

# Application Research on Big Data in Material Bidding and Procurement Management

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**Abstract:** The 21st century is an era of rapid development of informatization. Under the background of the development of this era, people are increasingly researching the application of information technology. The application of big data technology is the development and application trend of an information technology formed after the rapid development of modern information technology. Big data technology has been applied to the development of many industries, including the material bidding and procurement management as well. With the aid of scientific analysis of big data, it is possible to help material procurement management to analyze the corresponding bidding procurement information, which is an important guarantee for improving its bidding procurement management capabilities. In view of this, this article has conducted special research on the application of big data in material bidding and procurement management, hoping to provide references for the application of big data technology in material bidding and procurement management with the help of the research in this article.

**Keywords:** Big data; Material Bidding; Procurement Management; Applied research

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## 1. Introduction

In material bidding and procurement management, as there are many factors that need to be analyzed, it is necessary to analyze the various information data and collect the data that needs to be applied in the bidding procurement management in a timely manner. Then, in the process of data collection, the corresponding data information transmission application is timely carried out. Big data analysis information technology has become a technology that must be applied to the management of modern materials bidding and procurement. Only in the process of technology application, can it be clear that technology is applied to the development of the industry, so that the application of technology can be guaranteed. The development of its industry brings economic development benefits.

## 2. The Development Trend of Material Bidding and Procurement Management in Big Data Era

### 2.1 Centralization of Bidding

Under the rapid development of big data technology, it has now been integrated into the development of many enterprises. In the development of its enterprises, the application of big data technology can enhance the efficiency of its own business development. As the material bidding management enterprise is in the process of applying big data, due to the change in the development trend of the application of big data technology, the application development of its corresponding bidding data has emerged a

trend of centralized development.<sup>[1]</sup> Under the evolution of this bidding development trend, in order to ensure the improvement of the ability to carry out material bidding, it is also necessary to pay attention to the analysis of various elements in the bidding process, and then in the analysis process, the corresponding bidding management work can be measured.

### 2.2 Electronization of Bidding

Electronization of Bidding refers to the fact that during the current bidding process, the electronic development of the bidding has been realized. The development of the traditional bidding has changed to the trend of the network bidding. Under the application of this trend, there has been a clear shift in the technical application of the bidding process and the corresponding work deployment principles. The corresponding bid management operators only need to send bidding information to the Internet in a timely manner with the help of big data technology. Through the publicity on the network, the corresponding bidding company can specify the corresponding materials needed in the bidding and take the bidding measures.<sup>[2]</sup>

### 2.3 Informatization of Procurement

Contrary to the bidding work, the information management of procurement management is changed. In the traditional material procurement management, the quality of field procurement materials is used for analysis, and then the corresponding procurement work is carried out during the analysis. In the development of the existing procurement management work, a corresponding change

has taken place in the development of the corresponding procurement management. The most direct change is that during the development of procurement management, the corresponding procurement management has achieved information transformation. The transformation of informatization procurement management has become an inevitable trend in the development of big data technology and enterprise material procurement management.<sup>[3]</sup>

#### **2.4 Systematization of Procurement**

In addition to the transformation in procurement information management, the corresponding procurement management has also undergone a systematic transformation in the implementation of material procurement management. The application of big data technology has made the entire procurement management process easier, and the corresponding enterprises are making purchases. In the management process, a special procurement management system can be established through the application of big data technology, and the system can timely process the procurement information needed in procurement management, which is of significance for the improvement of the ability to carry out procurement management.

### **3. Application on Big Data in Material Bidding**

#### **3.1 Analysis on Bidding Subcontract**

Bidding subcontracting is a bidding management control factor that must be specified in the management of material bidding. Only the bidding subcontracting management strategy is clearly defined so that the corresponding bidding work can be carried out in a timely manner. As an enterprise in the management of material bidding, it is necessary to analyze the big data in a timely manner according to the needs of its own enterprise materials and materials. Through the analysis of big data technology, it is possible to achieve scientific improvement in the application of bidding subcontracting management strategies. It is of great importance for the improvement of the ability to ensure the implementation of bidding. Through the analysis of the application of big data technology, the corresponding bidding work can be implemented in a timely manner to achieve a sorting process, which facilitates the scientific improvement of the corresponding bidding work, and has certain guarantees for the development of the bidding work.<sup>[4]</sup>

