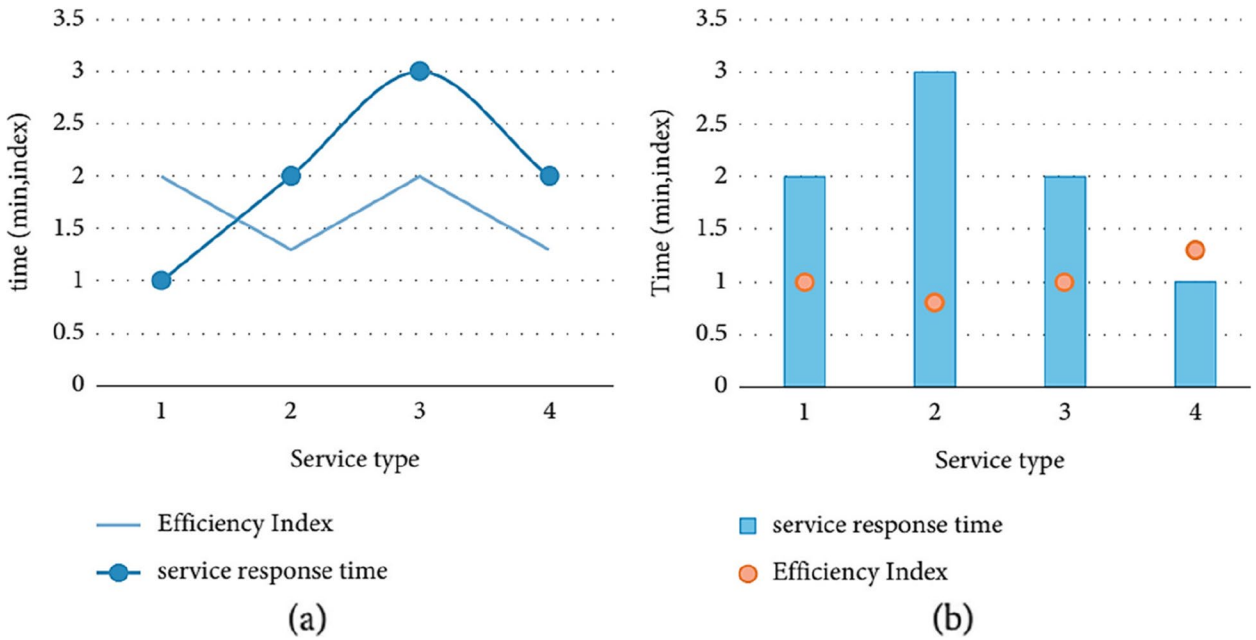

Fig. 12 Comparison of cloud-based service (third and fourth) response time and efficiency

To associate and determine the effectiveness of the cloud-based service of public to provide cloud services, it was also contrasted with the response time of comparable services offered by other service of public cloud platforms. Figures 11 and 12 show the test outcomes for the response period and consistent efficacy essential to deliver these cloud-based services. Figure 11a shows the outcomes of the first test, while Fig. 11b depicts the results of the second test. Similarly, the results of the third and fourth tests in Fig. 12 can be represented by 12(a) and 12(b), respectively.

According to these figures, the average response times of cloud-based service of publics for these services are 3.51 min, 4.52 min, 4.5 min, and 2.51 min, respectively.

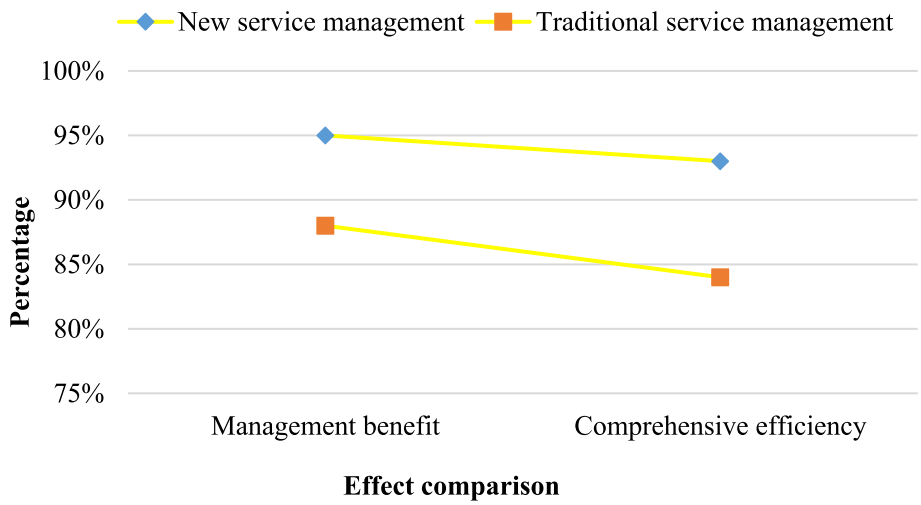

Fig. 13 Big data benefits and detailed performance evaluation of accuracy organization

Evaluation of the advantages and system effectiveness of accurate organization as determined by big data

This study examined the organization advantages and overall effectiveness of conventional accurate organization of cloud-based service of publics in order to comprehend the real effect of accurate organization of cloud-based service of publics powered by big data. Figure 13 depicts the particular analytical results.

