

## Retraction

# Retracted: The Implementation of Unified Application Data Collection and Analysis in Tobacco Enterprise Platform Design

### Journal of Function Spaces

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

### References

- [1] Y. Jin and W. Lou, "The Implementation of Unified Application Data Collection and Analysis in Tobacco Enterprise Platform Design," *Journal of Function Spaces*, vol. 2022, Article ID 3933465, 9 pages, 2022.

## Research Article

# The Implementation of Unified Application Data Collection and Analysis in Tobacco Enterprise Platform Design

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With the continuous deepening and development of tobacco manufacturing informatization construction, tobacco manufacturing enterprises have the characteristics of strong production capacity, high degree of production automation, and advanced enterprise-level management information system. In order to cooperate with the market and brand strategy of the tobacco industry, the State Tobacco Monopoly Administration has carried out serious strategic thinking on informatization and customized the overall plan and strategic goals. In recent years, China's informatization construction has made great progress, and both industries and enterprises have felt various benefits from the application of information technology. In the deployment and development of mobile services, it is often local and municipal mobile companies that, in order to meet the different needs of the market, immediately carry out corresponding services, resulting in one service for each municipal subsidiary in the same province or one platform for a class of services. Situation is good for quickly meeting user needs at that time. The exchange and communication of enterprise personnel information are becoming more and more frequent, and the collection of enterprise information through mobile has become a new way of enterprise information collection. The work orders, process parameters, documents, notifications, and instructions generated by the planning layer are sent to the production control layer to respond, guide, and trigger the production site events. The ultimate goal of mobile data collection is to gather the collected data into the enterprise production data center, which plays an important role in mobile devices, mobile performance, mobile planning, mobile balancing, mobile prediction, and so on. Based on the unified mobile application data collection method, this paper analyzed and analyzed the design of application architecture in the tobacco enterprise platform and further described the business functions, security performance, and system characteristics of the platform.

## 1. Introduction

Tobacco enterprises, as an early enterprise in informatization construction, have carried out beneficial informatization exploration in various fields involved in business for many years, which has played a good role in supporting and promoting the development of business and made remarkable achievements. With the continuous deepening and development of information construction of tobacco manufacturing, tobacco manufacturing enterprises show the characteristics of strong production capacity, high degree of production automation, and advanced enterprise-level management information system. To promote the modernization of the tobacco industry with information technology

is to use the most advanced information technology to fully penetrate the production, circulation, and management process of the tobacco industry. Change the traditional production and operation mode, accelerate the adjustment of the tobacco industry and product structure, and improve the management system of the tobacco industry. Meet the needs of the market and consumers, improve the ability to adapt to the market, and enhance the overall competitive strength. The development of industry informatization is closely related to the joint reorganization of enterprises, the integrated group management of assets, and the synergy of industrial and commercial information, but it is also dynamic. It can be said that the success of its construction is an important symbol of the strength of the industry.

Therefore, it is of great practical significance to study and explore the implementation strategies of industry informatization construction. The reason is that the wide range of tobacco R&D business leads to the problems of large volume, multifarious types, and scattered storage of tobacco R&D data. It is difficult for industry experts who are proficient in tobacco R&D business to effectively mine the value by using the abovementioned complex data [1]. In order to cooperate with the market and brand strategy of the tobacco industry, the State Tobacco Monopoly Bureau has made a serious strategic thinking on informatization and customized the overall plan and strategic objectives. In order to build a resource-saving and environment-friendly society, earnestly do a good job of saving energy and reducing consumption in tobacco production, and strive to achieve economical, clean, and safe development, it is necessary to build a mobile data collection system for tobacco companies. In recent years, China's informatization construction has made great progress, and both industries and enterprises have felt various benefits from the application of information technology. The WAP business is also growing at a rapid pace [2], in the context of the deepening of China's reform and opening up and the domestic and international environment of economic globalization. Like all developing enterprises, the problem faced by tobacco enterprise informatization is a problem in development and improvement, and all solutions point to the data center system based on data warehouse.