#### **3.2 Analysis on the Range of Bidding Materials**

The analysis of the bidding material range is the second task that needs to be carried out during the bid invitation work. Through analysis of the range of material bidding, it can be clear in a timely manner which bidding applications need to be analyzed in the bidding application of corporate materials, and then in the analysis process,

the corresponding bidding material application requirements can be measured. Through the application of big data technology, it is possible to carry out the analysis of the bidding materials in accordance with their corresponding requirements for the application of bidding materials, and to select the corresponding bidding work according to the different types of applications for bidding materials during the analysis process. Carry out. For example, in the bidding of a company, there are five kinds of materials that need to be bid. According to the different application requirements of the bidding materials, different bidding ranges are formulated. The corresponding bidding management personnel implement the application of big data technology in a timely manner. The range of the corresponding bidding material needs was analyzed. For example, the bidding for food resources needs to be submitted to the catering industry. Other bidding needs to be developed in different bidding directions.<sup>[5]</sup>

#### **3.3 Material Category and Bidding Matching**

Through the analysis of the Bidding work, it is possible to clearly define the Bidding work in a timely manner. The corresponding Bidding work can be applied and implemented. In the implementation of the Bidding management work, the application of big data technology can be applied to the corresponding bidding material category. And in the process of the bidding work in this link, the corresponding bidding management work can be carried out in a timely manner.<sup>[6]</sup> The application of big data technology can help the bidding company to analyze the application ability of the bidding work in a timely manner. In the analysis process, it can timely carry out the corresponding bidding material work according to the results in the data analysis. For example, in the course of carrying out the bidding work, a certain enterprise needs the types of bidding materials such as steel bars, cement, concrete and sandstone. By clarifying the specific application requirements for bidding materials, different bidding data analysis was carried out according to the corresponding types of bidding materials, and then a scientific bidding scheme was formulated during the data analysis process.

#### **3.4 Analysis on the Method of Bidding Evaluation**

The analysis of bidding evaluation method is a bidding management factor that needs to be studied in the bidding process, and only the scientific evaluation method in the bid management work is guaranteed, so that the corresponding bidding management can be carried out in a timely manner. Through the bidding management work, it provides guarantees for the operation of material bidding and bidding management applied by enterprises. The application of big data technology can timely coordinate the relevant bidding management development factors, which

is of importance for the promotion of the bidding operation capability in the entire bidding process. Under the application of big data technology, it can timely measure the corresponding bidding evaluation method, for example, by evaluating the material supply information of each bid enterprise during the development of the bidding work, and measuring the hidden value in the corresponding bidding information, so as to facilitate the corresponding The bidding management staff timely carried out the bidding work in accordance with the application of the bid evaluation method.<sup>[7]</sup>

### 3.5 Analysis on the Rate of Winning the Bidding

The analysis on the rate of winning the bidding is also a working analysis that needs to be carried out during the bidding work. As the bidder's analysis of the bidding work, it should use the application of big data technology to analyze the various factors in the corresponding bidding work in a timely manner. In the analysis process, according to the specific bidding work, carry out the corresponding bid rate analysis. For example, in the work of carrying out material bidding, the corresponding bidding manager, according to the needs of the bidding work, analyzed all the participating companies and found that through the analysis of the data, the entire bidding process was carried out and the corresponding bids were submitted. The application requirements provided by companies for bidding programs to meet the needs of the enterprises themselves are relatively large, in this situation, it is necessary to measure the probability of successful bids for each bidding company and ensure that the corresponding bidding work can be carried out well in the analysis process of winning the bidding.

## 4. Application on Big Data in Procurement Management

### 4.1 Analysis on Materials

In the material procurement management, in order to ensure the improvement of the overall procurement management capability, the corresponding procurement managers perform the procurement management process and use the big data technology to analyze the corresponding materials. Through the application of big data technology, the corresponding material data application will be analyzed in a timely manner.<sup>[8]</sup> For example, in the process of using big data, timely analysis is performed through the corresponding materials needed for material procurement. In the analysis process, the required material information is summarized, and each material is timely applied through the application of big data technology. The application of data is analyzed to analyze the corresponding procurement areas for procurement materials and the application

requirements for the corresponding procurement materials in the procurement process. Through this procurement technology, the final procurement data can be guaranteed to be scientific and easy to use. The timely implementation of procurement management technology has certain guarantees for the scientific improvement of procurement.

