Evaluation Research on Burden Reduction for Digitization-enabled Grassroots from Power Grid Enterprises

Yongping Meng [1], Peng Tian [1], Xiaohong Lv [1], Wei Liu [1],

Zeping Li [1], Keheng Liu [1], Linyuan Lv [1], Shihan Feng [2, *]

[1] State Grid Chongqing Electric Power Company, Chongqing, 400010, China;

[2] School of International Finance and Trade, Sichuan International Studies University, Chongqing, 400031, China.

[*] 1171809591@qq.com

Abstract. The evaluation of digitally empowered grassroots level to reduce burden and increase efficiency is an important theoretical and practical issue to promote the digital transformation of enterprises. Due to the differences in assessment and evaluation subjects and the tendency of evaluation selection indexes, the evaluation indexes with their respective geographical attributes are adopted, and the digitally empowered grassroots are divided into three levels through the corresponding "digital empowerment grassroots triangular model", based on the concepts of "implementation empowerment, decision-making empowerment, thinking empowerment" and "digital empowerment". Based on the concept of "implementation empowerment, decision-making empowerment, thinking empowerment", the "three-dimensional burden reduction digital empowerment grassroots burden reduction and efficiency evaluation system" has been constructed to cover three secondary indicators, six tertiary indicators and 16 quaternary indicators, including ideological transformation to reduce the burden and increase efficiency, decision-making optimization to reduce the burden and increase efficiency, as well as the implementation of convenient and easy to reduce the burden and increase efficiency. Explore the construction of grid enterprise digital empowerment grassroots load reduction and efficiency evaluation index system, for enterprises to carry out further good digital empowerment grassroots load reduction and efficiency work to provide orientation guide.

Keywords: power grid enterprises; evaluation index system; digital empowerment; grassroots; burden reduction and efficiency increase.

1. Background

On March 11, 2019, the General Office of the Central Committee of the Communist Party of China (CPC) issued the Circular on Solving Outstanding Problems of Formalism and Reducing Burdens for the Grassroots. The Circular focuses on reducing the burden for the grassroots, focuses on the "four efforts", and puts forward pragmatic and practical initiatives. At present, with the rapid progress of digital technology, the grassroots burden reduction and efficiency ushered in a new opportunity. Digital transformation aims to realize the deep integration of digital technology and traditional manufacturing through the application of a new generation of information technology, such as cloud computing, big data, the Internet of Things, emerging software and intelligent hardware. The successful realization of the digital transformation of enterprises will inevitably create a good technical environment for the grassroots burden reduction and efficiency. The grassroots is the "last kilometer" of enterprise digital transformation, is the "nerve endings" of enterprise operation. Whether grassroots personnel through digital transformation to achieve "burden reduction and efficiency" is a measure of the success of enterprise digital transformation standards.In this context, based on the background of power grid, the author conducts research on the construction of evaluation index system of burden reduction and efficiency improvement at the base of digital empowerment, which has significant theoretical value and practical significance.

2. Concepts

2.1 Digital empowerment

At present, the general concept of academic circles at home and abroad believes that digital empowerment is not a simple construction from the technical level, but a comprehensive optimization and fundamental improvement of enterprise business processes, decision-making methods, and personnel rassthinking through the use of advanced digital technology management means and system thinking.Therefore, digital empowerment includes not only the empowerment of material and technical level, but also the empowerment of mindset level.

