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Strategic Evaluation of Digital Transformation of Operators in the Era of Digital Economy

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Abstract The development of digital economy has greatly changed the competitive environment of operators, and has a significant impact on business strategy and operation. Operators seize the strategic opportunity of digital transformation, and face the supply-side structural reform, so as to face enterprises and pay attention to industry hotspots. The most important traditional communication activities and new business processes on the Internet should be paid attention to, and digital development should be improved. Frontier market opportunities should be expanded, and the deep integration of the digital economy and the real economy should be promoted. The process of digitalization, networking and intelligent transformation of state-owned enterprises should be accelerated. However, the current operators still have many defects in the digital transformation, which has seriously affected the transformation progress of operators. It is mainly due to the lack of R&D capacity, top-level design and talent. Therefore, this paper conducted SWOT (strengths, weaknesses, opportunities, and threats) analysis on the digital transformation of operators to study the factors affecting the transformation of operators and the defects in the transformation. Finally, based on the SWOT analysis results and defects, the corresponding digital transformation strategy was proposed to promote the digital transformation progress of operators. Through comparison, it could be seen that the independent Research and Development (R&D) capability of operators after the digital transformation was 12.4% higher than that before the digital transformation, and the rationality of the organizational structure of operators after the digital transformation was 11.7% higher than that before the digital transformation. In short, the digital transformation of operators had important practical significance for technology and social development.

Index Terms Digital Transformation of Operators, Digital Economy, Transformation Strategy Analysis, SWOT Analysis

I. Introduction

Against the background of slow global economic recovery and slow global service liquidity, the growth of the digital economy is seen as a new lever to stimulate the global economy. The acceleration of digital transformation is an important part of the economic development of all countries, because digital transformation can promote economic development and social progress. As an important provider of communication technology and services, operators have provided huge advantages in network resources, storage databases and user channels. To this end, operators can effectively promote the development of economy and social technology by optimizing their digital transformation strategies.

Digital transformation has a positive impact on enterprises. Elsafty Ashraf combined the automatic model and applied it to mobile operators in Egypt to determine the impact of automation and artificial intelligence on employment [1]. Due to the gap between strategy formulation and strategy implementation, enterprises might not be able to extract value from digital transformation. This was because the organizational structure between enterprises was different, and the strategy could not adapt to all enterprises. Correani Alessia proposed a framework that could help enterprises implement digital transformation strategies and thus innovate business models [2]. Chen Hong discussed the factors that affected the sustainable growth of enterprises, and used the vertical time series panel data of major telecom operators to empirically test the hypothesis. It provided useful insights for practitioners to maintain sustainable growth [3]. Kaidalova Julia studied the integration of products and enterprise architecture management based on the industry case of a power park product manufacturer exploring potential and facing challenges in digital transformation [4]. Schiuma Giovanni introduced the leader of digital transformation. He was the key figure of enterprises that competed in the digital era to cultivate the entrepreneurial spirit of digital transformation, which helped to understand the factors that affected the organizational culture and

behavior that promoted digital transformation [5]. Peter Marc K aimed to capture the collective understanding of Swiss enterprises on digital transformation and established a reference framework based on the theory of strategic action areas [6]. Rasool M Roshan discussed how small and medium-sized enterprises could benefit from the strategic launch of digital transformation, and also discussed challenges and cases [7]. The above studies described the impact of digital transformation on enterprises, but there were still many deficiencies in digital transformation strategies.

Many scholars have analyzed and studied the digital transformation strategy. Gomez-Trujillo Ana Maria summarized previous research results on the relationship between digital transformation and sustainable development at the enterprise level. The purpose was to understand the impact of digital transformation on the sustainable development of enterprises and society [8]. Hadia Anmar Muzaffar analyzed the relationship between digital transformation strategy and financial competitiveness of private banks. The results showed that there was a significant correlation between digital transformation strategy and financial competitive advantage [9]. Jin Jun tried to answer this question from the perspective of data ownership and key value proposition. From the perspective of data ownership and key value propositions, a research framework was proposed to guide the analysis of digital transformation strategy. The purpose was to promote the progress and effect of digital transformation of enterprises [10]. Shaughnessy Haydn believed that in order to promote the cultural and technological change that marked the successful digital transformation, some leading enterprises adopted the FLOW-Agile principle, and the FLOW framework formalized the visual representation of the enterprise adaptive value seeking process being implemented by the agile team [11]. The above studies described the role of enterprise digital transformation strategy, but there were still some deficiencies in optimizing innovation.

