Optimization of strategic closed-loop management mechanism for large-scale power grid enterprises adapting to digital transformation

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Abstract. When facing increasingly complex and fast-changing strategic situation, powerful strategic management system is crucial for large-scale power grid enterprises to ensure scientific decision-making, coordinated action and efficient management. This paper analyzes the new strategic management situation of large-scale power grid enterprises under the background of the integrated development of digital revolution and energy revolution. Based on the new situation, this paper carries out the demand analysis of the optimization of strategic management mechanism for power grid enterprises, and puts forward the core content of the strategic closed-loop management mechanism optimization. The mechanism optimization will ensure the forward-looking of power grid enterprises' strategy formulation under the background of digital transformation. Additionally, the mechanism optimization will promote accurate identification of changes, scientific response and effective prevention of strategic risks.

1 Introduction

Power grid is important infrastructure, which closely related to the national economy and people's livelihood. Power grid has the characteristics of long industrial chain, strong driving force and wide influence. These characteristics requires the State Grid company must accurately and sensitively perceive the dynamic changes of the external environment, and respond to them in a timely and effective manner.

In recent years, the external environment of large power grid enterprises becomes variability, uncertainty, complexity and fuzzy increasingly. In terms of scientific innovation, the international competition around the key core technologies of energy and power is becoming increasingly fierce, so that the "subversive innovation" and "cross-border operation" in the field of energy and power has gradually become norm[1]. In terms of institutional reform, a new round of power reform and state-owned enterprise reform has continued to advance in depth, which profoundly change the industry ecology and development pattern, bring more market competition, while strengthen the demonstration effect and chain reaction of reform increasingly. In terms of industry transformation, a new round of energy and digital revolution go hand in hand, which jointly drive the transformation and upgrading of the power grid to a smarter and more efficient energy Internet[2]. In terms of customer service, with the transformation and upgrading of energy consumption concepts and patterns, diversified, personalized and interactive demands are put forward for power services. In terms of international business, events, such as China-U's trade frictions and the COVID-19 epidemic, have stirred up changes in the global situation, which result in uncertainties affecting international business increasing significantly. In general, these complex and profound changes in the external environment continue to refresh the external environmental situation of large power grid enterprises. Only by keenly perceiving the complex and profound changes in the external environment and dynamically optimizing and improving the strategic closed-loop management system, power grid enterprises can make correct strategic choices, avoid strategic risks and master the initiative of development. This requires the use of big data and quantitative analysis technology to improve the scientific and intelligent level of strategic situation research and judgment, which promote the transformation and upgrading of strategic management from relying on experience to data.

From the international experience, world-class enterprises generally attach importance to strategic environment perception and intelligence analysis. They establish their own unique analysis tools, such as BP's enterprise brain, SAP and IBM's business intelligence[3]. However, most of these tools are core business secrets, which can’t be obtained. Meanwhile it is difficult to adapt to China's large power grid enterprises. Therefore, by means of independent innovation, it is of great theoretical and practical significance to develop a set of strategic closed-loop management mechanism, which can fully perceive the dynamic changes of environment, fit its own reality and operate efficiently.
2 Demand analysis for optimization of strategic closed-loop management mechanism of large power grid enterprises

Strategic management is a series of dynamic management activities for enterprises to control the whole process of strategy around the realization of strategic objectives, which generally covers strategic analysis, strategic revision, strategic decomposition, strategy implementation, strategy evaluation, etc. It is a closed-loop work\[^{[9]}\]. In recent years, a new round of industrial technological revolution has deepened, and the internal and external situation of large power grid enterprises has undergone profound changes. They encountered multiple challenges such as overlapping difficulties, concentrated contradictions, and arduous tasks, which result in many major issues that need to be continuously studied, and new requirements for accelerating the innovation strategy closed-loop management mechanism.

Firstly, it is required to strengthen strategic propaganda and change the thinking philosophy. For enterprises, the first of digital transformation is a revolution in thinking, which requires continuous expansion of ideas and horizons, a deep understanding of Internet concepts such as big data, platform and ecological. Then they need to integrated new thinking philosophy in-deathly with business philosophy, business operation, innovation process, and business model. By emphasizing process innovation, rapid iteration, and "agile response", strategic management needs quickly adjust and respond to environmental changes and situation requirements.

Secondly, it is required to strengthen strategic training and improve team capacity. To promote implementation of the power grid’s digital transformation strategy under new situation, it is necessary to continuously strengthen strategic management and research work, improve business capabilities, strengthen style construction, and strengthen self-restraint. Through strengthening internal training and work exchanges, the whole team of strategic management and research should be promoted to exchange learning and workout boost.

Thirdly, it is required to be customer-focus and highlight grassroots innovation. Under the new situation, power grid enterprises need to pay more attention to customer demand and market changes in business development. And then need to give full play to the role of grassroots in strategic management. By building a platform for communication and unified interaction between the upper and lower levels, the penetration of strategic management need to be enhanced. And the grassroots is promoted to strengthen tracking research and feed-backs on the strategic environment.