2.2 Hierarchy of grassroots digital empowerment level

Based on the theory of process reengineering and technological innovation, and referring to the digital pyramid model and the digital iron triangle model, the group builds the corresponding "Grassroots Digital Empowerment Triangle Model" ,which based on the depth and breadth of empowerment.The digital empowerment base is successively divided into three levels, as shown in Figure 1.
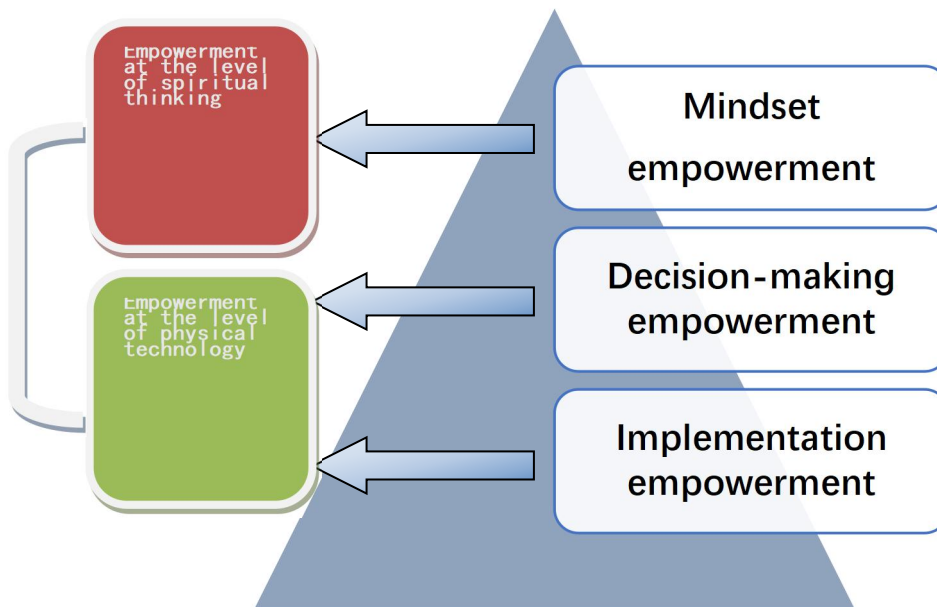

Figure. 1 Grassroots Digital Empowerment Triangle Model

As can be seen from the Figure 1, the digital empowerment grassroots triangular model consists of the following from bottom to top: the implementation empowerment level, the decision-making empowerment level, and the mindset empowerment level, with the first two belonging to the empowerment of the material and technical level, and the latter belonging to the empowerment of the spiritual thinking level. The above three structures are progressive and in-depth, adhering to the concept of "the material foundation supports the spiritual architecture of the upper floors", which promotes the company to realize the comprehensive digital empowerment of the grassroots from the material and technical level and the spiritual thinking level in a step-by-step manner.

The first empowerment level is implementation empowerment, which is the basic link of digital empowerment at the grassroots level and the bottom line of the entire digital empowerment at the grassroots level. That is, the company through the introduction of mature, effective digital systems and personnel support to improve, optimize, and even reshape the current grassroots repetitive, heavy, monotonous traditional business work, to achieve the digital empowerment of the implementation of the link.

The second empowerment level is decision-making empowerment, and this level is the advanced part of digital empowerment for the grassroots. On the basis of the company's better completion of

execution empowerment, data and information will be realized through the whole platform, and grassroots personnel will use the mature digital system to comprehensively obtain information and improve the level of personal information judgment through the results of intelligent and accurate data analysis, thus obtaining excellent work decision-making ability.

The third empowerment level is mindset empowerment, which is the third link of digital empowerment at the grassroots level. That is, when grassroots employees use digital tools to replace the original manual work, the company should pay more attention to the cultivation and exercise of grassroots employees' diversified and digital thinking, guide grassroots employees to adopt diversified and digital methods and strategies in the process of solving actual business problems, and promote the overall improvement of grassroots employees' qualities and healthy development of their spiritual thinking, and ultimately allow grassroots workers to readily accept the use of digital tools, and to use digital tools actively to realize the empowerment of their thinking. tools and realize the empowerment of mindset.

2.3 The connotation of digitization of power grid enterprises to empower the grassroots to reduce burden and increase efficiency

As power grid enterprises comprehensively promote the digital grassroots empowerment, the advantages of the integration of digital technology and grassroots operations will gradually play out, and some grassroots employees will be liberated from repetitive and monotonous work. Due to the influence of the special attributes of power grid central enterprises, the number of grassroots workers will not change significantly, while their original work burden is reduced, Naturally, it will release its potential labor force in other aspects (for example, the manual reading of electricity meters was previously required, and now all are digitized, and the original staff will be released to carry out other related work), which will significantly improve the grassroots work efficiency, increase the efficiency of the enterprise, and help the high-quality development of the enterprise. Therefore, for state-owned enterprises with similar attributes such as power grids, "reducing the burden" is essentially equivalent to "increasing efficiency".

