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Digital Intelligence Empowerment: The Mechanism of Digital Strategic Transformation of Traditional Manufacturing Enterprises—Exploratory Case Study Based on Sophia Home Furnishing

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Abstract: *Based on the exploratory case of Sophia Home Furnishing, this paper analyzes the mechanism of digital strategy transformation of traditional manufacturing enterprises. The study found that the digitalization of enterprises needs to be based on the strategic consistency of key business and digital technology adoption, reconstruct digital capabilities with value creation as the ultimate goal, and build a digital business model , thus forming the core competitiveness necessary for survival in the digital age.This article provides theoretical thinking and enlightenment for traditional manufacturing companies to adapt to the changes in the digital age.*

Keywords: *Digital Intelligence Empowerment; Strategic Transformation; Digital Capability; Digital Business Model*

1. Introduction

Digital strategic transformation is a business transformation driven by cutting-edge digital technology ABCDE, namely AI, Block Chain, Cloud Computing, Data Tech and Edge Computing. Enterprises should not only understand from the cognitive level that digital transformation is the highest level of systematic strategic change with long-term value,but also build digital capabilities at the organizational level,integrate digital technology with business scenarios,enhance customer-centric value creation ability, gradually form an organization's unique digital culture in this process. Digital technology has nurtured the contact between enterprises and consumers based on experience scenarios.

Although the existing research has analyzed the origin,field distribution, content focus, theoretical foundation and evolution of the main research scenarios of the digital strategic transformation research from the macro level, it has also combed the definition and connotation of the digital strategic transformation from the enterprise level.It has also conducted useful discussions on the process optimization, efficiency enhancement and business model innovation of digital technology-driven organizations, and the theoretical height of the research has been raised to the perspective of value creation and ecological strategy, but for traditional manufacturing companies research on the path of digital strategic transformation of China is relatively limited. Only a few scholars such as Rachinger M et al. (2019) attempted to build a theoretical model of the way that digitalization affects corporate value creation based on the perspective of dynamic capabilities, revealing the black box of the transformation process mechanism[1].Wang Qiang et al.(2020)conducted a multi-case exploratory study on the digital transformation mechanism of retail enterprises from the perspective of digital capabilities and value creation[2].

To sum up, the research on the path mechanism of the digital strategic transformation of traditional manufacturing enterprises still needs in-depth discussions with the academic community and the industry. Therefore, this article selects the traditional manufacturing company Sophia Home Furnishing as a representative to carry out an exploratory case study. The research is based on the theoretical perspectives and research scenarios of digital capabilities and digital business model innovation, summarizes and refines the key paths and mechanisms for the success of traditional corporate digital strategic transformations and changes, and provides theoretical insights and practical guidance for traditional corporate digital strategic transformations.

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2. Literature review

2.1. Digital strategic transformation

Morton(1991)first proposed that the adoption and application of digital technology within enterprises would inevitably trigger fundamental organizational changes, and initiated theoretical research on digital strategic transformation. .As a highest level of strategic change action for enterprises to adapt to the digital economy and utilize the opportunities brought by emerging digital technology while avoiding survival threats, the research issue of digital strategic transformation has attracted wide attention and in-depth research from management scholars.Scholars discussed the concept of digital strategic transformation, the precursor factors, digital infrastructure, resources and capabilities, process mechanisms, and subsequent impacts, such as the improvement of corporate performance and innovation capabilities. Digital strategic transformation is a series of comprehensive and systematic deep-level strategic changes carried out by enterprises applying digital technologies such as big data, artificial intelligence, block-chain, 5G technology, Internet of Things and cloud computing, including reshaping corporate vision, strategy, and organization structure, process, capability and culture[3], the innovation process of building a value creation system with data assets as the core element, with the purpose of digital realization of business model innovation, and further, building a new or embedded digital ecosystem, and the efficient collaboration and value co-creation of a wide range of stakeholders inside and outside the industry may eventually form a complex digital industry ecological alliance with higher barriers to competition.