Fourthly, it requires integrate internal and external resources and greater open sharing. Under the new situation, the development concept of power grid enterprises emphasizes openness, innovation, symbiosis and win-win. By enhancing the openness and inclusiveness of strategic management, integrating and utilizing internal and external expert resources of power grid enterprises, deepening the research on strategic issues, it is required to accelerate the formation of a professional think tank system with efficient coordination and internal and external collaboration, which provide support for the innovation of strategic management mechanism and serving the strategic decision-making of enterprises.

3 Research on optimization framework of strategic closed-loop management mechanism of large power grid enterprises

In general, the promotion of strategic management mechanism innovation of large-scale power grid enterprises under the background of digital transformation mainly focuses on the four elements which are "enterprise mission, industry trend, external environment and internal capability". On the one hand, around the overall goal of promoting the implementation of the power grid enterprise strategy, power grid enterprises should fulfill the development mission of building energy Internet, ensuring national energy security, and serving the people's better life. And power grid enterprises should conform to the industry trend of the integrated development of energy revolution and digital revolution. On the other hand, power grid enterprises should adapt to the rapidly complex changing external environment, enhance the ability to perceive the external environment, scientifically judge the company's strategic situation, and provide strong support for corporate strategic decision-making. Meanwhile, it is necessary to make great efforts to improve the quality of the strategic management team, use new management theories, methods and tools, and continuously improve the strategic management and analysis capabilities. The "four elements" constitute the boundary of the enterprises’ strategic management work, and are also the starting point and foothold that strategic management must adhere to for a long time. On this basis, combined with the closed-loop management of the whole process of strategy, power grid enterprises explore to promote the innovation of strategic management mechanism based on digital transformation.

3.1 Strategic advocacy training mechanism

The new generation of information and communication technology provides new technical means for large-scale power grid enterprises to consolidate the strategic publicity and training mechanism, which is conducive to promoting employees to better understand and master the essence of strategy, further condense consensus, and promote the implementation of corporate strategy. Firstly, power grid enterprises need to explore the mechanism for formulating and revising “The Outline of Enterprise Development Strategy”. Facing the implementation of digital strategy, enterprises formulate the text of the enterprise development strategy and revise it on a rolling basis every year, interpret the development strategy system such as the mission purpose, strategic objectives, strategic positioning, strategic path, and corporate culture
in detail. Then enterprises distribute it to front-line employees, and continue to further promote the interpretation and publicity of the strategic concept and connotation. Secondly, enterprises should form a normalized strategic publicity mechanism. Through new media and online platforms, they innovate to organize news and publicity topics, and publicize the strategy rely on various training courses such as "cloud classroom".

3.2. Strategic collaborative research mechanism

Under the background of digital transformation, large power grid enterprises face a higher degree of complexity, ambiguity and uncertainty in the external environment. It is necessary to strengthen the working mechanism of strategic collaborative research, organize and coordinate relevant core business departments, second-level units and relevant think tank institutions, and continue to deepen collaborative research on strategic issues. The power grid enterprises need to innovate a rapid response mechanism to major issues. They should carry out major strategic research in a forward-looking manner, pay attention to the refinement of research results, and provide strong support for corporate strategic decision-making. For example, focusing on hot issues such as enterprise digital transformation, customer privacy data protection, and network infrastructure utilization, then can sort out key influencing factors, put forward solutions and suggestions, and provide support for promoting the implementation of the strategy.

3.3. Strategic implementation promotion mechanism

To adapt to the trend of digital transformation, large power grid enterprises need to actively solidify the mechanism of strategic deployment implementation, use quantitative tools to improve the closed-loop management of corporate strategic goals, promote the implementation of strategic goals, and evaluate the implementation. (1) Mechanism for indexing strategic objectives. Through the analysis and connotation of the connotation of the strategic goals of large-scale power grid enterprises, advanced strategic management tools are used to form a complete set of index systems to characterize the strategic objectives of enterprises. (2) Stage goal clarity mechanism. Near-medium-term goals (annual, three-year, and five-year goals) are made as clear and explicit as possible, and are further linked with annual target indicators such as peer benchmarking, performance evaluation, and comprehensive planning.

3.4. Strategic management communication mechanism

Under the background of digital transformation, the development concept of power grid enterprises emphasizes openness and sharing, and the business sinks further to the grassroots level, which requires higher openness, inclusiveness and adaptability of enterprise strategic management. To ensure the high-quality implementation of the strategy, it is necessary to coordinate and link up the whole enterprise, and promote the innovation of strategic management communication mechanism at various levels. (1) Internal strategic implementation issue exchange mechanism. Under the new situation, the role of grassroots in the strategic management of large-scale power grid enterprises is more prominent. It is necessary to build a strategic research, management and discussion mechanism that runs through "group headquarters - provincial companies - city and county level companies". And focusing on the problems existing in the process of strategy implementation, headquarters "decentralization, management and service", and the development of supervision business and non-supervision business classification, etc., it is necessary to invite enterprise managers and professional and technical personnel at all levels to deeply exchange the implementation of strategy and related business development, analyze the external environment, find out the existing problems and causes, and discuss coping ideas and measures. (2) External expert strategic situation discussion Mechanism. Adhering to the concept of opening the door to construction and innovation, enterprises fully absorb the views and suggestions of external industry experts and research institutions, organize seminar on the strategic situation with inviting a number of academicians, experts and senior scholars. In the seminar, enterprises discuss with experts on major issues such as how to promote China's energy transformation, accelerate the construction of the energy Internet, and discuss construction ideas and prospects. At the same time, enterprises establish a tracking mechanism for important views of external experts, and timely track the analysis comments of external experts, research institutions, news media on the development strategies of large power grid enterprises.