3. Construction of the model and index system for reducing the burden and increasing the efficiency of the grassroots of digital empowerment

3.1 Expansion of the base model

Thus, with the goal of digitally empowering grassroots front-line power grid enterprises to reduce burdens and increase efficiency, and based on the concept of "digitally empowering grassroots triangular model", the research group further refined the "key points of digitally empowering grassroots front-line power grid enterprises to reduce burdens and increase efficiency" (shown in Figure 2). Specifically:

3.1.1   Perspectives of executive empowerment

System support is the system foundation support required for digital empowerment,which includes not only the "hardware" infrastructure support of various hardware, software and network equipment, but also the "software" infrastructure support of professional digital technicians and service personnel. Perfect system infrastructure support can meet the realistic needs of the grassroots of digital empowerment, and improve the productivity and efficiency of enterprises while reducing the cost of grassroots employees.
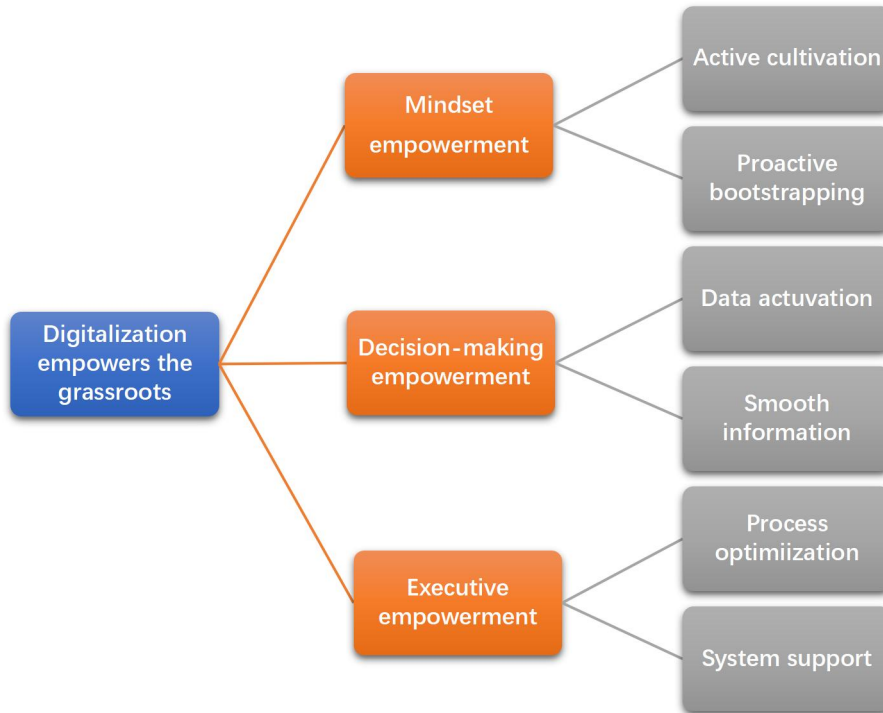
Figure. 2 The key to digitally empowering the grassroots frontline to reduce burden and increase efficiency

Process optimization is to do a good job in digital business process reengineering with the experience of grassroots employees as the core, optimize the user's experience of digital tools and technologies, and apply digitalization to all aspects of the process in order to improve the efficiency and user experience oriented to the user's needs, and reduce the original cumbersome and monotonous operation process, strengthen the awareness of the grassroots employees to actively participate in the process, increase the frequency of use of digital tools, and realize the efficiency of the work. efficiency of execution.

3.1.2 Perspectives of decision-making empowerment

Smooth information means that in the process of digital empowerment at the grassroots level, data information is integrated among platforms and channels through digital products, and horizontal collaboration and vertical linkage between various digital products are strengthened. While reducing the original information acquisition cost, grassroots staff's ability to obtain decision-making information in an all-round way is improved.Data activation refers to the various types of cutting-edge data collected in the process of digital empowerment at the grassroots level, including internal data, external data and third-party data, so as to realize data processing, system analysis, precipitation and utilization, play the potential value of the data, and improve the scientific and accuracy of decision-making at the grassroots level through artificial intelligence assistance.