According to the characteristics of business, data, and users of the tobacco R&D system, a layered technical architecture is adopted to build a user-oriented tobacco R&D system big data cloud platform, encapsulate data collection and storage, and standardize data management. The most direct function of mobile data collection is to provide complete mobile information to relevant mobile management personnel, assisting mobile management personnel to quickly query related data and perform corresponding management operations. In the deployment and development of mobile services, it is often the case that local and municipal mobile companies, according to the different needs of the market, immediately launch corresponding services in order to meet the needs. It is beneficial to quickly meet user needs at that time [3]. In recent years, with the market competition and gradual opening of the domestic telecommunication industry, various telecommunication services have made great progress. The establishment of the data center brings great convenience to the use of standard information and data of the same caliber for all functional departments and related personnel of the enterprise and creates conditions for the effective use of information and data mining [4]. At the same time, the tobacco purchasing data collection system is the basis of MES implementation. It is mainly responsible for the collection, analysis, processing and continuous, automatic and complete transmission of data, equipment status, personnel, events, time, and other information in the production control layer to provide basic information support for scheduling and commanding production. Monthly report of consumption, tobacco leaf sales, tow purchase and consumption, cigarette paper purchase and consump-

tion, production process industry process business data, and cigarette sales link business data. Reducing the technical requirements of large data analysis for users is an important exploration and attempt for tobacco developers to make use of data-driven tobacco R&D business.

In recent years, the tobacco industry has developed unprecedentedly, and it has become the most advanced tobacco production and processing base in Asia with large production scale. Second, mobile operators have been vigorously promoting the development of various value-added services. Different from many traditional services, the development and promotion of new services are often a process of exploration. The exchange and communication of enterprise information are becoming more and more frequent. Collecting enterprise information through mobile mode has become a new way of enterprise information collection. For tobacco enterprises, data center system can realize economic operation analysis, marketing data analysis of provincial companies, marketing data analysis of branch companies, monopoly data analysis, financial data analysis, human resources analysis, etc. [5]. The work orders, process parameters, documents, notices, and instructions generated by the planning layer are sent to the production control layer to respond, guide, and trigger the production site events. Simplify the data analysis process. Let the "non-data expert users" of the tobacco research and development system focus more on the tobacco research and development business itself and avoid users facing complex big data analysis technologies and complex tobacco research and development raw data. Analyze the data structure and design the function of the data acquisition subsystem in the unified business platform, which is responsible for the aggregation of data resources for the scattered data. However, informatization is a process of "informatization." According to the model of informatization construction, tobacco companies have gone through the process of building a large number of process-oriented software for control and have begun to enter the stage of data value-oriented integration and analysis [6]. The ultimate goal of mobile data collection is to gather the collected data into the enterprise production data center, which plays an important role in the work of mobile devices, mobile performance, mobile planning, mobile balance, and mobile forecasting [7].

## 2. Related Work

Since the implementation of the national tobacco monopoly system, China's tobacco industry has made great achievements in "meeting the consumer demand, improving the quality of tobacco products, increasing the national financial accumulation and supporting the development of national enterprises." Bauer established the idea that consumers' rationality is relatively low and plays an important role. He believes that any action of consumers will produce results that he cannot be completely sure of [8]. Ross put forward arbitrage pricing theory. The western financial management theory is coming to maturity. Financial management has developed into a management activity that integrates financial forecasting, financial decision-making, financial planning,

