Research on the Impact of Big Data on Enterprise Management Decisions

Qingquan Zhang[*]

Department of Master of Business Administration, College of Innovative Business and Accountancy, Dhurakij Pundit University, Bangkok, 10210, Thailand
550316837@qq.com
*Corresponding author

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Abstract: Big data technology has been widely employed in many industries recently due to the ongoing advancement of network communication technology, which has aided in the administration and growth of businesses. More and more businesses are conducting in-depth research on the scientific application of big data technology in the management process in order to fully exploit its benefits and support the long-term sustainability of their businesses, precisely because of the positive role that big data technology plays in the development of businesses. In order to serve as a kind of reference, this essay will begin by discussing how big data affects enterprise management decision-making. It will then analyze the application strategy for big data technology in enterprise management decision-making using the power maintenance enterprise as an example.

Since the turn of the century, information technology has advanced quickly. It is crucial to enterprise resource management, enterprise development and transformation, and enterprise service improvement. Information technology will become more crucial to corporate management development and decision-making as a result of its ongoing development. Controlling the electricity system to ensure that it operates normally is the primary activity of power maintenance companies. Because of the complexity and diversity of the information and data involved in management, it is extremely challenging to rely exclusively on labor for management. Building an information-based power grid management and control platform with the aid of big data technology, using big data storage, big data analysis and processing, and other technologies, can significantly lessen the difficulty of power grid maintenance management and control and help to improve the quality of management decisions made by power maintenance enterprises.

1. Overview of Big Data Technology and Enterprise Management Decision

1.1. Overview of Big Data Technology

Big data is mostly used to describe a big collection of data gathered in various formats. Following data collection, this data may be utilized to assist management choices with the use of data storage, analysis, processing, and other technologies. Volume, velocity, diversity, and value are

the four characteristics of big data that offer the support needed for the full deployment of big data-related technologies in business decision-making [1]. Big data technology primarily refers to the associated systems for gathering, storing, and processing large amounts of data. The benefits of incorporating big data-related technology into company management are clear.

First, big data can provide information support for decision-making. Big data can optimize the processing of enterprise internal data, fully tap the value behind the data, provide information reference for enterprise managers' decision-making, and provide assistance for scientific decision-making. Second, big data can promote the optimization of enterprise assets and information. With the continuous development and expansion of power enterprises, enterprises gather more and more information, and the proportion of valuable information will gradually decline. The use of big data related technologies can analyze and process the massive information obtained by enterprises, integrate information resources, compress low value or non value information, improve information value, and guide the optimization of assets and information of power enterprises. Third, big data can improve the level of collaborative management. By using big data related technologies, a unified data platform can be built, which collects all kinds of enterprise information on the platform, and then realizes cross departmental collaborative control of data with the help of platform related procedures, so as to improve the overall management decision-making level of the enterprise, break down departmental restrictions and barriers of subsidiaries and parent companies, and improve the quality of enterprise control.

1.2. Enterprise Management Decision

Management decisions mainly refer to the decisions made by managers to solve local problems of the organization in order to ensure the overall strategic objectives of the organization. Enterprise management decisions mostly involve local problems of the organization. Enterprise management decision-making can continuously improve enterprise management efficiency, achieve a high degree of coordination of enterprise economic activities, production activities and other links, and realize the optimal allocation of enterprise resources. Under normal circumstances, enterprise management decision-making has the characteristics of timeliness, flexibility, systematicness and economy. Timeliness means that in enterprise management, decisions need to be made quickly according to the changes in the environment faced by the enterprise, so as to avoid the risks in enterprise management as much as possible, ensure that the enterprise can adapt to environmental changes and promote the sustainable development of the enterprise. Flexibility mainly means that the enterprise decision can be properly adjusted according to the changes of internal and external conditions to ensure the achievement of the enterprise strategic objectives. Systematization refers to the formation of enterprise management decisions, which are relevant decisions made by comprehensively considering many conditions and factors and coordinating the long-term and immediate interests of the enterprise. Economy means that the purpose of enterprise management decision is to pursue economic benefits. Therefore, the economic principle should be followed in decision-making, and the opportunity cost and time cost should be fully considered.

2. The Impact of Big Data on Enterprise Decision-making Management -- Taking Power Maintenance Enterprises As an Example

2.1. Impact of Big Data on Decision-making Culture

Corporate culture is an important factor influencing the development direction and scientific decision-making of enterprises. Enterprise decision-making is made by enterprise decision-makers, whose decision-making needs to be supported by actual information and data. Under the influence

of different enterprise cultures, enterprise decision-making varies greatly. The decision-making basis of enterprise managers is the data feedback of grass-roots or market personnel, which fully shows the important role that information data can play in enterprise management decision-making.