3.1.3 Perspectives of mindset empowerment

Active guidance refers to improving the dialectical thinking ability of employees, and actively guiding employees to objectively and dialectically realize that the high-intensity mental pressure brought by the original repetitive and mechanized work has been significantly alleviated after the introduction of digital empowerment, so that grassroots employees can experience the fun and relaxation brought by digital empowerment.Active training refers to actively training the innovative thinking ability of grassroots employees, improving their ability to actively combine digital technology with business, promoting the overall improvement of their quality and healthy development of their spiritual thoughts, and finally making grassroots workers willing to accept and

actively use digital tools, so as to enhance employees' support and recognition for the work of digitization empowering grassroots to reduce burden and increase efficiency.Through two aspects of work, to guide the grassroots staff cognitive thinking change, so that employees can take the initiative to realize and discover the superiority of the use of digital tools, to achieve thinking empowerment.

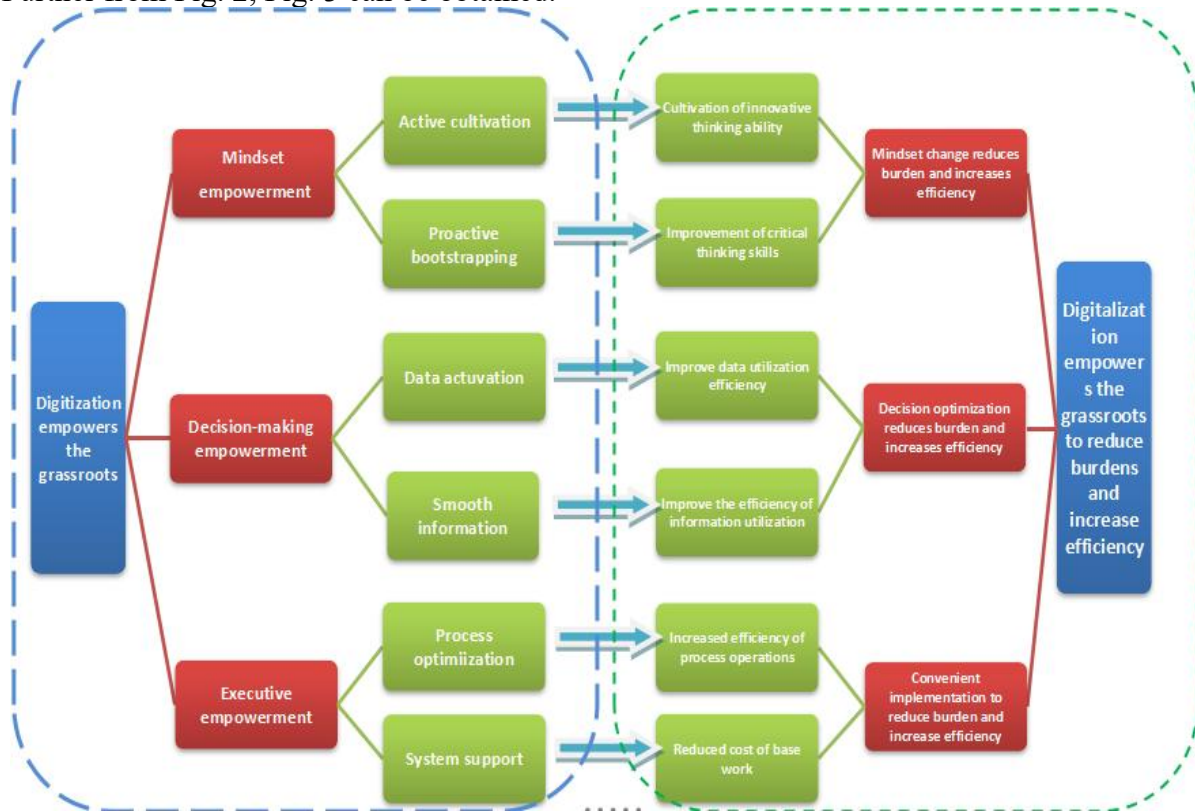Further from Fig. 2, Fig. 3 can be obtained.