financial control, and financial analysis, with financing management, investment management, working capital management, and profit distribution management as its main contents and occupies a core position in enterprise management [9]. Miller and Mordelli Yanni put forward the famous principle that the capital structure of a company has nothing to do with dividend policy in an efficient securities market [10]. Copeland Kou proposed that the classification of consumer goods into convenience goods, shopping goods, and specialized goods is based on the analysis of consumer behavior in three aspects [11]. Barnes has established various information technologies, mainly based on network technology, provide broader and more advanced technical means and methods for financial management of enterprises, and enterprises can keep the technological lead based on flexible technology [12]. Dr. E.F. Cold put forward the data model and theory of relational database. After long-term business development and demonstration, relational database has been widely used. Since then, the storage and utilization of data have entered a new era [13]. Dean published "Capital Budget," which changed the focus of financial management from the emphasis on external financing to the rational allocation of funds within the company, which made a qualitative leap in the company's financial management [14]. Mead published the first book devoted to the financial management of corporate fundraising [15]. Fama and Miller published the book "Financial Management," which is a collection of Western financial management theories, marking the maturity of Western financial management theory [16]. Mr. Chares designed what was then called an integrated data store, the design laid the foundation for a meshed, hierarchical data model, seen as the early days of relational databases in database history [17]. Since the implementation of the national tobacco monopoly system, China's tobacco industry has made great achievements in "meeting the consumer demand of residents, improving the quality of tobacco products, increasing the national financial accumulation, and supporting the development of national enterprises."

### 3. The Way of Mobile Information Collection

**3.1. SMS.** In recent years, short message service has penetrated into the daily life of the public in a variety of ways. With this model, it is easy to store the original detailed data from each data source. And flexible storage of historical data is with enough flexibility classes to meet all requirements. Due to many objective factors such as inaccurate counting of electrical system, shift, clearing of power-off data, completion of work order, trial production, etc., the data collected continuously has a great error [18]. Therefore, the platform generally uses a hierarchical architecture, providing simple data analysis applications and interface services for top-level "non-data expert users." It encapsulates the underlying data aggregation, data storage, subject data services, and other functional modules, as well as the algorithm library and analysis services. The whole enterprise may already have some mobile systems and centralized field control systems, and there will be many scattered mobile meters [19] in the above range. Although data services will occupy an increas-

ing proportion in telecommunication services, voice services are still the most important and basic services for mobile communication systems. The information office automation system weaves a set of efficient and smooth information interconnection system within enterprises and institutions, which greatly promotes the development of productivity of enterprises and institutions. The resulting changes in business process, business processing rules, and business information flow are the three major factors of data acquisition system reconfiguration. It is also a problem that must be considered and solved to build a new data acquisition system [20]. Database integrity constraint is the guiding principle to ensure the data quality in the preprocessing domain of data warehouse. Data warehouse technology is a combination of customer service and business processing information. The unified framework is a data warehouse that provides a scientific basis for enterprise managers to formulate strategies; develop market analysis market; benefit evaluation, public relations, and personal image design; and make decisions by using analysis and mining technology. By collecting data samples from different systems within the enterprise and external data sources, the consistency of data is maintained, and it is easy to be accessed by users. At the same time, these data are organized to facilitate analysis. The specific data quality dimensions include accuracy, uniqueness, compatibility, validity, integrity, and completeness. The relationship between them is as shown in Figure 1.

The service layer includes four modules: automatic data aggregation, data storage management, thematic data service, and data analysis service, which can automatically collect data related to tobacco R&D and realize the storage management of complicated data. Add a new interface, and introduce the construction concept in the system into the middle layer, so that the process can be realized without ignoring the interface. The specific content is shown in Figure 2.

Engineering inspection is not only to observe the change of the structure but also to obtain quantitative data reflecting the structural performance. Only when reliable data are obtained can correct conclusions be made on the structural performance and the purpose of inspection be achieved. Only reliable data can be used as the basis for judging structural performance or establishing calculation theory. If there are no measuring instruments installed on mobile devices or nodes included in the mobile accounting system, the related data will not be available in the data collection system. As the most basic operation unit in the whole mobile communication industry, the local and municipal mobile operators adopt different equipment and business platforms from different manufacturers in the long-term business process. Training material enterprise training information view is as shown in Tables 1, 2, and 3.

