

# Application Research of Big Data Technology in Enterprise Management Information System

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## Abstract

Enterprises are the main force in China's economic development. Driven by economic growth, the level of scientific and technological R&D and application has also been significantly improved. This has enabled information technology to be widely used in enterprises and to use information technology to construct information systems. It is also used in enterprise management, greatly improving the utilization efficiency of big data, and thus improving the management level and economic benefits of enterprises, so as to achieve the goal of enterprise information management. In the context of big data, the emergence of enterprise management information systems has made big data useful and created value for enterprise development.

## Keywords

Big data technology, enterprise management, information system.

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## 1. Introduction

The development of science and technology has enabled information technology to be widely used in enterprises, enabling enterprises to conduct management through information systems, thereby improving the efficiency of enterprises in the use of big data and promoting the sustainable development of enterprises. The management of the company has brought great convenience. In the process of using information systems for management, a large amount of data has been continuously accumulated, and these data have made great contributions to the management and development of enterprises. In the big data environment, the past enterprise information systems are more and more difficult to adapt to this big data environment. The reasons are mainly three. First, enterprises use information systems to restructure data; second, the information systems used by different enterprises do not communicate with each other, resulting in data islanding; third, the past information systems in big data storage, Analysis, search and other aspects are lacking. Therefore, in the context of big data, enterprises urgently need to use a scientific data management method to achieve unified collection, analysis, storage and search of various types of data within the enterprise[1].

## **2. Definition and source channels of big data in enterprise management information system**

### **2.1 Definition of Big Data in Enterprise Management Information System**

At present, many experts and scholars have different views on the definition of big data, which makes the definition of big data not yet unified. There is a well-recognized definition that big data is called data because it has four main characteristics: scale, diversity, speed, and value. Among them, scale refers to the large scale of data; diversity refers to a large number of types of data, such as structured data, semi-structured data and unstructured data, image data, text data, etc.; high-speed means that the data stream needs to be obtained. High-speed, real-time, uninterrupted processing; value refers to the inclusion of valuable information and data in big data to help business people make decisions[2].

### **2.2 Big Data Sources in Enterprise Management Information System**

The source channels of big data in enterprise management information systems mainly come from four aspects. First, the sensor can collect the distributed data in the collection area, and after filtering, analyzing and processing, the value information required by the enterprise is transmitted to the information system; secondly, it is derived from the Internet. A large amount of data information is distributed in the Internet, such as user browsing traces, clicking data, etc., using the information system to search and download the data in the Internet, to obtain the required data of the enterprise; third, from the mobile terminal device The information system can easily obtain the user's behavior information, geographic location and the like through the transmission of the mobile terminal device; fourthly, it is derived from the RFID technology, and by embedding the RFID chip in the product, the information system can use the radio signal to acquire the object. Data information such as location, behavior, etc[3].

## **3. Analysis object and significance of big data in enterprise management information system**

### **3.1 Analysis object of big data in enterprise management information system**

In the enterprise management information system, the analysis objects of big data mainly include two categories: structured data and unstructured data. Among the two types of data, structured data refers to data that can be defined by a relational database and has a uniform format and fixed fields; unstructured data means that the format is not fixed, the distribution is relatively random, and it is not easy to be Data that is found and difficult to format by a uniform method. At this stage, enterprise management information systems are excellent in structured data management, but they are lacking in unstructured data management, which brings great challenges to the collection, analysis and storage of such data.

### **3.2 Analysis of non-structural data in enterprise management information systems**

In the data analysis object of enterprise management information system, unstructured data is not directly related to enterprise management, but the value of unstructured data can bring indirect value to enterprise management. For example, some data existing in unstructured data can reflect the management status of the enterprise, which will bring reference to the enterprise in the subsequent management work. In enterprise information management, the source of data is an important basis for realizing the efficiency of its management. For example, when users use the Internet to access corporate websites, they will leave traces of access in the Internet. At this time, the enterprise management information system can Through the Internet, the user's access traces are collected, and then it is learned which products are browsed when the user visits the corporate website, how long the browsing is performed, etc., and then the user's sense of the product is judged according to the number of clicks and browsing time of each product. After the degree of interest and the corresponding log, it

provides a reference for the improvement of the product, and also knows the problem that a product has a decrease in the frequency of access. It can be seen that the collection and analysis of these unstructured data is of great significance for enterprise management.