In order to solve the shortcomings of operators' digital transformation strategy, this paper analyzed the advantages, disadvantages, opportunities and threats of operators' digital transformation through SWOT method, and then analyzed the information gain rate of operators' digital transformation using decision tree algorithm. Through the comparative analysis of experiments, it was found that the digital transformation of operators could effectively improve the rationality of the organizational structure and the ability of independent R&D. Compared with other documents, this paper used SWOT analysis and decision tree algorithm, and compared the data resource integration and network protection level of operators before and after the digital transformation.

II. SWOT Evaluation of Operators' Digital Transformation

II. A.Evaluation of the Uniqueness of Operators' Digital Transformation (Strengths)

The rapid development of digital technology has fundamentally changed the pressure on existing operators to digitize [12]. In the digital economy, the biggest uniqueness of operators lies in the huge and diverse data resources. As a traditional data transmission channel, all Internet connections and individual or enterprise calls would enter the operator's channel. The purpose is to facilitate operators to charge accordingly. Users always use voice and data services. By calculating costs and other various connections, the network infrastructure of operators is the link between the connection and the interaction of customer services. It provides operators with user data and has obvious advantages in depth and breadth. Operators have larger and more comprehensive user data resources than other industries, and some data operators and content providers provide data and content for enterprises. The differences between operators and other Internet services used are shown in two ways, as shown in Figure 1. Network wide: When users use all applications, operators have relevant data, but this is not limited to specific applications of certain Internet content and services. Always online: The user data provided by the operator includes the total user time. The optimized service provider can only monitor the user data when using the service. These two functions provide data continuity and availability for operators. This has significant advantages in terms of data volume and capacity, and also provides them with data resources that other service providers cannot match.

II. B.Weaknesses Evaluation of Operators' Digital Transformation (Weaknesses)

The biggest challenge faced by operators is that it is difficult to adapt to the Internet era. They do not consider the network, and their ideas, decisions and actions are often relatively conservative. In the era of rapid development of the digital economy, users' demand for operators began to shift to various data transmission and mobile internet products. Users' demand for flexible products and service exchange speed has brought pressure on traditional operation modes and operators' interchangeability. In fact, operators have not got rid of traditional operators in terms of product design and service provision. Although the operator has data resources, it may encounter problems in data assets or in integrating data resources, because it is possible to store image data resources in the process of digital transformation. Most operator networks have many business and analysis systems, and data isolation has become the main obstacle to big data analysis. Affected by multi-dimensional transformation such as business process, existing operators' talents cannot meet the requirements of operators' digital transformation. The

specific direction and needs of existing operators' talent transformation are clearly defined, but the rigid organizational structure of operators makes it difficult to quickly and effectively promote and complete relevant tasks.

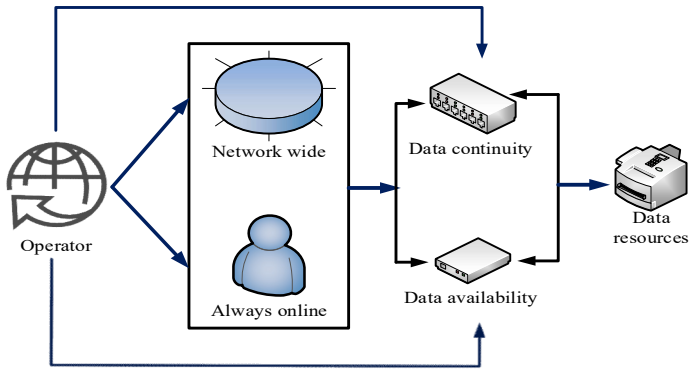


Figure 1: Difference between operator data

II. C. Opportunities Evaluation of Digital Transformation of Operators (Opportunities)

In the past, operators were mainly regarded as reliable broadband infrastructure providers. However, with the advent of the digital economy, they would have the opportunity to become innovative service providers and innovative and flexible enterprises. Operators can provide services in their own network infrastructure, data and language development. In addition to mobile phones, video, virtual reality, retail or marketing services, there are several ways to break through traditional business [13]. With the continuous enhancement of the functions of mobile smart devices, the information about consumers' behaviors, preferences and other data dimensions or characteristics becomes more and more detailed. It can promote operators to collect relevant information about user needs. With the development and popularization of the Internet of Things, the data volume and use prospects would be unprecedented. Blu-ray services that provide consumers with the ultimate video experience would be treated differently by operators. In view of the growing demand of consumers for browsing experience and the solid foundation and capability of broadband, it has become an important means to establish and gain competitive advantage. The digital enterprise market based on the Internet of Things, cloud computing and information security-related services and the enterprise service market based on technology and business consulting, integration and outsourcing would provide unlimited business opportunities and new impetus for the growth and development of operators.