However, the information fed back by the grass-roots staff is very subjective and cannot be directly used in management decision-making, so it is necessary to process and analyze the information data first. Managers' energy is limited and they cannot analyze all the data in the market. In this situation, there will be some risks in the decision-making of managers. Some scholars have pointed out that the focus of enterprise development is not the concept of enterprise managers, but whether enterprises can make full use of the data generated in the current social development process, so that the data can play its own value and guide the development of enterprises.

2.2. Impact of Big Data on Enterprise Management Decision Technology

Management decision-making technology refers to the research and analysis of decision support system and management information system. This technology can promote the quality of enterprise management decision-making and provide support for decision-makers to better manage decisions. Enterprise management decision-making technology has been significantly impacted by the development and use of big data technology. One is to give management decision-making technology technological help. When studying the enterprise management decision information system and decision support system, big data related technologies can improve the decision support system and information management system with the help of cloud computing technology, cloud processing technology, etc., so as to improve the scientificity and perfection of the decision support system and information management system and boost the development of enterprise management decision [2]. The second is to provide technical support for data information optimization. Nowadays, enterprises need to pay more attention to technology upgrading, further optimize data processing methods based on the original data algorithms, and make the data more accurate in the calculation process. Big data related technologies can store, analyze and process enterprise information, fully extract high-value data beneficial to enterprise development, and provide information and data support for scientific enterprise management decisions. Third, big data can optimize the enterprise management model. The application of big data technology is conducive to the development of the whole staff mode of the enterprise, coordinating work, optimizing the enterprise management model, strengthening the realization of data communication among internal personnel of the enterprise, and realizing the overall improvement of the quality of enterprise management decisions. Moreover, the application of big data in enterprise management can further ensure the comprehensiveness and scientificity of enterprise decision-making, reduce the extreme nature of enterprise decision-making to a certain extent, and improve decision support.

2.3. Impact of Big Data on Decision Makers

As the main body of enterprise management decision-making, managers' own management ideas, management skills and information understanding will have an impact on the quality of enterprise management. The application of big data technology broadens the channels for decision makers to obtain information, and sends more enterprise related information to managers. To a large extent, it has a profound impact on managers' management decision-making ideas, management decision-making skills and management decision-making attitudes, and then affects the overall quality of enterprise management decisions. When making decisions, the decision-makers of enterprises need to fit with the actual situation of enterprise development and the basic needs of employees, so as to make the decision more scientific. In the context of the continuous development of the Internet economy, various science and technology are gradually integrated, the production

level and service level between enterprises are gradually balanced, and the decision-making is more socialized. First, the ownership of internal decision-making has changed. Enterprise decision-making is not only reflected in the management of enterprise development, but also in the management of all aspects of the enterprise. Second, the enterprise management information is deeply influenced by big data technology. Various information technologies and terminals are gradually widely used in the enterprise decision-making process, making the role of enterprise employees in enterprise decision-making gradually enhanced.

2.4. Impact of Big Data on Decision-making Power Allocation

The allocation of enterprise decision-making power is one of the main contents affecting enterprise management. The different allocation of enterprise decision-making power will directly affect the enterprise management decision-making, and then have a significant impact on the enterprise development. At present, the content of enterprise decision-making allocation mainly includes the following aspects: first, the allocation of resources generated in the external environment of the enterprise; Second, the allocation of decision-making power between organizations; Third, the allocation between organizational departments and enterprise work teams. The determination of the allocation mode of enterprise decision-making power is mainly determined by the mode of generating decision-making power in the process of enterprise work [3]. At present, there are two modes of internal resource allocation: centralized and decentralized. Centralization refers to the mode that high-level decision makers make management decisions in the process of enterprise development. Generally, the generation of high-level decision-makers is based on the appointment of the investors or the investors themselves in the process of enterprise development. As the decision-makers of the enterprise development direction, the enterprise senior managers have important significance for the formulation of enterprise management content. Decentralized mode refers to a mode in which the decision-making power within the enterprise is distributed to all links of the enterprise and all employees within the enterprise. In this way, the staff of each department of the enterprise can have their own independent decision-making power.

With the development of big data, there is more uncertainty within the enterprise, and various fierce competition mechanisms weaken the decision-making power within the enterprise.

3. Big Data Application Strategy in Management Decision-making of Electric Power Maintenance Enterprises

3.1. Using Big Data Technology to Build Power Maintenance Management Platform

By using big data related technologies, an application platform for power maintenance management can be built in combination with the actual situation of power maintenance enterprises. The platform can realize all-round monitoring of power network, formulation of maintenance plan, etc., and realize comprehensive management and control of power network. Power maintenance management and control platform can be built through big data related technologies, which needs to meet the following requirements [4].