## **4. Application Research of Big Data in Enterprise Management Information System**

### **4.1 Ability Architecture for Big Data in Enterprise Management Information Systems**

In the big data environment, the rapid growth of data volume also makes enterprises encounter difficulties in using information systems for management. These difficulties are mainly reflected in three aspects. First, the information systems currently used by enterprises are mainly B/S architecture or C/S architecture, and the information systems of these architectures can only manage structured data, but the rapid growth of structured data will inevitably lead to such information. When the system manages structured data, the query speed is too slow or the program analysis time is too long. Second, there is a large amount of unstructured data in big data. The format of these data is not uniform, but in the case of these There are still technical shortcomings in the collection, analysis and query of isomerized data. Third, the rapid growth of big data makes the processing of data systems more complicated and cumbersome, in order to better adapt. Data processing needs to ensure that information systems have high scalability, which increases the difficulty of data management at the technical level. Therefore, in order to solve the above problems, it is necessary to establish a unified data management platform for data collection, analysis, statistics and storage, using the acquisition layer to collect data, and the storage layer to store data, while passing the full text The index library is used to realize horizontal or vertical query and analysis of data. The learning layer and the early warning layer are used to mine data rules and implement early warning. Finally, the data is displayed in various ways such as graphs or tables, and the data management platform is ensured. High scalability, versatility and functionality.

### **4.2 Collection of big data in enterprise management information system**

Enterprise Management Information System needs to meet the following requirements when collecting big data. First, data collection should have high reliability to ensure that data will not be lost during the acquisition process to improve the effectiveness of data analysis. Second, data collection should meet compatibility requirements, and it can utilize common acquisition. The module collects dynamic data with changing formats. Thirdly, data collection should meet the requirements of uniformity. It can uniformly abstract data of different types and formats to facilitate analysis and display of different types and formats of data. In order to meet the above requirements, enterprise information systems must require distributed deployment and centralized abstraction processing of data during data collection. Filtering and merging data is collected by collection modules distributed in different locations, and then unified storage. Go to the system database.

### **4.3 Storage of big data in enterprise management information system**

When the enterprise management information system stores big data, it not only stores the actual content of the data itself, but also formats and stores the standardized information such as the source, content, type and time of the data, in addition to the big data index. Features to facilitate subsequent data indexing. In the data storage, it is necessary to ensure that the information system can store large-scale, high-accuracy and high-reliability data, and this requires the system to have enough storage space, which can be achieved by adding storage hardware. . For high reliability, big data needs to be divided into several smaller data blocks, and then multi-host backup, off-site backup, and multi-point backup can be adopted to improve data storage reliability. In addition, when searching for data, data search purposes can be achieved through various methods such as fuzzy search and

keyword search, and the data index reliability can be improved by a full-text index application with linear expansion.

#### **4.4 Analysis of Big Data in Enterprise Management Information System**

The analysis of big data by enterprise management information system can help enterprise managers to make decisions. In data analysis, it is necessary to generate corresponding data samples according to some or some characteristics of data. The data distribution law with the same characteristics, when the law changes, the information system will issue an early warning to remind the enterprise managers, and feedback the changed data to the enterprise decision makers, and the decision makers will take corresponding measures in a timely manner. For example, when the enterprise management information system analyzes various types of log data generated when a user logs in, it establishes a regular model according to the login situation, and when a number of login times of a certain period of time are found to change greatly, a message will be issued. Early warning and feedback to corporate executives about possible actions by hackers, such as malicious attacks, data interception, password cracking, etc. When analyzing information, information systems mainly have the following capabilities. First, the learning sample model of the data is automatically constructed, which can generate learning samples according to the types of events, time and source, and track the corresponding values in the model in real time; Second, when the information system analyzes the data The corresponding learning model will be constructed and the real-time status of the model will be fed back. In this model, it is associated with certain events, such as the built-in user login model, which is the frequency of the user when accessing a web page. Thirdly, if a certain value in the learning model changes greatly, the information system can issue an early warning according to the data change.

#### **4.5 Presentation of Big Data in Enterprise Management Information System**

Data presentation is also one of the application forms of enterprise management information systems. When enterprise managers use data systems to collect, analyze, and store data, they will visualize the results of data analysis, so that managers can Visualize the results of the data to determine the content and value of the data itself. The display form of data in the enterprise management information system can be in the form of a graph, or in the form of a table, a pie chart, a bar chart, etc., so that the data can display its content and value through various display forms. In order to establish a scientific and reasonable data platform, the data can be uniformly and flexibly controlled in the enterprise management information system, so that the enterprise management personnel can fully utilize their value through the control of the data.

### **5. Conclusion**

In the enterprise management information system, all kinds of data are the key to realize efficient management of enterprises. Therefore, relevant personnel must pay great attention to data management work to ensure that the application value of big data is fully exerted, so as to better promote Enterprise development, improve the management level of enterprises.

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