II. D. Threats Evaluation of Digital Transformation of Operators (Threats)

In the competition between operators and Internet technology enterprises, on the one hand, with the improvement of intelligent terminal functions and the popularization of applications, the demand for value-added services of operators in the consumer market has decreased significantly, which has greatly reduced the development of language and data and the demand for operators' daily growth, and led to serious impact on operators' value-added services. On the other hand, Internet technology enterprises with strong business awareness and user knowledge can provide high-quality user experience and quickly respond to products. They can also develop products and replace and update products, so as to compete with operators to create data value. The emergence of cloud computing is the arrival of cloud computing. In the past, major customers relying on the infrastructure of operators began to access cloud-based Internet services, which brought more and more challenges to the managers and operators of the industry chain.

III. Evaluation of Main Factors and Defects Affecting the Digital Transformation of Operators

III. A. Factors Affecting Operators' Digital Transformation

Information technology plays an important role in digital transformation [14]. The factors that affect the digital transformation of operators come from four aspects. Although it limits the traditional operator model to a certain extent, it also plays a certain role in promoting the digital transformation of operators, as shown in Figure 2. The first aspect is political. National measures limit the ability of operators to generate revenue through traditional profit

models. In order to adapt to the development of the global digital economy, they began to actively promote the innovative model of operators' data processing. The second aspect is the economic aspect. Despite revenue and profit, operators still face dual economic pressure. Due to the saturation of external Internet enterprises that replace traditional Chinese enterprises and traditional services, strong service innovation can attract and support future consumers. The third aspect is the social aspect. The aging population has hindered operators from increasing users. At this time, Mobile Internet news would benefit from the growth opportunities and benefits brought by the popularity of the Internet. At the same time, it would also strengthen the innovation of mobile Internet services to meet the needs of personalized consumers, so as to help operators promote the growth of new users and improve business volume. The fourth aspect is technology. Operators not only rely on huge data resources and big data infrastructure, but also integrate their own data to prevent fierce competition in the Internet enterprise market. However, technological development and progress provide operators with new opportunities to overcome the burden of competition and related challenges.

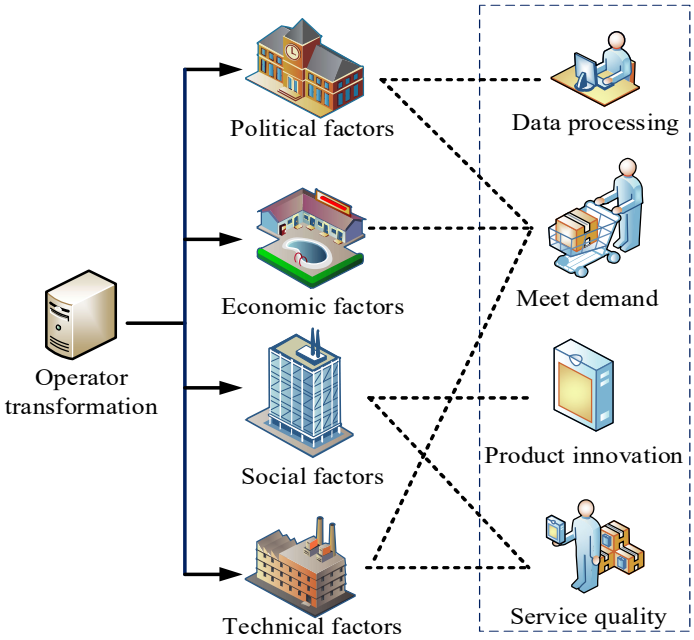


Figure 2: Factors affecting operators' digital transformation

III. B. Evaluation of Defects in Digital Transformation of Operators

In the digital economy, there are four main defects in the digital transformation of operators, as shown in Figure 3.

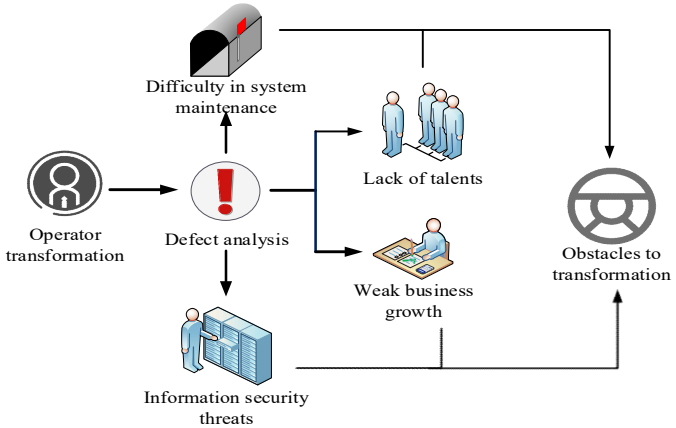


Figure 3: Defects in digital transformation of operators

III. B. 1) Difficulty in System Maintenance

The operating system structure of operators is outdated, which is mainly divided into department and chimney structures. After years of system decoupling, new application chimneys are gradually formed, and new difficulties appear in the integration between fields. Digital transformation is the basic trend of manufacturing enterprises, because the digitalization of the value chain would affect the entire enterprise [15]. There are three main problems: The first is the lack of top-level design, the lack of new chimney applications, and the lack of a complete network blueprint. It is difficult to form synergy, and the front-line operation is difficult. The second is that the system has serious faults and system interoperability is difficult. Capacity is difficult and urgent. Function reuse frequency is low, and operation and maintenance are complex. Third, online business is complex and capacity scalability is poor. Business separation is incomplete. Related risks are high, and online cycle is long.