Figure. 3 Logical correspondence diagram of digital empowerment of grassroots frontline to reduce burden and increase efficiency

As can be seen in Figure3,first of all,only by meeting the system foundation support of the grassroots level of enterprise digital empowerment can the digital optimization of business processes be achieved with the participation of software, hardware and other basic elements, so as to realize the burden reduction and efficiency of the execution link; second, when the execution link meets the demand of the staff for burden reduction, the departmental information will be more likely to realize the digital interoperability, and the data resources will be further excavated and deeply utilized, so that the burden reduction and efficiency of the decision-making link will be gradually achieved; finally, with the comprehensive improvement of the dialectical thinking ability and innovative thinking ability of the grassroots staff, they will clearly understand the convenience and efficiency brought by digital empowerment to the grassroots work. Finally, with the comprehensive enhancement of the dialectical thinking ability and innovative thinking ability of grassroots employees, the grassroots employees will clearly recognize the convenience and efficiency brought by digital empowerment to grassroots work, and their own comprehensive digital quality will be comprehensively improved, so that the employees fully appreciate the fun and relaxation brought by digital empowerment to grassroots work, and the mindset change-led The burden reduction and efficiency gains have been successfully completed.

3.2 Construction of the indicator system

In summary, based on the analysis of digital empowerment grassroots theory, while considering the specificity of state-owned enterprises, and referring to the concept of trade facilitation index construction. The author tries to construct a "three-dimensional burden reduction" digital

empowerment grassroots burden reduction and efficiency evaluation index system (shown in Figure 4) to quantitatively assess the level of the company's digital empowerment grassroots burden reduction and efficiency, which is constructed along the following lines:
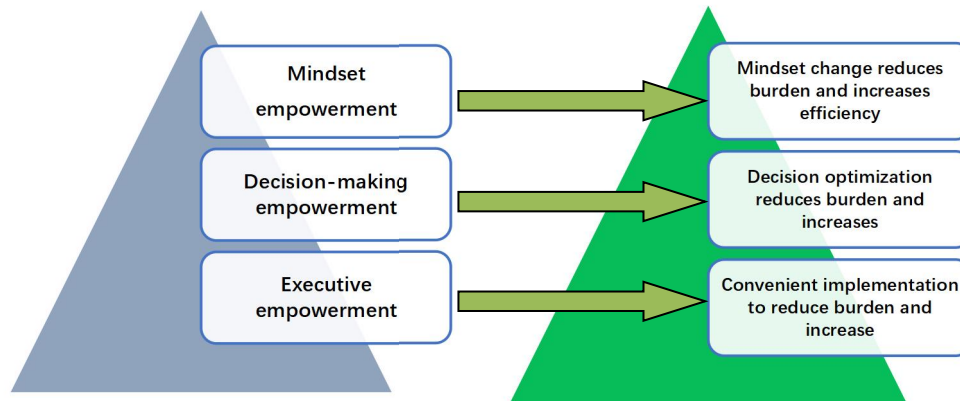

Figure. 4 "Three-dimensional burden reduction" digitally empowered grassroots burden reduction and efficiency enhancement evaluation idea map

As shown in Figure 4, based on the digital empowerment grassroots load reduction and efficiency promotion concept of "implementation empowerment, decision-making empowerment, and mindset empowerment to gradually realize convenient implementation, decision-making optimization, load reduction and efficiency, and thinking transformation, load reduction and efficiency", the group has constructed the "three-dimensional load reduction" evaluation system, whose specific dimensions are shown in the table below. The group has constructed a "three-dimensional burden reduction" evaluation system for digitally empowered grassroots to reduce burden and increase efficiency, and its specific subdimensions are shown in the table below:

Table. 1 Evaluation index system of burden reduction and efficiency improvement at the base level of digital empowerment

Level 1 indicators	Secondary indicators	Tertiary indicators	Quadruple Indicators
Digitalization empowers grassroots level to reduce burden and increase efficiency	shift in mindset alleviate a burden on sb and increase efficiency (Weight: 30%)	Creative Thinking Skills Development	Reasonable instructions for use
			Effective operational training
		Dialectical Thinking Skills Enhancement	Effective Recognition of Mental Fatigue Reduction
			Effective recognition of karma integration enhancement
			Effective Recognition of Interpersonal Stress Relief
	Decision Optimization alleviate a burden on sb and increase efficiency (Weight: 10%)	Increased efficiency in data utilization	Improve the efficiency of key data retrieval
			Improve the efficiency of data analysis and processing
		Improved efficiency of information access	Broadening of information collection channels
			Reduce information collection time
	Ease of implementation alleviate a burden on sb and increase	Increased efficiency of process operations	Easy operation of business processes
			Well-designed business processes

	efficiency (Weight: 60%)		Clear business process logic
		Lower cost of groundwork	Comprehensive system coverage
			Stable system functions
			Hardware Support
			Timely technical feedback