The aforementioned figure shows that when big data was used to drive accurate organization of cloud-based service of publics, it was more efficient than conventional accurate organization of cloud-based service of publics in terms of organization effectiveness and overall efficiency. The organization efficacy was 7% greater than the conventional one, and the efficacy was 9% greater than the conventional one. Due to the big data and the performance of cloud-based service of publics is improving rapidly. Big data technology for data gathering and recognition was used to conduct a statistical study of the public's service requirements. The goal is to collect citizens' service requirements and then provide accurate organization based on those requirements. This can effectively ensure organization precision while also promoting the enhancement of the quality of cloud-based service of publics.

Conclusions and future work

Because big data information is comprehensive, accurate, and relevant, it is incorporated into cloud-based service of publics that provide technical assistance for accurate organization. By building a structure and morphology of cloud-based service of public big data material and constructing a refined big data-based service of public organization model. It not only optimizes the process of service of public, but it also greatly improves its efficiency. Using big data skill to offer scientific and efficient technical assistance for accurate organization. Furthermore, the organization role of modern technology in the area of service of publics, as well as the help and support of monitoring data, simplify the efficient process of all service associations. This ensures the reliability and precision of service organization effectiveness, as well as the healthy growth of cloud-based service of publics for local governments. In the future, we will develop public service management system that will integrate internet of things, cloud computing, and machine learning for better management.

Author's contributions

Lei Zhu -writing and static analysis of data. The author(s) read and approved the final manuscript.

Funding

This work was supported by National Social Science Fund Project "Research on system Innovation and mechanism optimization of Sub-district Offices under the perspective of Collaborative Governance" (No. 16BZZ067).

Availability of data and materials

The data that support the findings of this study are available from the corresponding author upon reasonable request.

Declarations

Ethics approval and consent to participate

Not applicable.

Competing interests

There is no potential conflict of interest in our paper and all authors have seen the manuscript and approved to submit to your journal. We confirm that the content of the manuscript has not been published or submitted for publication elsewhere.