III. B. 2) Lack of Talents

At present, operators' personnel structure, digital talent reserve and core competitiveness are not enough to meet operators' requirements for digital transformation. Operators only focus on efficiency and lack effective incentives for technical personnel. Digital transformation cannot produce synergy, and government enterprises in the same industry pay low salaries. In terms of performance evaluation and motivation, the post system is not as flexible as that of private enterprises, which leads to a high turnover rate of core technicians and makes it difficult to hire external experts. Due to the limitations of the traditional personnel deployment mechanism, the training and digital talent authorization system is not enough to obtain the external knowledge of the enterprise, and the internal knowledge exchange and collaboration settings are insufficient. This leads to the inability of employees to obtain external knowledge from inside. If employees are not provided with innovation opportunities, and the contribution of talents is only paid attention to and the needs of their own development are ignored, it is difficult to promote and complete the digital transformation quickly and effectively.

III. B. 3) Weak Business Growth

The turnover of operators mainly depends on fixed network and transportation activities, and the personal market is affected by the video industry. The activities of traditional text and voice service providers decreased, while mobile data activities increased. However, there is no added value to the data flow of operators, and the net profit is lower than that of Internet activities. Although the core network services of operators are used in the Chinese enterprise market, the outsourcing of higher professional network requirements to professional equipment and technology suppliers may lead to the shortage of operators' services.

III. B. 4) Network Information Security Is Threatened

The scale of the operator's network is huge and the number of users is numerous. The network distribution is complex, and the network security threats are more dispersed. Technological innovation has led to the improvement of network attacks. The number and scope of network security incidents have increased rapidly, and the security risks of computer networks have increased. It would lead to loopholes in the operator's network and affect the user's data security. The complexity of network protection increases, and security customization problems, computer vulnerabilities, external hacker attacks or network management problems may hinder the digital transformation. The current work in the field of network security is quite different from the relevant standards of digital transformation business.

IV. Application of Decision Tree Algorithm in Digital Transformation of Operators

In order to study the specific effects of operators' digital transformation, this paper analyzed the entropy and expected information of operators' digital transformation through decision tree algorithm, and then calculated the information gain effect and gain rate after digital transformation. First of all, the operator's digital transformation strategy is divided, and the entropy of the strategy is as follows:

$$A(B) = -\sum_{i=1}^{m} x_i \log_2 (x_i) \tag{1}$$

Among them, x_i is the overall probability of transformation strategy. Attribute C is used to analyze the strategic expectation information of operators' transformation. The divided expected information can be obtained as follows:

$$A_C(B) = -\sum_{j=1}^{m} \frac{B_j}{B} A(B_i) \tag{2}$$

Among them, B_j is the strategic expectation information under the digital transformation. The strategic expectation information can predict the specific effect of the operator's digital transformation, and can be compared with the original. The information gain value of operators under the digital transformation can be obtained as follows:

$$g(C) = A(B) - A_C(B) \tag{3}$$

According to the information gain value, the split information of the operator's strategy after the digital transformation is calculated as follows:

$$S\left[A_C(B)\right] = -\sum_{j=1}^{m} \frac{|B_j|}{|B|} \log_2 \left(\frac{|B_j|}{|B|} \right) \tag{4}$$

Finally, according to the strategic division information of operators after digital transformation, the information gain rate of operators after digital transformation can be obtained as follows:

$$g'(C) = \frac{g(C)}{S\left[A(C)\right]} \times 100\% \tag{5}$$

V. Strategic Optimization of Operators' Digital Transformation in the Digital Economy

In the digital economy, the digital transformation of operators should not only carry out technological transformation, but also focus on the transformation of strategy and organizational structure. According to SWOT analysis and influencing factors, the following optimization transformation strategies are proposed, and the specific strategies are shown in Figure 4.