This is reflected in the different customized interface for user-oriented business in each municipal mobile. The different devices lead to the different storage modes and formats of user data and the development of value-added business provided to operators. In the information age, in the face of fierce competition in the market, enterprises must grasp the pulse of the market, timely, fast, accurate, efficient, and

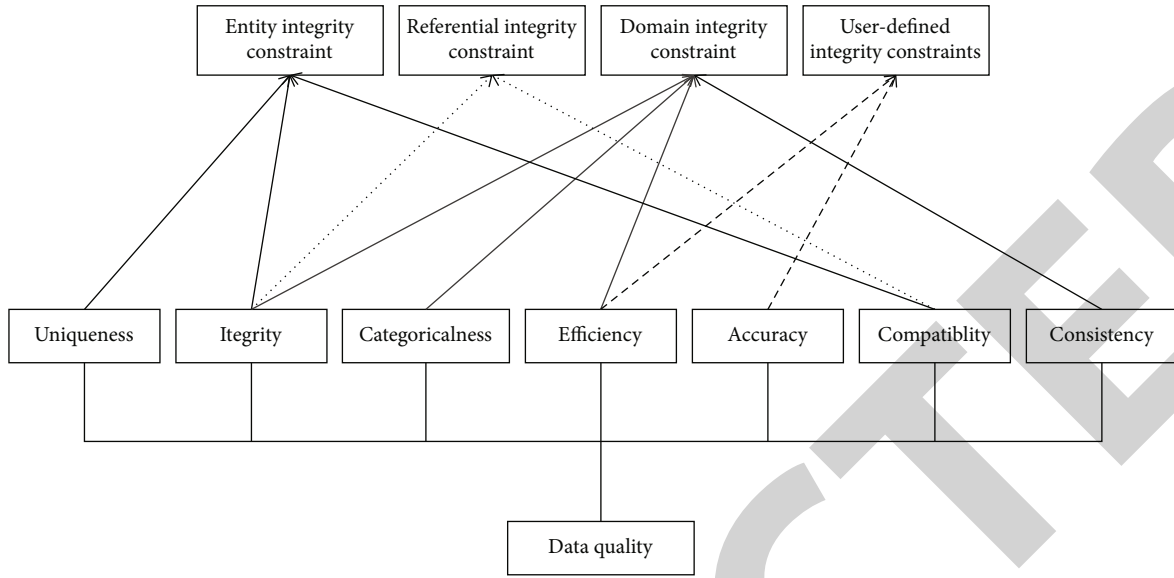


FIGURE 1: Data quality dimension of data warehouse preprocessing domain.

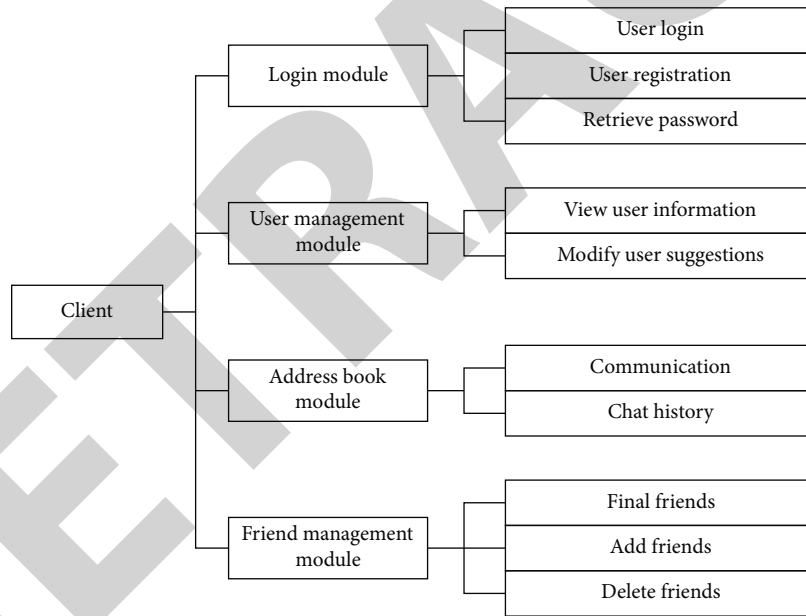


FIGURE 2: Client connection structure diagram.

