



Research on Digital Transformation and Operation Management Model of Power Grid Enterprises

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Abstract. In recent years, in the context of economic globalization and the prevention and control of the COVID-19, enterprise digital transformation has become the core element to ensure enterprise operation and achieve sustainable development. In the environment of customer service innovation, power grid enterprises need to promote the transformation and upgrading of their business and organizational development, build a digital ecosystem, improve operating efficiency and customers' electricity experience, develop strategies and plans for digital transformation that meet the development goals of enterprises, and constantly improve their core competitiveness.

Keywords: digital transformation · power grid enterprises · business management

1 Introduction

In recent years, the concept of building a “digital China” has been proposed for the first time in the report of the 19th National Congress of the CPC, and with the continuous relaxation of the national government’s policy of benefiting enterprises through digitization, the digital construction of Chinese enterprises has been accelerating. At the same time, energy enterprises were proposed to promote the integration of energy and information under the guidance of “Internet plus” and intelligence. Energy enterprises have been developing and transforming in recent years. In order to effectively promote the digital transformation of power grid enterprises, power grid enterprises are vigorously carrying out digital construction, and promoting their digital transformation by building an operational management control mode, a digital enabled business form, and a work order driven operating mechanism. With the improvement and development of market economy system and electric power system, power grid enterprises gradually integrate into the market economy. The strategic choice of enterprises in the process of digital transformation has become the main issue to be clarified. At the same time, with the continuous changes in the social environment and the increasing demand for quality of life, higher standards and requirements have been put forward for power grid enterprises to ensure reliable power supply. In order to enhance the core competitiveness of power grid

enterprises, they are constantly searching for faster new ways of customer service. With the help of digital technology, they hope to analyze and optimize the existing operational methods of enterprises, thereby improving their operational efficiency, assisting them in steady development in the industry with high efficiency and speed, and exploring digital strategies suitable for the development of power grid enterprises themselves. For power grid enterprises, digital transformation is the important way in the high-speed development strategy of enterprises. The management mode of power grid enterprises can be improved and optimized with the assistance of digitization, achieving the improvement of enterprise performance and efficiency. Therefore, it is of great significance to analyze the digital transformation and operation management model of power grid enterprises in order to improve their core competitive advantages and ensure their long-term and stable development.

2 Literature Review

In recent years, in the context of the continuous explosive growth of the digital economy, the “digital technology” enables traditional enterprises to make digital transformation, and scholars have also conducted in-depth research on it. The digital transformation of enterprises has promoted the fundamental change of enterprise management mode, information structure, operation mechanism and production process by introducing “ABCD” technologies such as artificial intelligence, blockchain, cloud computing, big data into the enterprise’s existing operation mode [1–3]. The application of technologies such as ABCD has enabled users to deeply participate in the production process, and the realization of enterprise value must be based on meeting customer value needs as a prerequisite [4]. Innovation transformation driven by the application of digital technology can lead to improved economic performance [5]. The digital economy has promoted the digital transformation of Chinese enterprises, and thus promoted the improvement of business performance [6].

Power grid enterprises are mainly responsible for the construction and operation management of the power grid. The upstream and downstream involve a wide range of specialties, multiple equipment, and diverse personnel. The strengthening of the digital capabilities of enterprises is conducive to reducing the probability of errors and mistakes, and improving operational efficiency. Therefore, it is of great research significance for power grid enterprises to effectively grasp the opportunity of digital transformation and promote their comprehensive and rapid development in various fields.

3 Analysis of the Current Situation and Existing Problems of Digitalization in Power Grid Enterprises

At present, the digitalization work of power grid enterprises is closely focused on the long-term development strategic goals, achieving the online operation of enterprise level management information systems, solidifying the integrated distribution network management process and advanced management system; Build cloud computing and big data platforms, preliminarily complete the cloud deployment of full power grid data,

and carry out data analysis work; Build a marketing measurement automation platform to achieve full coverage of all power supply equipment centralized reading terminals for power supply enterprises; Carry out research and exploration on the application of digital technologies in business, such as “distribution network emergency repair command platform”, “digital grid platform” and “business monitoring platform”, digital transformation has achieved some results.

At present, although the digital and intelligent construction of power distribution in power grid enterprises has initially accumulated certain management and technical experience, and has achieved certain results, there are still many problems that need to be further solved, such as the establishment of management systems, system construction, talent cultivation, and so on. In the context of digital transformation, the digitalization work of power grid enterprises still needs to be further strengthened in order to achieve better results. In addition, there are certain issues with the data-driven handling of power failures in power grid enterprises, which need to be further improved.

Due to the limited coverage of digital distribution automation and the low level of distribution network equipment, there are certain defects and hidden dangers. The quality of operation and maintenance does not match the requirements of distribution network equipment operation and maintenance, leading to problems in the coordination and standardization of information systems. The methods of distribution network research and judgment are clearly insufficient and lack information support. Dispatching automation and GIS systems are relatively mature systems, with good data maintenance and high quality. However, due to the inability to effectively interact between systems, the construction of digital systems needs to be further integrated to fully explore and unleash the value of data.