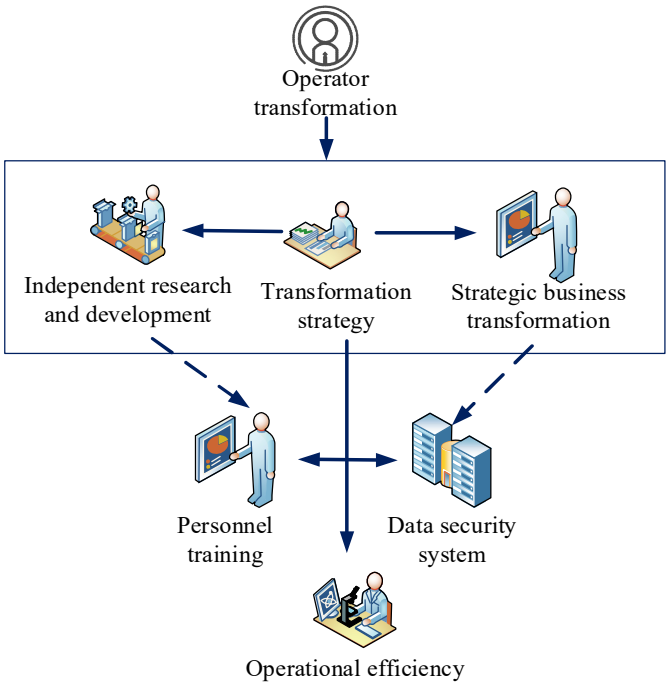


Figure 4: Strategic optimization of operators' digital transformation in the digital economy

V. A. Improvement of Independent Investigation and Development Capability

Operators should closely combine information and communication technology with the real economy to form an intelligent and ubiquitous data acquisition and transmission technology system and ecosystem, and build an intelligent processing application platform, so as to enhance independent R&D capabilities, and support operators' digital transformation. By strengthening independent R&D investment and improving R&D capabilities, industrial alliances must be improved, and close cooperation with relevant personnel should be actively strengthened to realize industrial joint innovation. First is R&D cooperation. The laboratory is opened to jointly develop and

innovate products. The second is the complementarity of resources. An industrial coordination fund would be established at the open laboratory level to support investment and high-quality project development. It also provides network resources, digital products and evaluation services for product certification and testing in the open laboratory ecosystem. The third is product integration. Based on the cooperation of industry alliance and innovation, product integration is realized. Demand is analyzed in time, and market demand is quickly connected.

V. B. Improvement of the Transformation of Strategic Business Activities

In terms of infrastructure and applications, operator transformation focuses on transforming existing business departments and geographically distributed enterprise systems into efficient cloud infrastructure and partner programs. Network transformation enables operators to virtualize all network functions and provide network services for network services. Work management is optimized. By building a single infrastructure cloud, operators can access cross-platform, cross-enterprise and cross-regional infrastructure, including processes, security, infrastructure and hardware facilities. Only by building an efficient operation integration and multi-speed delivery platform can operators keep up with the pace of consumer interaction in the digital era. Operators create content aggregation functions to solve the problem of fragmentation of consumer content, so as to provide video opportunities for industry partners and create integrated portals. By effectively developing and operating video services, operators can monitor the efficiency of all aspects of the project process and improve the overall operational efficiency. This meets the changing consumer needs in the era of digital economy and quickly responds to market competition.

V. C. Establishment of Data Security System

Network information security is the basis and premise of digital transformation of operators. Operators urgently need to build a deep security system and network firewall. First of all, key equipment independently manages information, data security protection, security deployment protection and network penetration exposure areas. It is necessary to regularly review the vulnerability of the network and strengthen protection; secondly, technical means should be used to strengthen the network security management and protection capabilities of operators, and provide security certificates, so as to effectively prevent theft or manipulation in data transmission and improve the comprehensive protection level of network security; network and data security standards should be promoted. Security personnel training should be improved, and comprehensive training on network security and data protection management solutions should be provided to create a favorable environment for digital transformation.

V. D. Promotion of Digital Talent Development

In order to accelerate the development of talent team in digital transformation, operators determine the core positions and qualification requirements for digital transformation, and optimize the compensation system. They attract external experts and invite industry experts, so as to provide technical consultation and exchange for enterprises, and increase the total number of talents. The internal self-study system should be constructed to provide an interactive platform for digital talent exchange. A high-quality internal lecturer team should be built and maintained to strengthen staff knowledge through online learning and effective management staff reserve. Talent portraits should be created to evaluate the digital transformation ability of key positions, and develop training guides and capacity building plans for digital talents at different levels, so as to systematically accelerate the talent pool of enterprises. The performance evaluation and digital talent reward plan should be formulated to provide certain moral and material incentives for employees who have made outstanding scientific contributions and work achievements, so as to stimulate the innovation vitality of all staff. The digital transformation learning base should be built together with the school to provide technical support for the transformation and development of enterprises and provide talent reserves for enterprise innovation.

