Application of Big Data Technology in Construction Organization and Management of Engineering Projects

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Abstract. Under the background of modernization construction, the construction engineering industry has also ushered in a new situation of new development. There are new changes in the organizational form and management connotations of its projects, and new challenges in the construction organization and management model. Based on this situation, big data technology is applied to the process of construction organization and management and is supported by relevant industries and advocated by the state. On the one hand, big data technology, which can fully integrate resources and analyze data, can provide the most accurate and comprehensive organization scheme in the construction organization process of the project. It is an indispensable key link in the application of construction organization of engineering projects at this stage. On the other hand, under the application of big data technology, the management system of the project can be optimized and the refined management system can be improved. Therefore, this article analyzes its basic role and difficulties based on the application status of big data technology in engineering projects at this stage and carries out the following analysis and research on its specific application measures.

1. INTRODUCTION
At this stage, information technology has made great strides and is gradually being integrated into various industries. Under the development of information technology, China has stepped into the information society by deepening reform and introducing new technology. In the current form, the development of various industries is moving forward along the direction of information technology. Especially in the construction industry, information technology has become the technology that affects the core competitiveness of construction enterprises. And as a kind of information technology, big data technology has also received wide attention from the construction industry. Big data technology can not only ensure the construction quality and efficiency of the project, but also provide the necessary foundation for the development of management work and analysis work. It is a necessary means to achieve the development of both economic and social benefits of enterprises. However, with regard to the current status of the application of big data technology to engineering projects, there are still a series of problems in the actual application process of big data technology. The application still has a long way to go.

2. Application of big data technology in the process of construction organization and management of engineering projects
From a global perspective, some foreign construction companies have successfully applied big data technology, especially in western developed countries. Due to the early start of data, and application system is more perfect, so that big data technology has been gradually applied to the development...
process of construction enterprises. And, with the addition of big data technology, these enterprises have been able to innovate the construction technology of related enterprises, ushering in new development and progress of enterprises.

From the country's perspective, China has experienced rapid economic development and outstanding economic results since its reform and development. Internet companies, although starting late, are developing rapidly, and in the Internet industry, big data technology is nearly universal. However, in the country's construction industry, the construction organization and management of projects, due to the late start and application system is not perfect enough, so that the application of big data technology is still in the trial stage, still in the pilot work. Its overall application content has major gaps and does not have a complete application system. In this case, the application of big data to the process of project construction organization and management still needs a long period of time. The relevant management mode and organizational forms still need to be optimized and improved, and the related institutional construction and initiatives with still need to be strengthened.

| Industry name   | Retail | Financial | City | Medical treatments | Sports | Education | Telecommunications | Others |
|-----------------|--------|-----------|------|--------------------|--------|-----------|-------------------|--------|
| percentage (%)  | 24     | 17        | 14   | 8                  | 6      | 4         | 4                 | 23     |

3. The problem of application of big data technology in the process of construction organization and management of engineering projects

3.1. Purpose loss

In the process of construction organization and management of engineering projects, the application of big data technology has no purpose. This purposeless application makes the mining role of big data technology weakened, and the actual role of big data is not given full play, which in turn leads to that the application of big data technology to the construction organization and management process of engineering projects is relatively more difficult. In addition, in the process of construction organization and management of the project, big data technology still has certain defects. The detailed data of the project cannot do a complete analysis and optimization process. This in turn leads to that the application of big data technology is not obvious enough and the application advantages are not prominent enough.
This also in turn leads to the limited role of big data technology services in the construction organization and management of engineering projects.

3.2. hysteresis
In the process of construction organization and management of the project, the application of big data technology is not time-sensitive. This includes lagging technology application, so that big data technology cannot play the role of "decision guidance" and the guiding force of data and technical decision-making ability is greatly reduced. In addition, at this stage, most of the project data are serving the "data needs". This way of integrating information by relying on demand is not time-sensitive, has more drawbacks, and is not conducive to the modernization of the construction industry. At the same time, under the influence of hysteresis, the analysis of information data by big data technology cannot be carried out, and the final analysis results can be different from the market demand and people's requirements. This not only affects the sales volume and turnover of the product itself, but also the related economic benefits are not guaranteed, which leads to the development of the industry's living space is reduced. Once the application of big data technology and judgment mistakes, it is very likely that the development goals of the enterprise will be affected, and the development process of the enterprise will be unable move a single step.

3.3. Problems with professionalism
There is no professionalism in the application of big data technology in the process of construction organization and management of engineering projects. The factors affecting the professionalism can be mainly considered from the application personnel and market environment. From the level of application personnel, due to the limited number of professionals in big data technology, this leads to the phenomenon of lack of professionalism and substandard professional competence level of personnel engaged in the big data analysis industry. This phenomenon not only affects the development of the relevant analysis industry, but also makes big data technology in the process of project construction organization and management cannot be reasonably applied. In turn, it makes the organizational content of the project is not perfect enough and the management efficiency is low. From the market environment, in the context of rapid economic development, the market environment can be described as a sequence of many changes and the cost of the project and the cost of the project appear more uncontrollable factors. This brings more unconventional variables to the application of big data technology, making the big data technology is subject to an increase in interfering factors. In this form, the application of big data technology has increased risks and its analysis process has not only more variables and interfering information, but also more invalid and discarded information. This results in the efficiency of the application of big data technology being further reduced. The authenticity and accuracy of the data are not truly guaranteed. The sampling of data and the representativeness of samples are problematic. In turn, a series of problems such as large data errors and low security are derived.