3.5. Strategic environment awareness mechanism

Under the background of digital transformation, the external environment of large-scale power grid enterprises is becoming increasingly complex, and the source of influence and causal chain are becoming more and more ambiguous, which requires accurate analysis and comprehensive research and judgment. At the same time, as a regulated natural monopoly industry and public utility enterprise, the power grid has high social attention. Meanwhile, the power grid enterprises engaged in the power grid, finance, industry, international, and strategic emerging businesses, result in facing different industry policies, upstream and downstream of the industrial chain, market competition. Based on the above factors, the power grid enterprises urgently need to innovate the strategic environment perception mechanism, classify and deal with the impact of various environments, and give differentiated and precise countermeasures. (1) Strategic environment dynamic monitoring and analysis network and monthly strategic environment dynamic reporting mechanism. The power grid is the central link connecting energy production and consumption, with wide coverage,
complex organizational system, and many branches, and the grassroots units of various regions and business sectors provide the most direct observation channels for identifying environmental changes. In order to further strengthen the comprehensive analysis of the strategic environment and timely grasp the important situations and dynamics such as the macro situation, policy trends, and market changes in various regions (industries), it is necessary to explore the construction a mechanism that relies on second-level units to submit strategic environmental information on a monthly basis to enhance the ability to respond to environmental changes. The specific content should include major policy adjustments, reform progress, market competition situation, major technological breakthroughs, emergencies in the region and industry.

(2) Strategic environmental analysis evaluation model innovation. Based on the latest theories and practical cases of strategic environment analysis, new technologies and new tools are used to construct an external environment analysis framework from both macro and industry environment[8]. The macro environment is based on the PEST environmental analysis framework and combined with the characteristics of power grid enterprises, which mainly refers to the external overall environment faced by the enterprises, including policy environment, economic environment, social environment, scientific and technological environment, international environment and other dimensions. The industry environment is expanded based on Porter's five forces model, covering energy situation, industrial chain situation, market competition and other dimensions. On this basis, the secondary dimension, tertiary index and specific subdivision index are further subdivided and clarified around each dimension, and a key indicator system of the strategic environment of large-scale power grid enterprises is formed, which provides support for enhancing the ability of enterprises to perceive the external environment and judge the strategic situation.

(3) Innovation of strategic environment analysis mechanism based on big data. At present, more and more innovative enterprises have begun to cultivate big data genes, which are applied to all aspects of production and operation such as production, operation management and scientific research, so as to tap the potential value of data and promote the application of big data in enterprises. The strategic environment of enterprises implies external environmental factors that may have a significant impact on the survival and development of the enterprise. And the strategic environment plays a vital role in the key resources and competitiveness of the enterprise. Traditional strategic environment analysis is difficult to fully grasp enterprise strategic intelligence in the new situation of rapid increase in data volume, large volume, multiple types, and high real-time in today's era. Relying solely on human judgment often loses valuable sources of information and increases corporate strategic risks. Under the background of digital transformation, the power grid enterprises need to be guided by strategic environment analysis and strategic research needs, analyze the application scenarios of big data technology in strategic management. Meanwhile, the enterprises need to explore and develop strategic management methods and tools based on big data technology. And they should combine big data search and mining tools such as web crawlers, to realize the "online capture" and "intelligent analysis" functions of dynamic information of the external strategic environment. Finally, they need to form output display materials such as fluctuations of key environmental indicators, hot information word clouds, and visual data charts. Which are used to identify important developments that require attention.

4 Conclusions

This paper analyzes the new situation faced by the strategic management of large power grid enterprises under the background of the integrated development of digital revolution and energy revolution. Then we analyze the needs of strategic management mechanism optimization of power grid enterprises from four aspects, which are strengthening strategic publicity, improving research capabilities, highlighting grassroots innovation, and emphasizing openness and sharing. Then we put forward the overall framework for optimizing the strategic closed-loop management mechanism around four elements of "enterprise mission, industry trend, external environment, internal capability". This paper also propose that the core contents of the innovation of strategic closed-loop management mechanism for large-scale power grid enterprises under the background of digital transformation, which include strategic publicity and training mechanism, strategic collaborative research mechanism, strategy implementation promotion mechanism, strategic management communication mechanism and strategic environment perception mechanism. Optimizing relevant mechanisms can help ensure the forward-looking and advanced strategy formulation of power grid enterprises under the background of digital transformation, and promote accurate identification, scientific response and effective prevention of strategic risks.

References