4 Analysis of the Digital Strategic Environment for Power Grid Enterprises

In recent years, with the advent of the digital age, the types of smart home appliances have been constantly enriched, and people’s lives have become more “intelligent”. The demand for power supply has also increased, and the requirements for the quality and reliable supply of electricity have also become higher. This requires power grid enterprises to ensure reliable electricity consumption. In addition, in the process of digital transformation of power grid enterprises, it is also necessary to avoid unnecessary human and material expenditure in order to reduce costs and increase efficiency. Power grid enterprises need to apply advanced digital technology to build a green, efficient, and highly utilized power supply guarantee system, build a distributed power supply pattern, and improve power supply efficiency while ensuring power supply reliability. Digital power construction is closely related to people’s lives and is a key step in the transformation of digital smart grid. However, power grid enterprises still have many problems to solve in the process of digital transformation. Therefore, power grid enterprises should establish professional research teams in various subdivisions to comprehensively build digital smart grid systems, ensure people’s reliable power use, and improve the overall performance of power grid enterprises.

5 Strategies for Improving Power Supply Service Level in the Context of Digital Transformation of Power Grid Enterprises

5.1 Optimize Existing Services

Improve the operational level of service platforms. In recent years, in the context of digital transformation, APP has become more and more widely used in daily life, becoming a link between enterprises and customers. It can provide customized services according to user preferences, and effectively improve customer experience and satisfaction in all areas of life. For power grid enterprises, the use of apps to provide services to customers has effectively improved service efficiency. However, currently, the operational level of apps needs to be further improved to achieve better results. For example, integrating the online power grid app into WeChat mini programs, highlighting key data such as electricity bills and prices, optimizing user electricity processing, strengthening user stickiness in app usage, and strengthening instant communication between both parties, in order to ensure that customers solve problems more efficiently and have a more satisfactory user experience when using the digital platform.

Improve business models that respond to customer needs. For power grid enterprises, they can learn from the experience of Alibaba's mid platform model, develop a corresponding mid stage strategy for their company, which can provide accurate and effective business models to address customer needs and solve customer problems. This mainly includes the following aspects: responding to changes in customer needs with an agile front-end model, improving response efficiency with a business middleware model, and providing a complete customer experience with a standardized service package model.

Optimize the feedback and evaluation system for power supply services. Power grid enterprises can optimize the feedback and evaluation system of power supply services, so that customer opinions can effectively help power grid enterprises improve, promote their internal management mode optimization, and enhance the level of power supply services. Specific measures can be taken in the following aspects: increasing the evaluation channels for real-time collection of power supply service feedback, optimizing third-party satisfaction evaluation methods, deepening the application of customer feedback and evaluation results obtained through multi-channels, etc.

5.2 Develop Value-Added Services

Establish customer maintenance service system. In recent years, power grid enterprises have opened up customer maintenance services to customers and achieved some experience and results. The customer purchases insurance at a maintenance fee, and the maintenance service provider provides free maintenance services. When the equipment malfunctions, the repair cost is jointly determined by the insurance company and the maintenance service provider, and ultimately settled by the insurance company. As a new type of customer maintenance model, it can effectively improve economic efficiency, expand service types, improve quality and efficiency, and improve social benefits, strengthen customer stickiness, and further improve and optimize the service system.

Power grid enterprises can adopt the following strategies to establish customer maintenance service system, such as strengthening the standardization and effectiveness of the service, promoting the objective and convenient insurance claims settlement, effectively developing value-added service while ensuring the existing business, ensuring the further improvement of the core competitive advantage of power grid enterprises in the process of digital transformation.

Create new energy vehicle service ecosystem. For power grid enterprises, the layout of the new energy vehicle industry is a significant advantage. To use new energy vehicle services as a carrier and grasp the corresponding ecology, the following strategies can be adopted: docking with upstream ecological partners in the automotive industry, expanding value-added services for new energy vehicles, strengthening data interconnection with charging operators, and arranging the recycling and utilization of new energy vehicle batteries in advance. In recent years, new energy vehicles have developed rapidly, and power grid enterprises need to fully seize the opportunities of this era and improve their core competitiveness.

6 Implementation Plan for Comprehensive Strategy of Power Grid Enterprises in the Digital Background

In order to ensure the implementation of the strategy of power grid enterprises and effectively promote their long-term and stable development, the implementation plan of power grid enterprise strategy can be constructed from two dimensions: internal management optimization and establishment of external data service business.

6.1 Internal Management Optimization

Create a digital technology platform that integrates cloud edge and cloud digital intelligence. Relying on an integrated digital technology platform, IT resources can be provided on demand, flexibly allocated, and data from various business domains can be centrally managed to enhance the support capacity of the digital technology platform foundation, thus effectively managing enterprises through digital technology.

Build a service sharing center to support the rapid generation of digital applications. Build an open and shared service sharing center around the core business scenarios at the company level, relying on service portals to provide shared service invocation, improve service component utilization, reduce research and development costs, enhance agile development capabilities, and promote the transformation of digital applications from management process driven to business scenario driven and data driven.

6.2 Establishment of External Data Service Business

Build new infrastructure and consolidate the “cornerstone” of digital economy development. Actively build a new infrastructure Internet data center, create an intensive, efficient, affordable, smart, green, safe and reliable modern infrastructure system, help power grid enterprises to accelerate digital transformation, and promote high-quality economic and social development.

7 Conclusion

With digital transformation as the background and power grid enterprises as the research subject, this study analyzes the digital transformation and operation management model of power grid enterprises, and formulates digital transformation strategies and programs that meet the development goals of power grid enterprises. In the future, power grid enterprises need to improve the organization, system, talent and other safeguards to effectively promote their digital transformation process.

Fund Project.

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