4. Specific measures for the application of big data technology in the process of construction organization and management of engineering projects

4.1. Establishment and improvement of the application of big data technology
The application of Big Data in the management of project construction organizations requires the consideration of several aspects, such as: the amount of information, the type of data, the rate and speed of transmission, the accuracy and authenticity of the data, the existence of variables and responsibility for the data, etc. All these aspects need to be taken into account in order to better apply the technology. On this basis, the application system of big data is established and improved, proper application mechanisms are selected, and the internal organization and management of the project is optimized in depth. It should be noted that the application of big data technology is inseparable from the improvement of the basic application system. Only by having a complete application architecture can the application
specification of big data application technology be guaranteed to the maximum extent. The specific measures to improve its establishment are as follows:

First is the hierarchical management. In the actual application process, the project organization management work should be fine-grained distinction. And the different work content using different ways of handling the analysis work. And then do special work directional analysis, making the application process with professionalism and pertinence. Then it can achieve orderly development and enrichment of big data application architecture.

Second is the refined management. In the environment of the application of big data, big data should be collected and integrated with the work data of the construction organization management of the project, using the measures of fine and detailed management. It should also control the variables in the analysis process in order to provide the most realistic information to the decision makers and management of the business unit. This will help to achieve sustainable development of the business unit concerned.

Through the improvement of the system for the application of big data technology, the application of big data technology has the most basic structure. The hardware system has been optimized and improved, and the regulatory system has been enriched and constructed. This ensures the pertinence, reference, timeliness and purposefulness of big data technology.

4.2. optimization and building integration teams for big data technology

In the application of big data technology, in order to ensure the authenticity and validity of project construction organization and management data, optimization measures are usually used to build an integration team for big data technology. The members of this team are generally project construction organization managers who have clear knowledge of big data technology and are able to meet the requirements of mastering technical applications and applying big data technology in a reasonable manner. It is built in the following ways:

The first thing is to establish a data application team from the project unit. The relevant units and agencies should establish a specific, internal data application team. The main responsibility and task of its team is to collect and process the data information in the construction process of the project, such as: the data information of the material and financial supply chain, the information of human employment and exit resource management, the data of information logistics and the content information of relevant construction technology. This is to ensure that the application of big data information can be based on reality and practicality to achieve the construction goal of comprehensive and extensive collection.

The second thing is to do the analysis work and integration work. Under the basic structure of the team, the team members in the team should make reasonable use of big data technology to conduct data analysis and processing of relevant information data. It should be integrated into a complete data report, and then effectively feedback market demand and better estimate the market direction. Specifically, it can use design semantic welcoming and data mining algorithms to complete the visual analysis and processing work. This will improve the quality and efficiency of data analysis and better serve the construction organization management of the project.

The third thing is to integrate and analyze the supply data information. After the construction of the big data application integration team is completed, the corresponding team members should timely analyze and process the supply data information, and then obtain the budget progress and estimate the cost of the project. Specifically, they should review the supply information of material suppliers and vendors, make reasonable estimates of the project's planning scheme and construction process, evaluate and estimate the project's cost and start-up capital in advance. Then they should analyze and integrate the basic data in the construction organization and management process of the project, and effectively build a system of data control. In this way, it can achieve smooth construction and completion of the construction period.

The fourth thing is to establish a cost control team. According to the actual operation of the project, it should establish a sound project team to conduct project quality analysis data mining. After the successful construction of the team, the effective integration of project quality inspection data, basic
data during construction, data stored in project logistics management and construction progress data can be fully realized. This can to the maximum extent possibility to prevent the serious decline in project quality due to irregularities in acceptance and hidden project acceptance during the construction phase, inaccurate management of construction materials, incomplete project planning before, during and after construction, and defects in the construction design itself. It should be noted that after successful team building, the cost and budget data, construction materials, and engineering quality parameter data of the entire project need to be effectively classified and organized. And, with the help of data mining technology, a perfect cost control system is established for it, which can prevent the decline in construction quality due to delays to the maximum extent possible.

5. Concluding remarks

In summary, the application of big data technology is imperative to the process of construction organization and management of engineering projects, and plays a pivotal role in the entire management process. Therefore, in the actual big data technology application process, according to the current status of big data in the analysis of the application of construction project organization and management process, we should discover the problems in the application process, follow the application standards and principles, select the appropriate application mode for specific applications, and then provide the necessary prerequisites for the modernization of the construction industry, as well as the orderly development of the construction industry.

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