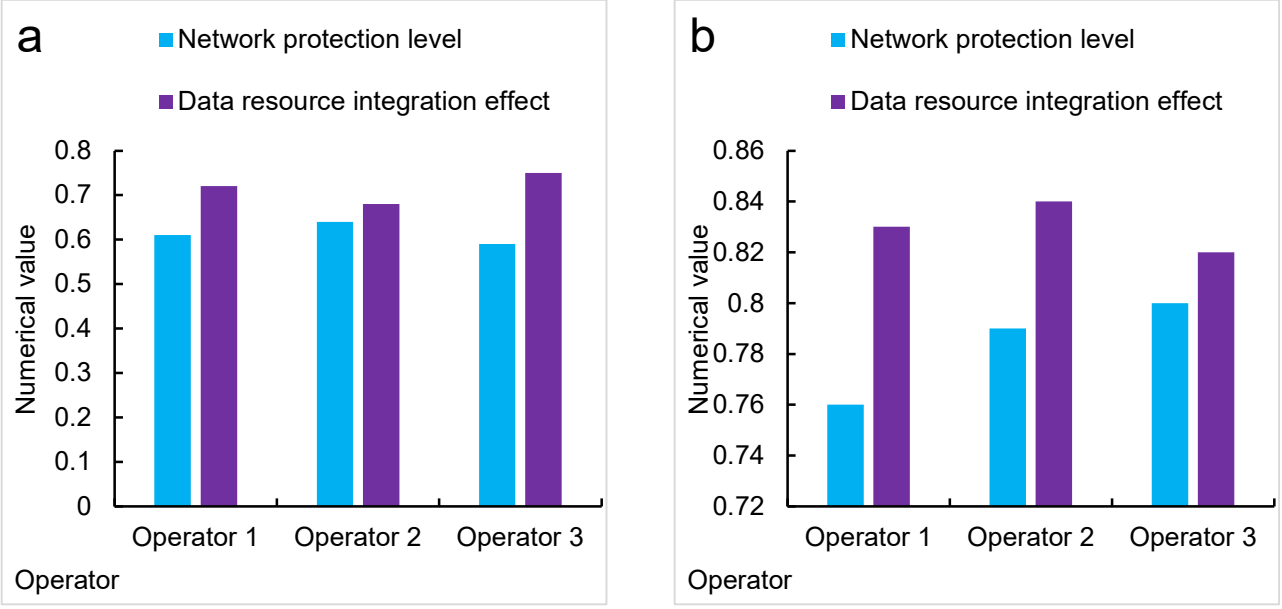
VI. Experimental Evaluation of Operators' Digital Transformation Strategy

In order to study the specific application effect of operators' digital transformation strategy in the digital economy, this paper analyzed the network protection level and data resource integration effect of operators after digital transformation to study the independent R&D ability and organizational structure rationality of operators after digital transformation. The decision tree algorithm was used to analyze the information gain rate of operators after digital transformation. First of all, this paper surveyed the satisfaction of three operators in a region with the digital transformation strategy. Among them, each operator surveyed 50 people, and the specific survey results were shown in Table 1.

Table 1: Satisfaction of three operators with digital transformation strategy

	Satisfied	Commonly	Dissatisfied
Operator 1	40	6	4
Operator 2	35	7	8
Operator 3	45	3	2
Total	120	16	14

According to the data described in Table 1, the overall satisfaction of the three operators with the digital transformation strategy was relatively high. Among the satisfied groups, operator 1 had 40 people, accounting for 33.3% of this group; operator 2 had 35 people, accounting for 29.2% of this group; operator 3 had 45 people, accounting for 37.5% of this group. Among the general group, operator 1 had 6 people, accounting for 37.5% of the group; operator 2 had 7 people, accounting for 43.8% of the group; operator 3 had 3 people, accounting for 18.8% of this group. Among the dissatisfied groups, operator 1 had 4 people, accounting for 28.6% of the group; operator 2 had 8 people, accounting for 57.1% of the group; operator 3 had 2 people, accounting for 14.3% of the group. On the whole, the satisfied group accounted for 80% of the total number of respondents; the general group accounted for 10.7% of the total number of respondents; the dissatisfied group accounted for 9.3% of the total number of respondents. Satisfied people believed that operators' digital transformation strategy could help them quickly cultivate talents, and change their organizational structure, which could also improve operators' ability to integrate data resources. The dissatisfied group believed that the digital transformation strategy of operators had certain risks and could not fully adapt to a certain operator. Operators also needed to choose appropriate strategies based on their own development conditions. In addition, operators' digital transformation would also increase vicious competition among enterprises. The network protection level and data resource integration effect of operators before and after digital transformation were analyzed. A total of three operators were investigated, and each operator tested for one month. The specific comparison results were shown in Figure 5.