2.2. Digital capabilities

Many scholars have discussed the new capabilities that must be built for the digital strategic transformation of enterprises from the perspective of capabilities. For example, Li et al. (2018) believe that the prerequisite for the digital transformation of enterprises is the upgrade and transition of organizational capabilities that rely on the integration of digital technologies formed by digital infrastructure and organizational changes to be applied to business processes and thereby achieve organizational capabilities[4]. Later, some scholars proposed that digital capabilities include three sub-dimensions: intelligence, analysis, and connection. Its core is to perceive timely, respond quickly to customer needs, and realize value co-creation between companies and enterprises based on digital platforms[5]. Qian Jingjing et al. (2021) took Country Garden Group as a research case and proposed that the dynamic capability construction of digital transformation follows the evolution process of "digital perception capability-digital acquisition capability-digital transformation capability"[6]. Cui Miao et al.(2021)based on qualitative meta-analysis research, identified that digital strategic transformation requires dynamic capabilities including environmental awareness,opportunity utilization, and resource reconstruction capabilities, and stable operational capabilities including digital marketing capabilities and product development capabilities[7]. On the whole, digital capability is an upgraded new organizational capability supported by digital infrastructure such as cutting-edge digital technology ABCDE and mobile smart terminal equipment.

2.3. Digital business model innovation

Business model innovation is the systematic design and innovation of business logic systems for value creation, delivery and acquisition. The business model of the intelligent era is different from the traditional business era. Customer-driven and user-concentric have become the starting point for business operations. In the digital age, the connection, interaction and value co-creation between enterprises and customers have become the key to business model innovation. Only by establishing long-term dynamic interactions with customers and quick and timely feedback can we continuously optimize and improve the core competitiveness of the company's products and services, and increase customer stickiness. Based on digital technology and infrastructure, companies can transform the past B2C model into the C2B, customer to business model of the digital age, which is a business model that collects big data based on internet technology and interactively customizes production based on user feedback. The investment and construction of digital infrastructure and the upgrading of organizational digitization capabilities provide prerequisites for low-cost and efficient information sharing and collaborative innovation between enterprises,for enterprises to build a new business ecosystem to connect and interact with more resources, and realize customer-concentric value innovation and restructuring, seeking new strategic growth potential and growth space empowerment.

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3. Research design

3.1. Method selection

This article aims to explore the mechanism of digital strategic transformation of traditional manufacturing companies, using a vertical exploratory single case combined with the actual situation of the company to conduct research, focusing on answering the "how" and "why", which can be summarized and extracted from the common law, and then construct The theoretical framework reveals the specific evolutionary path mechanism and its key elements, and enriches the theoretical explanation and application guidance of new phenomena in management practice.

3.2. Case selection and data collection

This article selects Sophia Home Furnishing Co., Ltd. as the case analysis object. The main considerations include: ①The principle of polarization.Sophia Home Furnishing Co., Ltd. was established in 2003. It is a Shenzhen A-share listed company mainly engaged in the research and development, production and sales of customized wardrobes and their supporting customized furniture.As one of the leading companies in the custom home furnishing industry, Sophia has also led the industry in its achievements in the transformation and upgrading of informatization and intelligentization, and has become a benchmark for the industry to learn.

Sophia Home Furnishing is one of the typical representatives of traditional manufacturing enterprises' digital strategic transformation. For other manufacturing enterprises, its transformation path mechanism and successful experience have important reference significance.②The principle of availability. Through the personal sharing of Wang Bing, the current CEO of Sophia Home Furnishing, we were able to analyze in detail the specific practice of Sophia Home Furnishing's digital strategic transformation and the strategic decision-making thinking behind it. At the same time, using the nature of listed companies to collect and accumulate information on second-hand companies through public channels, the total is about 60,000 words.

4. Analysis and discussion

4.1. Tracing the source of Sofia's digital strategic transformation

According to the collected data, Sophia Home Furnishing's digital strategy transformation began in 2011. It raised 1.1 billion yuan on the A-share listing and invested it in the business to achieve the strategic goal of business development to a higher level. So far, the journey of Sofia Home’s digital strategy transformation is still in progress, which can be roughly divided into three stages.

(1)The efficiency improvement stage of digital operation (2011~2016)

Sophia Home Furnishing is a professional customized wardrobe company. The characteristics of its customized industry mainly include:①front-end personalization,back-end flexible scale;②low entry barriers, high thresholds for bigger and stronger;③long chain and there are many roles along the business links;④the service-oriented manufacturing industry oriented towards consumer individualization.As a leading enterprise after the customization reaches a certain volume and scale, traditional extensive manufacturing operational efficiency has encountered a bottleneck.The expansion of the product line from customized wardrobes to customized furniture, as well as the large-scale industrialization of the country, the rapid coverage and sinking of a flat first-level dealer network, and other business expansion strategies require the use of information platforms and tools to greatly enhance the flexible manufacturing of the factory ability and strengthen the management level of the dealer network.