low-cost in order to stand out. Obtaining effective real-time information from the complicated mass information is also the main problem that puzzles all departments of the enterprise. However, the disadvantage is that users have to edit short messages according to the format, which is restrictive to some extent. Seasonal variation index calculation formula:

$$S_k = \frac{\bar{x}_k}{\bar{x}}, k = 1, 2, \dots, m. \quad (1)$$

Prediction model:

$$\hat{Y}_{T+1} = T_{T+1}S_{T+1}, \quad (2)$$

$$T_t = b_0 + b_1t. \quad (3)$$

General exponential seasonal factor adjustment model:

$$T_T = Ae^{r(t=1)}, \quad (4)$$

$$\hat{Y}_{t+1} = T_{T+1}S_{T+1}. \quad (5)$$

And its parameter test and prediction formula:

$$\varphi_p(B)\Phi_p(B^2)(1-B)^d Y_t = \theta_q(B)\Phi_Q(B^t)^{e_t}, \quad (6)$$

TABLE 1: Training information view use case specification table.

Use case name:	Training material enterprise training information view
Brief overview:	Training supervisors/corporate leaders and corporate employees Training supervisors, corporate leaders, and corporate employees can view corporate training information and training materials. Information exists in the form of news, while materials exist in the form of documents or videos.
Preconditions:	The user has logged in to the management system and logged in to the interface.
Basic event slip:	After the training supervisor, enterprise leaders and enterprise employees enter the training management interface, and they can browse the training information and materials.
Exception event flow:	The system pops up an error message, and the system returns to the previous operation interface and gives a prompt message
Postconditions:	The system gives a prompt interface for successful operation and returns the operation record
Remark:	None

TABLE 2: Specifications of use cases for enterprise training information release.

Brief overview:	Training supervisors and business leaders need to organize and summarize the content of the original training and then release the training materials needed by the enterprise, as well as training notices and other information
Preconditions:	The user has logged in to the management system and logged in to the interface
Basic event flow:	After the training supervisor and enterprise leaders enter the system, they can release training information or upload training materials through the information release interface.
Exception event flow:	The system pops up an error message, the system returns to the previous operation interface and gives a prompt message
Postconditions:	The system gives a prompt interface for successful operation and returns the operation record
Remark:	None

TABLE 3: Rearranged material use case specification table.

Use case name:	Rearrange material
User role:	Training supervisor, business leader
Brief summary:	The uploading of training information and training materials cannot be uploaded by anyone. Hey, after the materials are uploaded, they need to be approved by the leader before they can be uploaded. If the materials that do not meet the requirements or WeChat will be returned for revision, the materials need to be uploaded here. Refresh and upload or publish
Preconditions:	The user has logged in to the management system and logged in to the interface
Basic event flow:	For the documents or information that do not meet the requirements, the training supervisor will reorganize the materials after revising them according to the revision opinions and upload them for review.
Exception event flow:	The system pops up an error message, the system returns to the previous operation interface and gives a prompt message
Postconditions:	The system gives a prompt interface for successful operation and returns the operation record
Remark:	None

$$T_T = a \times \text{RMSE} + \text{MAPE} \times D_1 + c \times \text{MaxAPE} + \text{MapAE}, \quad (7)$$

$$\hat{Y}_{T+1} = T_{T+1} S_{T+1}. \quad (8)$$

3.2. *WAP Method.* In our concept, corporate website is a window to display corporate products and a means to use the Internet as a mass media to publicize companies. This allows business personnel to use some front-end display tools to freely combine data items and customize reports and charts according to their own needs. Enterprises and institutions urgently need an office automation system that can be used at anytime, anywhere, and at any time, so that company managers and business personnel can associate

with the internal systems of enterprises and institutions as they want, no matter where they are. The production activities of tobacco factories are always affected by shift hours, shifts, production days, and work orders. The division of these time periods and the events that occur at alternate time periods are the key to statistical data. The data is sorted when stored, the location of the file is retrieved when new data arrives, the data of the original file is copied and integrated with the new data, the filename of the new file is the same, and the timestamp is updated to the current time. Install the data collection computer, configure the corresponding communication board card in the computer according to the communication mode supported by the meters, and collect the data of the meters into the computer.