3.2.1 Mindset transformation of the burden reduction and efficiency system.

Mindset transformation is the grassroots staff in the ideological full realization of the digital empowerment will bring convenience to the grassroots work, the state of mind to a large extent determines the work attitude of grassroots employees. The cultivation of innovative thinking ability and the improvement of dialectical thinking ability are two tertiary indicators of mindset transformation to reduce burden and increase efficiency. Among them, the cultivation of innovative thinking ability relates to the ability of grassroots staff to be innovative in their thinking during the process of digital empowerment, the ability to actively integrate digital technology with business, and the willingness of grassroots staff to accept and actively use digital tools. Dialectical thinking ability enhancement relates to whether grassroots personnel can have improved dialectical thinking ability in the process of digital empowerment, and whether they can objectively and dialectically recognize the fun and relaxation that digital empowerment brings to grassroots work after the introduction of digital empowerment. According to the content of the three-level indicators, the four-level indicators for the cultivation of innovative thinking ability are refined as, firstly, reasonable instructions for use, whether there are reasonable instructions for use in the process of using digital products, and secondly, effective business training, whether there is effective business training before the use of digital products. The four-level indicators for the improvement of dialectical thinking ability are broken down as: first, effective awareness of mental fatigue reduction, whether grassroots personnel effectively recognize that digital empowerment can bring about mental fatigue reduction, second, effective awareness of industry-digital integration enhancement, whether grassroots personnel take the initiative to integrate their business work with digital products, and third, effective awareness of interpersonal pressure relief, whether grassroots personnel effectively recognize that digital empowerment can bring about interpersonal pressure relief. The third is the effective recognition of interpersonal stress relief.

3.2.2 Decision-making to optimize the burden reduction and efficiency system.

Decision-making optimization is the use of digital products by grassroots personnel in business work, the ability to skillfully access information in personal information judgment, and the results of intelligent and accurate data analysis, which in turn leads to the long-term formation of work decision-making capabilities. Data utilization efficiency improvement and information access efficiency improvement are two tertiary indicators of decision optimization. Among them, the improvement of data utilization efficiency relates to whether grassroots personnel can collect various types of data and analyze them through digital products in the process of digital empowerment, precipitating the use of their potential value, so as to improve the scientific and accurate decision-making of grassroots personnel.Reduce the cost of acquiring original information and improve the ability to acquire decision-making information. The improvement of information access efficiency relates to whether grassroots personnel can effectively integrate digital products in the process of digital empowerment, reduce the original information access costs and improve the ability to access decision-making information. According to the content of the three-level indicators, the four-level indicators of data utilization efficiency enhancement are refined as, firstly, the enhancement of key data retrieval efficiency, whether grassroots personnel have improved data retrieval efficiency in their business work, and secondly, the enhancement of data analysis and

processing efficiency, whether grassroots personnel have improved data processing and analysis efficiency in their business work. The four-level indicators for the improvement of dialectical thinking ability is broken down into: firstly, the broadening of information collection channels, whether the information collection channels of grassroots personnel have been broadened, and secondly, the reduction of information collection time, whether the information collection time of grassroots personnel has been reduced after the use of digital tools.