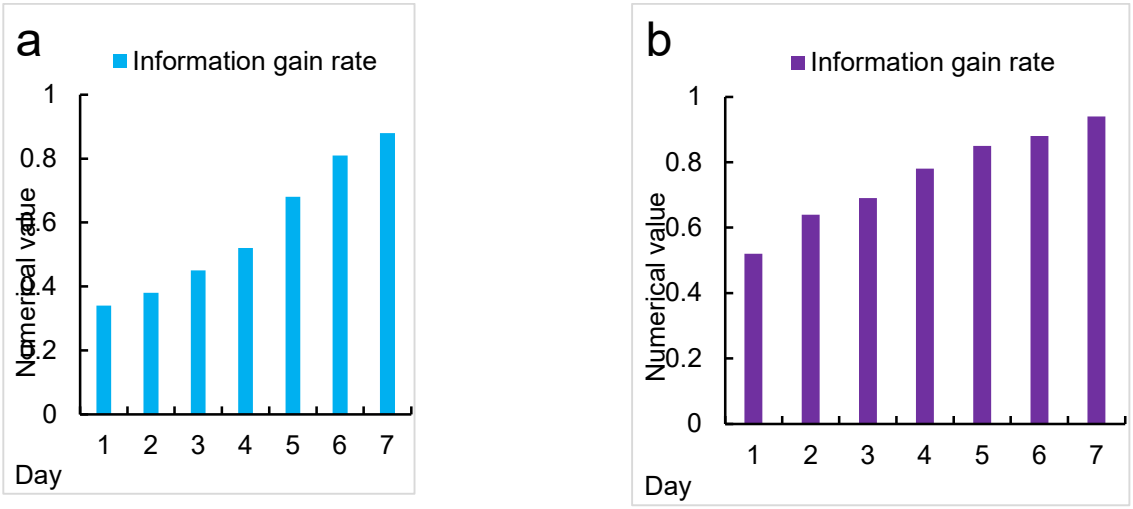
a: Before digital transformation of operators

b: After the digital transformation of operators

Figure 5: Network protection level and data resource integration effect of operators before and after digital transformation

Figure 5a showed the pre-digital transformation of operators, and Figure 5b showed the post-digital transformation of operators. Figure 5a showed that before the digital transformation of operator 1, the network protection level of operator 1 was 0.61, and the data resource integration effect was 0.72; the network protection level of operator 2 was 0.64, and the data resource integration effect was 0.68; the network protection level of operator 3 was 0.59, and the data resource integration effect was 0.75. Figure 5b showed that after the digital transformation of operator 1, the network protection level of operator 1 was 0.76 and the data resource integration effect was 0.83; the network protection level of operator 2 was 0.79, and the data resource integration effect was 0.84; the network protection level of operator 3 was 0.80, and the data resource integration effect was 0.82. On the

whole, the network protection level and data resource integration effect of operators after digital transformation were higher than those before digital transformation. Among them, the average network protection level of operators before digital transformation was 0.61, and the average data resource integration effect was 0.72; the average network protection level of operators after digital transformation was 0.78, and the average data resource integration effect was 0.83. Through comparison, the average network protection level of operators after digital transformation was 0.17 higher than that before digital transformation; the average data resource integration effect of operators after digital transformation was 0.11 higher than that before digital transformation. It could be seen that the digital transformation of operators could effectively improve their network protection security and data resource integration capabilities, so that operators could better grasp the needs of users to improve user experience and business growth. The decision tree algorithm was used to analyze the information gain rate of operators before and after the digital transformation. A total of one week was investigated, and the specific changes were shown in Figure 6.



a: Before digital transformation of operators

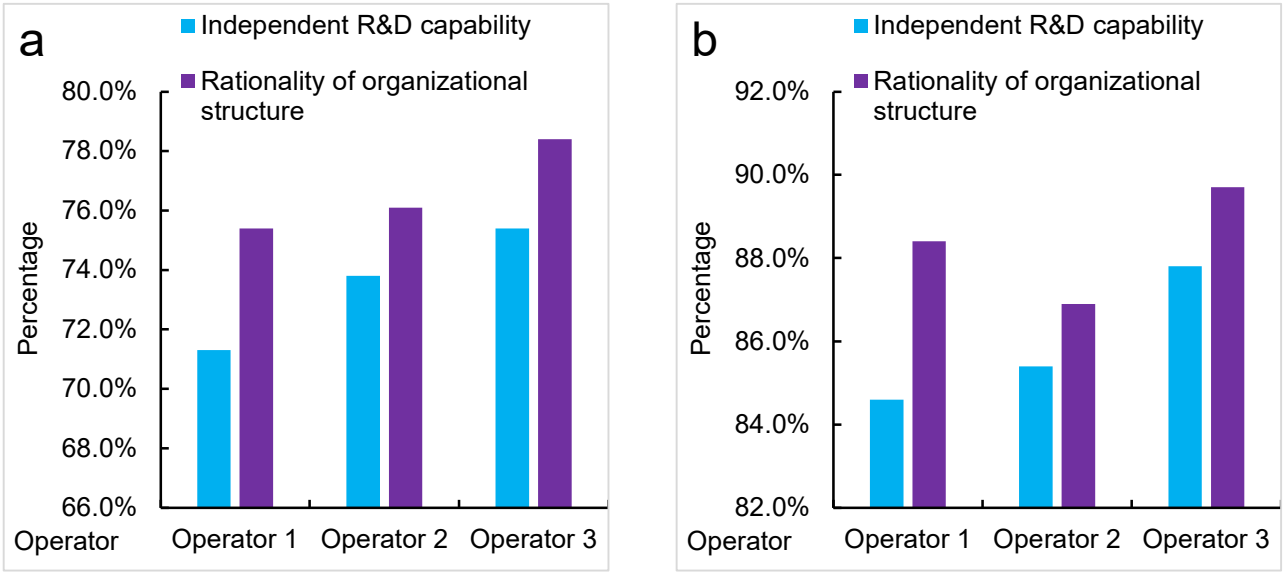
b: After the digital transformation of operators