First, big data can comprehensively obtain power related information and data. The big data maintenance management and control platform based on the actual situation of power maintenance enterprises can accurately and timely obtain the specific information of power grid maintenance, power grid production, power grid technical transformation and other engineering projects, power grid operation, power grid fault points, power grid fault maintenance technology and other power maintenance related information, the number of employees, staff titles, staff scheduling and other employee related information of power maintenance enterprises, and the training objectives of

technical personnel Training plan and other training related information, common power faults, power fault handling technology and other power maintenance related technical information. The executive control platform can obtain all kinds of information involved in power maintenance management in an all-round way, store these obtained information in the database, and use big data processing, analysis technology, etc. to quickly call relevant data in the database and formulate power maintenance plan in case of power engineering failure [5].

Second, big data can automatically formulate scientific and feasible power maintenance schemes. In addition to obtaining comprehensive information and processing the information, the big data power maintenance control platform needs to follow the principle of scheme formulation in order to ensure the scientificity and feasibility of the maintenance control scheme. When formulating the maintenance control scheme, it is necessary to evaluate the service life and service condition of the power equipment before formulating the maintenance control scheme, and set the corresponding margin in the adjustment of the maintenance scheme according to the specific conditions of different equipment. In addition, in the process of power maintenance, it is necessary to minimize maintenance in high temperature, holidays, peak period, etc., so as to ensure the quality of power management decisions. Third, the power maintenance management and control platform based on big data technology has the function of real-time query of maintenance items [6]. On the built power management and control platform, the information such as modification route, modification status and relevant responsible person can be accurately found through the platform to provide accurate data support for dynamic scientific management decision-making.

3.2. Application of Big Data and Other Technologies in Power Maintenance Management and Control Decisions

As the main work of related enterprises, power maintenance involves a lot of data and information in the process of power maintenance. Different information and data have different effects on maintenance management and control decisions. Therefore, related enterprises can make full use of big data technology in maintenance decisions [7]. First, the big data technology is applied to the construction of power maintenance management and monitoring network. With the help of computers, sensors, workers, power equipment, the Internet, etc., the power maintenance control and monitoring network can be built, through which the comprehensive access to power related engineering information can be realized. For example, if the sensor is placed at the appropriate position of the wind turbine, the sensor will transmit the wind turbine temperature, power generation, generator operation pictures and other information to the computer related power management and control platform system in real time. After the system receives the information, the professional information data processing module will analyze and process the information received from the sensor, and send the decision-making results to the staff's mobile phone or computer. In case of abnormal operation, the staff will be reminded to pay attention to maintenance at the first time [8]. Second, while utilizing big data, we should be mindful of the disclosure and exchange of knowledge on power maintenance. Whether the relevant staff is making or improving the pertinent power maintenance management and control decisions, they need to publish the changes on the enterprise intranet or to various departments at the first time to realize information sharing. This will allow the staff to fully understand the power related maintenance management and control decisions, enhance the staff's sense of identity, enhance the cohesion of the enterprise's internal management and control, and provide.

3.3. Using Big Data Technology Combined with the Internet to Improve the Efficiency of Power Maintenance Management and Control

Relevant managers of power maintenance enterprises can combine big data technology with Internet technology to comprehensively improve the efficiency of power maintenance, especially the quality of defect treatment management, and provide hardware guarantee for the improvement of defect treatment methods. First, relevant managers of power maintenance enterprises can extend the power maintenance management and control platform [9]. The power monitoring system is integrated into the power maintenance management and control platform to further realize data control and analysis, so that after problems occur in the power network, the power grid defects can be comprehensively analyzed from horizontal and vertical perspectives, so as to comprehensively improve the efficiency of power maintenance defect handling [10]. Second, relevant managers of power maintenance enterprises can use big data technology to strengthen the employee training mechanism. Relevant managers of power maintenance enterprises can collect information such as the skill level of employees, conduct big data analysis, fully understand the specific situation of employees, conduct hierarchical training according to the situation of employees, comprehensively improve the working skill level of employees in power maintenance enterprises, ensure the quality of power maintenance, and boost the quality of management and control decisions of employees.

4. Conclusions

The application of big data technology provides information data support and technical support for enterprise management decision-making, and has a profound impact on decision-making culture, management decision-making technology, decision-makers and decision-making power allocation. If the enterprise is a power maintenance enterprise, in the face of such impact, it can make full use of big data technology to build a power maintenance management platform, use big data and other technologies to make power maintenance management and control decisions, and use big data technology in combination with the Internet to improve the efficiency of power maintenance management and control, so as to comprehensively improve the level of enterprise management and decision-making and promote the sustainable and stable development of the enterprise.

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