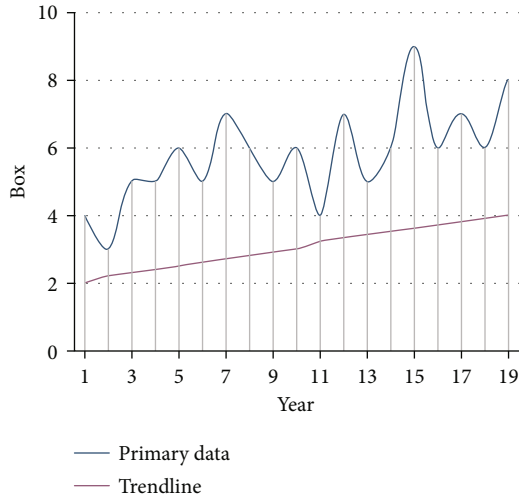


FIGURE 3: Sales trend chart.

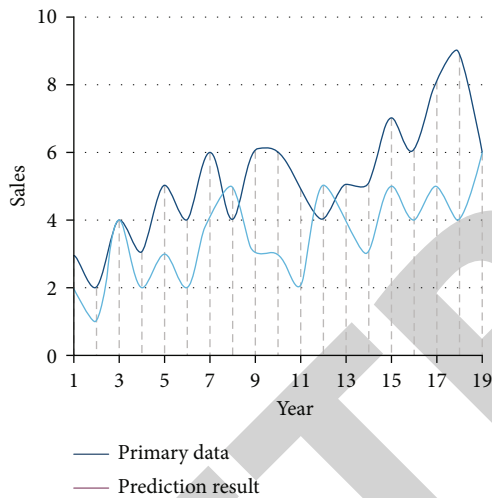


FIGURE 4: Monthly sales forecast.

It is clear that the overall sales volume increases over time. As shown in Figure 3, the monthly sales forecast is shown in Figure 4.

At present, the mobile communication market is developing rapidly, and the second generation digital communication system has basically replaced the first generation analog communication system. And it is stepping into the third generation broadband digital communication system, the number of mobile users is also growing rapidly, and the competition in the mobile communication market is becoming increasingly fierce. By doing so, it can be confirmed that the business requirements are correctly understood and in the next stage. Data warehouse designers get reliable, business-driven data structure, which greatly reduces the cost of maintaining the logical and physical structure of data warehouse in the short, medium, and long term. Through the fast wireless data network and terminal, tobacco company staff can not only extend the office automation system to mobile phone terminals but also manage orders in real time. If it is processed in the program, its run-

ning speed cannot meet the needs of users. Therefore, encapsulating statistical operations in stored procedures can greatly improve the efficiency of system operation. This design can effectively reduce users' requirements for big data analysis technology, simplify the operation of big data analysis process, and enable "non-data expert users" to use the service conveniently. After patrolling and observing on-site equipment and instruments, operators manually record relevant mobile data on site and then manually enter the mobile data acquisition system. WAP enterprise website can be like other applications, without operator restrictions, as long as the mobile phone with WAP function. You can log on the WAP website of the enterprise to view the information at any time, so the WAP website of the mobile phone is an important step in the realization of the wireless information construction of the enterprise.

#### 4. Platform Application and Effect

**4.1. Instance Overview.** The application process and results of the large data cloud platform of tobacco R&D system in Yunnan for users are verified by an example. All data collection points will produce millions or even tens of millions of record values in a day, making it difficult to efficiently process ordinary databases of records of this magnitude. Real-time databases use a variety of optimization and compression storage algorithms. However, there is bound to be the problem of relying on virtual operator, which will restrict the business content and service quality, making it inconvenient to carry out its own characteristic business, and all information must be transferred through service providers, so the security of enterprise information cannot be guaranteed. Actual and predicted sales results for a certain two years are as shown in Figure 5.