Figure 6: Information gain rate of operators before and after digital transformation

Figure 6a showed the information gain rate of operators before digital transformation, and Figure 6b showed the information gain rate of operators after digital transformation. According to Figure 6a, the average information gain rate of operators before digital transformation was 0.58. The initial value of the information gain rate was 0.34 and reached 0.88 on the seventh day. According to Figure 6b, the average information gain rate of operators after digital transformation was 0.76. The initial value of the information gain rate was 0.52, which reached 0.94 on the seventh day. In general, the information gain rate of operators after the digital transformation was higher than that before the digital transformation. This was because the information acquisition channels of operators became more complete and extensive under the digital transformation, which could effectively improve the information processing speed of operators. Finally, the independent R&D capabilities and the rationality of the organizational structure of the operators before and after the digital transformation were analyzed. A total of three operators were investigated. The specific comparison results were shown in Figure 7.

Figure 7a showed the pre-digital transformation of operators, and Figure 7b showed the post-digital transformation of operators. Moreover, the independent R&D capability and organizational structure rationality of operators after the digital transformation were better than those before the digital transformation. Figure 7a showed that before the digital transformation of operator 1, the independent R&D capability of operator 1 was 71.3%, and the rationality of the organizational structure was 75.4%; operator 2's independent R&D capability was 73.8%, and the rationality of its organizational structure was 76.1%; the independent R&D capability of operator 3 was 75.4%, and the rationality of its organizational structure was 78.4%. It could be seen from Figure 7b that after the digital transformation of operator 1, the independent R&D capability of operator 1 was 84.6%, and the rationality of organizational structure was 88.4%; operator 2's independent R&D capability was 85.4%, and the rationality of its organizational structure was 86.9%; the independent R&D capability of operator 3 was 87.8%, and the rationality of its organizational structure was 89.7%. On the whole, the average independent R&D capability of operators before digital transformation was 73.5%, and the average organizational structure rationality was 76.6%; after the digital transformation, the average independent R&D capability of operators was 85.9%, and the average organizational structure rationality was 88.3%. Through comparison, it could be seen that the independent R&D capability of

operators after the digital transformation was 12.4% higher than that before the digital transformation, and the rationality of the organizational structure of operators after the digital transformation was 11.7% higher than that before the digital transformation.



a: Before digital transformation of operators

b: After the digital transformation of operators

Figure 7: Operator's independent R&D capability and organizational structure rationality before and after digital transformation

From the above experiments, it could be seen that the digital transformation of operators could effectively improve the independent R&D ability and the rationality of the organizational structure of operators, and could also promote the training of operators' technical talents to improve the overall operation level and efficiency of operators. In addition, the digital transformation of operators had certain benefits for society and economy. It could not only improve the strategic planning of operators, but also help operators achieve business growth to promote economic development.

VII. Conclusions

In the era of digital economy, operators are facing the challenge of decentralization and should seize the opportunity of industrial integration. The convergence of industry is a major trend. The change of the times forces operators to carry out digital transformation. Operators must adapt to the trend of mobile internet. It is necessary to make full use of the Internet of Things, cloud information security and other related services to build an ecosystem suitable for the development of digital services. In the future digital service era, operators need to strengthen the construction of intelligent pipelines and the strategic transformation of enterprises, and build a network security system, so as to promote the transformation and upgrading of enterprises. They should also promote the development of network intelligence, and eventually become an integrated operator of digital information services. In addition, operators must consider talent, information security and system issues in the process of digital transformation, so as to realize the ideal digital transformation and promote the long-term development of operators.

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