3.2.3　Implement convenient burden reduction and efficiency system.

Convenience of execution is the central focus of the entire digital empowerment of the grassroots, with the ultimate goal of introducing effective digital products to improve, optimize, and even reshape the repetitive, arduous, and monotonous traditional business work of the grassroots, thereby reducing the burden on grassroots personnel and enhancing work efficiency.Improvement of process operation efficiency and reduction of basic work cost are the two tertiary indicators of convenient execution. Improving process operation efficiency relates to whether the digital process can be effectively optimized in the process of digital empowerment, and whether it can enhance the experience and efficiency of the grassroots for digital products, thus strengthening the grassroots' awareness of active use. Reduction of basic work costs relates to whether the grassroots staff in the process of digital empowerment can have a perfect system infrastructure support to meet the real needs of the grassroots digital empowerment, while reducing the cost of grassroots employees, thereby improving the productivity and efficiency of the enterprise. According to the content of the three-level indicator, the four-level indicator of process operation efficiency improvement is refined as follows: first, the business process operation is convenient, whether the business process operation is optimized and more convenient after quoting the digital product; second, the business process design is reasonable, whether the business process design of the digital tool is reasonable; third, the business process logic is clear, whether the business process of the digital product is clear. The four-level indicators for the reduction of basic work costs are as follows: first, comprehensive system coverage, whether the system in the grassroots business work is comprehensively covered; second, stable system functions, whether the system functions in the grassroots business work are stable; third, hardware and equipment support, whether the hardware and equipment facilities in the grassroots business work are perfect and able to support the needs of the business work; and fourth, timely technical feedback, whether the feedback on the technical problems encountered in the grassroots business work is timely and effective. Fourth, timely technical feedback, whether the feedback on technical problems encountered in grassroots operations is timely and effective.

In particular, in order to better facilitate the application of the indicator system, as far as power grids and other state-owned enterprises are concerned, the author suggests that the weights of the dimensions of "change in thinking to reduce the burden and increase efficiency", "optimization of decision-making to reduce the burden and increase efficiency", and "ease of implementation to reduce the burden and increase efficiency" should be set at 30%, 10% and 60%, respectively. "The weights of these dimensions should be 30%, 10% and 60% respectively.

4.　Conclusions and recommendations

In order to promote power grid enterprises to further implement the main responsibility of digital empowerment grassroots, strengthen their own construction, and promote the deepening of the comprehensive digital empowerment grassroots, this paper first analyzes the relevant literature and domestic local practice experience, based on the depth and breadth of the empowerment of power grid enterprises to build the corresponding "digital empowerment grassroots triangle model", dividing the digital empowerment grassroots into three levels: ideological empowerment, decision-making empowerment, and implementation empowerment. "This paper firstly analyzes the relevant literature and domestic local practical experience, and based on the depth and breadth of empowerment of grid enterprises, constructs the corresponding "digital empowerment grassroots

triangle model", which divides the digital empowerment grassroots into three levels: ideological empowerment, decision-making empowerment and implementation empowerment. The "three-dimensional burden reduction digital empowerment grassroots burden reduction and efficiency increase evaluation system" covers 3 second-level indicators, 6 third-level indicators and 16 fourth-level indicators of "ideological change to reduce burden and increase efficiency, decision-making optimization to reduce burden and increase efficiency, and convenient implementation to reduce burden and increase efficiency".

The indicator system evaluates the results of digitally empowering the grassroots to reduce burdens and increase efficiency in three dimensions: change in thinking, optimization of decision-making and ease of implementation. From the perspective of the grassroots, the indicator system can guide and promote the improvement of grassroots work. By evaluating the effectiveness of digitally empowered grassroots in reducing burdens and increasing efficiency, the system can identify existing problems and deficiencies and formulate corresponding improvement measures accordingly to improve grassroots work efficiency and reduce grassroots personnel's pressure. For enterprises, by observing and measuring the indicators in various dimensions, they can understand the actual effects of digitally empowered grassroots work and provide reference for corporate decision-making. From the perspective of society, the indicator system can promote exchanges and cooperation among digitally empowered grassroots, and through exchanges and cooperation with other enterprises or organizations in digitally empowering the grassroots to reduce burdens and increase efficiency, share experiences and resources, and jointly promote the development of digitally empowered grassroots.

In order to better promote the digital empowerment grassroots, the government should formulate relevant policies, guide and promote enterprises to establish a scientific indicator system, actively promote the construction of the indicator system for the evaluation of the digital empowerment grassroots and the evaluation work, continuously improve the evaluation mechanism, establish the standards and norms for the digital empowerment grassroots and guide enterprises to follow the corresponding standards and norms, so as to promote the standardized development of the digital empowerment grassroots. At the same time, the government should promote exchanges and cooperation on the indicator system among enterprises to realize the sharing of resources and complementary advantages of the indicator system, so as to better promote the construction of digital empowerment grassroots evaluation.

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