Forecast the results in the next two years, as shown in Figure 6.

It is a process of identifying and selecting the system to be developed and determining the system development time according to the industry's best business practices based on the enterprise's strategic objectives, organizational structure, business processes, and information technology. Through the existing network environment of tobacco companies and the existing network environment and security measures of telecommunication operators, the service guarantee of telecommunication-level security can be fully guaranteed. To strengthen the management's ability to coordinate and schedule production, tobacco companies are required to process and analyze the collected data in the data collection system, so as to provide direct data support for management decisions. Through the application system, you can view all parts of the mobile data at any time. At the same time, information such as equipment running status, equipment failures, mobile flow information, mobile consumption distribution and statistics, pipe network transmission, and mobile utilization comparison can be viewed through a pre-determined data statistical analysis system. When the location is updated and exchange data, after receiving the location update request, check the user's roaming authority, update its own location information about the user, notify

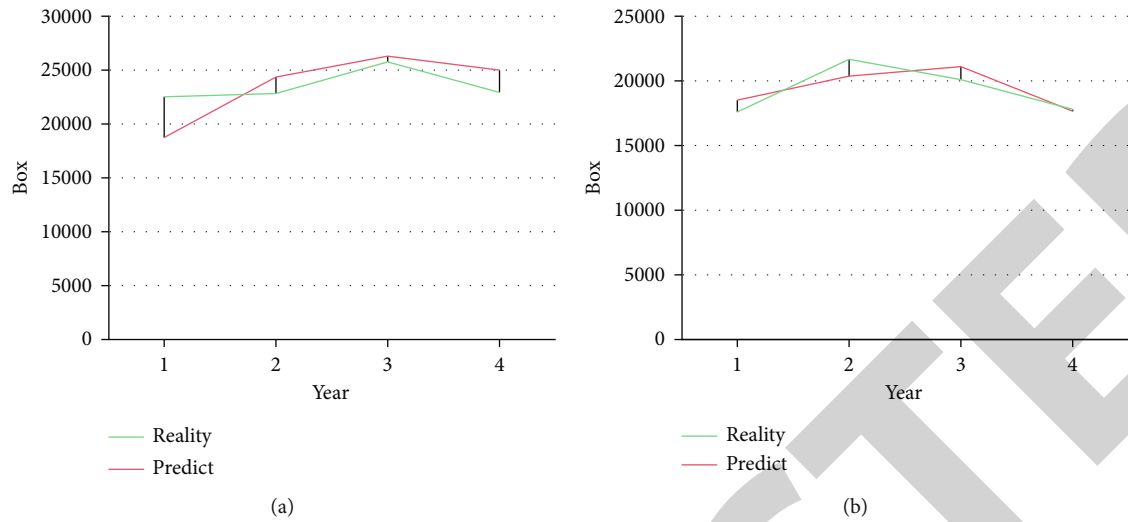


FIGURE 5: Actual and predicted results.

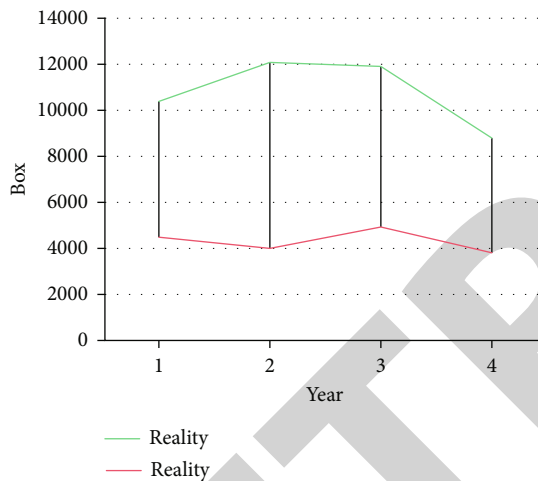


FIGURE 6: Expected results in the next two years.