### 4.2 Analysis on Bidding

After clarifying the material data that needs to be applied in procurement management, the corresponding management personnel should conduct a bidding analysis according to the requirements of the corresponding procurement materials in a timely manner, and collect the necessary materials according to the different types of materials and analyze the corresponding bidding data. During the data bidding summary analysis process, it is possible to timely conduct a comprehensive analysis of the bidding management factors that need to be coordinated in the feasibility of bidding and bidding management. With the analysis of the bidding management factors, the bid invitation can be handled in a timely manner. The management of scientific bidding management factors, for the implementation of the overall bidding management work with the help of big data technology can make a scientific analysis. For example, when an enterprise conducts procurement management, it summarizes the application requirements of the corresponding procurement materials for the application of basic materials and phased material applications, including gasoline, diesel, gravel, and cement and asphalt. After clarifying this point, the company carried out a bidding analysis, analyzed the situation with different materials using different biddings, analyzed the 15 companies bidding with big data technology, and selected the corresponding bidding company.<sup>[9]</sup>

### 4.3 Analysis on Suppliers

Supplier analysis is also a data analysis element that must be dealt with during the procurement management work. Only in the analysis of suppliers, the supplier can analyze and process the corresponding information in a timely manner, including the suppliers' material supply capabilities. The material quality of supplier's products and corresponding industry evaluation information, etc., can be comprehensively analyzed with the help of the application of big data technology. Through the implementation of this analysis technology, the implementation of procurement management technology can ensure the corresponding procurement. The supplier research has a certain degree of scientificity, and only the basic information of the procurement supplier is guaranteed to be accurate, so as to facilitate the purchase management enterprise to carry out the procurement cooperation in a timely manner. For example, through the application of big data technology, one

by one, the suppliers participating in the bidding are compared. By comparing the information of each supplier, it is possible to find a supplier that is suitable for the cooperation of enterprise procurement management (measure the supplier's price of material supply, and compare different suppliers' purchasing information and clearly identify the corresponding advantages and disadvantages of purchasing suppliers.<sup>[10]</sup>

#### 4.4 Expert Analysis

Expert analysis is the last link in material procurement management. The application of big data technology can help the corresponding enterprise material procurement managers to analyze the corresponding procurement management information in a timely manner. For the implementation of procurement work, it is of significance for the importance of procurement management research. In the process of analysis of procurement management experts, the long-term development of the corresponding supply procurement management business can be timely applied to the formulation of procurement management strategies with the help of the application of big data technology. For example, during the course of carrying out material procurement management, a construction project carried out a scientific expert analysis of the procurement of construction materials in the construction management of the first phase of the East Fourth Ring project. Through the application of big data technology, several common procurement projects were used. Material analysis was conducted. Through the analysis of procurement materials, it was found that the application of certain procurement materials can select new material applications, and the price of the corresponding new material application is obviously different from the price of existing material applications. Next, according to the actual needs of the project construction, the corresponding material procurement information should be measured in a timely manner to measure the application of materials in procurement management from the perspective of long-term development, and guarantee the scientific nature of procurement material management.

#### 5. Conclusion

In summary, under the development of modern science and technology, big data technology has been applied to the development of China's information industry. With the application of its technology, it can collect and analyze the information and data in various industries, facilitating the process of information analysis. In order to formulate a relatively complete development strategy plan in accordance with the current state of enterprise development. The application of big data technology in material bidding

procurement management is also extensive. With the help of big data technology, the scientific nature of material bidding procurement management has been promoted, and the scientific development of enterprises has been ensured. Through the research and analysis of this paper, the application of big data in material bidding and material procurement management is summarized as the following: First, the application in bidding management is divided into bidding subcontract analysis, bidding material range analysis, bidding materials category Match with biddings, analysis of bid evaluation methods, and bid rate analysis. The second is the application in procurement management, which is divided into material analysis, bidding analysis, supplier analysis and expert analysis.

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