Received: 23 November 2022 Accepted: 9 May 2023
Published online: 17 May 2023

References

1. Gribaudo M (2016) Iacono, and F. Palmieri, "Performance modeling of big data-oriented architectures." Resource organization for big data platforms, computer communications and networks. Springer International Publishing, Cham, pp 3–34
2. James O, Jilke SR, Ryzin GV (2017) Citizen and users' responses to service of public failure. Experimentation about blame, exit, and voice 912(7):361–375.
3. Lu S, Guo J, Liu S, Yang B, Liu M, Yin L, Zheng W (2022) An improved algorithm of drift compensation for olfactory sensors. Appl Sci 12(19):9529. https://doi.org/10.3390/app12199529
4. Breaugh J, Ritz A, Alfes K (2018) Work motivation and service of public motivation: disentangling varieties of motivation and job satisfaction. Public Organ Rev 20(10):1423–1443
5. Miao Q, Newman A, Schwarz G et al (2018) How leadership and service of public motivation enhance innovative behavior. Public Adm Rev 78(1):71–81
6. Stojic G, Mladenovic D, Prentkovskis O (2018) A novel model for determining service of public compensation in integrated public transport systems. Sustainability 10(9):12–16
7. Schwarz G, Eva N, Newman A (2020) Can public leadership increase service of public motivation and job performance? Public Adm Rev 80(4):543–554
8. Gong J, Yang Z (2017) Research on service of public satisfaction and its influencing factors: an empirical study based on a survey in 17 Urban Districts in Shanghai. Admin Tribune 1(9):64–66
9. Li M, Tian Z, Du X, Yuan X, Shan C et al (2023) Power normalized cepstral robust features of deep neural networks in a cloud computing data privacy protection scheme. Neurocomputing 518:165–173. https://doi.org/10.1016/j.neucom.2022.11.001
10. Yuhanna MGN (2016) Elasticity, automation, and pay-as-you-go compel enterprise adoption of hadoop in the cloud. The Forrester Wave: Big Data Hadoop Cloud Solutions Q2
11. Hong X (2017) The exploration of accurate organization model based on big data. Urban Geotech Invest Surv 5(7):125–131
12. Fan X, Fan M, Education FO (2018) Accurate teacher organization based on big data. J Teach Educ 54(2):2–6
13. Liu H, Zhang M, Xia H (2018) Design of accurate poverty alleviation organization information system based on big data. DEStech Trans Comput Sci Eng 87(8):56–59
14. Li Z, Ma Z (2021) A Blockchain-based credible and secure education experience data organization scheme supporting for searchable encryption. China Telecom 201(12):91–99
15. Cw A, Fang QB, Djsr C (2020) Cloud assisted big data information retrieval system for critical data supervision in disaster regions - ScienceDirect. Comput Commun 151(2):548–555
16. Li S, He H, Li J (2019) Big data driven lithium-ion battery modeling method based on SDAE-ELM algorithm and data pre-processing technology. Appl Energy 242(2):1259–1273
17. Nisar QA, Nasir N, Jamshed S (2020) Big data organization and environmental performance: role of big data decision-making capabilities and decision-making quality. J Enterp Inf Organ 5(5):912–916
18. Dai X, Xiao Z, Jiang H, Alazab M, Lui JCS, Min G et al (2023) Task offloading for cloud-assisted fog computing with dynamic service caching in enterprise organization systems. IEEE Trans Ind Inf 19(1):662–672. https://doi.org/10.1109/TII.2022.3186641
19. Yu J, Lu L, Chen Y, Zhu Y, Kong L (2021) An indirect eavesdropping attack of keystrokes on touch screen through acoustic sensing. IEEE Trans Mob Comput 20(2):337–351. https://doi.org/10.1109/TMC.2019.2947468
20. Huang CC (2020) User's segmentation on continued knowledge organization system use in the public sector. J Organ End User Comput 32(1):19–40
21. Ni Q, Guo J, Wu W, Wang H, Wu J (2022) Continuous influence-based community partition for social networks. IEEE Trans Netw Sci Eng 9(3):1187–1197. https://doi.org/10.1109/TNSE.2021.3137353
22. Gupta BB, Chaudhary P, Gupta S (2020) Designing a XSS defensive framework for web servers deployed in the existing smart city infrastructure. J Organ End User Comput 32(4):85–111
23. Zhang M, Shi K (2021) Multi-level fuzzy comprehensive evaluation of the influence of reservoir sedimentation based on improved cloud model. Water Sci Technol Water Supply 54(2):1–6
24. Jiang H, Dai X, Xiao Z, Iyengar AK (2022) Joint task offloading and resource allocation for energy-constrained mobile edge computing. IEEE Trans Mob Comput. https://doi.org/10.1109/TMC.2022.3150432
25. Karim Y, Cherkaoui A (2021) Fuzzy Analytical hierarchy process and fuzzy comprehensive evaluation method applied to assess and improve human and organizational factors maturity in mining industry. ASTES J 1424(2):1567–1569
26. Dang W, Guo J, Liu M, Liu S, Yang B, Yin L, Zheng W (2022) A semi-supervised extreme learning machine algorithm based on the new weighted kernel for machine smell. Appl Sci 12(18):9213. https://doi.org/10.3390/app12189213
27. Lv Z, Chen D, Lv H (2022) Smart City construction and organization by digital twins and BIM big data in COVID-19 scenario. ACM Trans Multimedia Comput Commun Appl 18(2s):1. https://doi.org/10.1145/3529395
28. Wang H, Cui Z, Liu R, Fang L, Sha Y (2023) A multi-type transferable method for missing link prediction in heterogeneous social networks. IEEE Trans Knowl Data Eng. https://doi.org/10.1109/TKDE.2022.3233481
29. Lin Y, Song H, Ke F, Yan W, Liu Z et al (2022) Optimal caching scheme in D2D networks with multiple robot helpers. Comput Commun 181:132–142. https://doi.org/10.1016/j.comcom.2021.09.027
30. Qin X, Liu Z, Liu Y, Liu S, Yang B, Yin L, Liu M, Zheng W (2022) User OCEAN personality model construction method using a BP neural network. Electronics 11(19):3022. https://doi.org/10.3390/electronics11193022
31. Kong H, Lu L, Yu J, Chen Y, Tang F (2021) Continuous authentication through finger gesture interaction for smart homes using WiFi. IEEE Trans Mob Comput 20(11):3148–3162. https://doi.org/10.1109/TMC.2020.2994955

Publisher's Note