the original to delete the user's data, and then transfer the user's data to the new one. The layers are independent of each other, interact with each other using standard interface, and have the feature of weak coupling, which makes the system have good scalability and stability. IVR voice platform can collect information manually and display information and voice to mobile phone users. Business architecture is the current or future period of time for an enterprise. The overall way of business management is reflected, and the impact of business architecture on information systems is very important. Information systems and related information processes serve business architecture requirements. Understanding the actual situation of tobacco quality monitoring, real-time analysis of the use of laboratory equipment, use saturation, etc. to ensure the stability of tobacco product quality and style is a typical large data analysis application scenario.

**4.2. Instance Implementation.** The results of physical and chemical experiments on tobacco and its raw materials, fla-

vors and spices, materials, etc. were obtained through the experimental analysis process. View the wear and tear data of moving in the production, conversion, transfer, and use link of each part according to custom conditions. These two processes have been monotonous in the past, but as the demand for personalized services becomes stronger and stronger, the number of functions required for the system to achieve is increasing and more complex, and a relatively independent and flexible business system and accounting system need to be built. Database servers are the preferred target for attackers and must be secured against internal, external, network, and application-level attacks. The integration architecture is focused on the collaborative integration of data, application, process, and interface of each application system in the enterprise, ensuring a complete technical carrier of integrated management and a perfect integration technology method. Because the information system currently used in tobacco industry mostly uses wired network communication and field operation mode, once people leave the office, they cannot get or submit the corresponding real-time information, causing delays in information and decision-making. Second, the real-time requirement of users, data incremental information is transmitted to the database in seconds. The objective factors of multiequipment and multi-information collection points in tobacco factories determine that there must be a large number of data records in the database. The system should ensure that a large amount of data is counted, and data analysis reports are generated within the valid time required by users. By using directory service, all information and resources on the network appear as an orderly and unified directory structure in front of network administrators, users, and applications. Databases usually contain the most sensitive and confidential data, such as personal details, customer details, orders, or credit card details of the human resources department. However, in practical application, the query access flow on the business side is very large, a single thread will make the system inefficient, and even the query will lose data. Therefore, how to perform multi-threaded parallel



queries between the server and the client to process multiple requests has become the focus of research. In addition, you can further check the saturation and contribution of laboratory equipment. At the same time, the stability of physical index and chemical index of tobacco products can be obtained by analyzing each test index.

## 5. Conclusions

With the rapid development of data technology, data analysis and application are increasingly important in the daily operations of enterprises. A resource management statistical analysis system was established, including mobile comprehensive energy and water consumption statistical analysis module, mobile consumption proportion map module, and production and nonproduction hydropower map module. The implementation of the data acquisition system makes the information of the planning layer and the production automatic control layer of the tobacco production enterprise realize two-way circulation, and the status of the production activities can be displayed intuitively. It effectively promotes the management and scheduling of production by enterprises and provides a foundation for the realization of agile manufacturing in modern tobacco enterprises. The basics of the overall design planning and principle introduction gradually start from the dimensions of technology use introduction, network, hardware, software architecture, design and implementation methods, and working principles. How to sort out the massive data generated in the R&D business and revitalize the data assets is a topic currently faced by the industry. Combining the advantages of centralized and noncentralized service discovery mechanisms provides effective service discovery mechanisms to ensure business continuity when individual peripherals join or exit in groups. The two are different in essence. Under the centralized mode, the unit combination and generation curve are determined based on the security constraints, which is a transaction mode closely related to the power grid operation and unified optimization of various transactions. The actual user queries entered by the business tier are broken down into subqueries for each data source, and the results of each subquery are returned to the business tier application in a unified view. Thus, data collection and unified view are achieved, which facilitates the development of upper telecommunication business. With the data warehouse-based data center system of tobacco enterprises as the research object, the research on system background, system design, and implementation process has great theoretical research value and important application value.

## Data Availability

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

## Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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