The challenges and business pain points faced by Sophia Home at the time were: ①Open up the data flow from the store to the factory equipment;②Improve flexible manufacturing capabilities; ③The extent and difficulty of channel management increased exponentially.

Combining business bottlenecks and pain points, and focusing on business strategy, Sophia proposed three core goals for digital strategic transformation:①Rapid replication of flexible factories; ②Great improvement of factory operation efficiency; ③National store management and collaboration.

(2)Digital brand marketing capability improvement stage (2017~2021)

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After 2017, as traditional home improvement companies counterattacked the customized track, small-scale hand-crafted workshops have sprung up, and many leading companies in the industry have been listed one after another. The market competition has gradually intensified, and the blue ocean has rapidly changed from the blue ocean to the red ocean. At this time, brand marketing and customer acquisition capabilities have become key factors for industry success. In this context, Sophia proposed three strategic measures: (1) Brand repositioning-through analysis of the market, competitors and the company's own core competitiveness, to clarify the positioning of the Sophia brand-cabinet customization expert, from surpassing Europe To establish Sophia's differentiated leadership brand positioning support point in terms of environmental protection standards and global leading custom home design; (2) Omni-channel development to adapt to changes in traffic fragmentation and consumption scenarios; (3) Multi-brand strategy to meet Different consumption levels.

4.2. Digital capability reconstruction

4.2.1. Digital Intelligence Manufacturing Capability

The Strategic Consulting Center of the Chinese Academy of Engineering gave a more general definition of intelligent manufacturing: oriented to the full life cycle of the product, based on a new generation of information technology, with a manufacturing system as the carrier, with a certain degree of autonomous perception in its key links or processes , Learning, analysis, decision-making, communication and coordination and control capabilities, can dynamically adapt to changes in the manufacturing environment, so as to achieve certain optimization goals, such as meeting customers' personalized customization needs, achieving high-quality manufacturing of complex parts, ensuring high efficiency and availability Continue to manufacture and enhance product value and expand the value chain.

Sophia took the lead in the industry by building intelligent manufacturing workshops and building intelligent manufacturing capabilities, forming the company's core competitiveness. The most representative one is that Sophia built the first 4.0 workshop in Huanggang City, Hubei Province,which is Sophia's largest manufacturing center. The workshop is planned, designed and implemented in strict accordance with the German Industry 4.0 standards by Guangzhou Ningji Intelligent System Co., Ltd., a wholly-owned subsidiary of Sophia Production.Intelligent manufacturing capabilities support the production of large-scale personalized custom homes in Sophia, and through independent development of design software and dismantling software, the front-end store design can automatically place quotations and dismantle orders, and seamlessly connect with the production data of the back-end factory In addition,Sophia invested in the construction of customized home intelligent industrial 4.0 factories in Jiashan County, Zhejiang Province and Zengcheng, Guangzhou, respectively, thus laying the foundation for Sophia's intelligent manufacturing capabilities.

4.2.2. Data Intelligence Operation and Management Capability

Digital intelligence operation and management capabilities include two aspects: digital intelligence operation ability and digital intelligence decision-making ability. Digital intelligence operation capability refers to the use of information and digital infrastructure to support the entire process of production and operation, involving the main functional central departments of the company's supply chain, human resources, administration, and financial settlement. Its main purpose is to reduce costs and increase efficiency. Through the improvement of data intelligence operation and management capabilities, Sofia has achieved an average production line efficiency of 125% higher than that of a German production line, and an average daily output of 645% higher than that of an ordinary production line.Sophia continues to optimize the company's digital operation platform, and continuously improves the efficiency of each link in the front, middle and back offices, especially to improve the operating efficiency of the dealer side, reduce operating costs, and enhance the competitiveness of the terminal. For example, the mobile terminal uses WeChat applets as the brand. Provide online operation management of service process and store management. Consumers can feedback their home furnishing experience through a small program, and timely evaluate the dealer's service level satisfaction, and also provide group companies with tools for omni-channel standardized process management and the corresponding data support.Digital intelligence decision-making management ability refers to the use of big data analysis, artificial intelligence and other technologies to build refined data visualization management kanban, all-staff data empowerment and comprehensive data decision support system and other system capabilities. Sofia coordinates the digital strategic transformation process by setting up IDC Information and Digitization Center. Under IDC, as the engine of the enterprise, there is a data architecture department , infrastructure and operation and

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maintenance department , IT project management departmentand branch IT department to jointly support and promote Sofia's digital strategy. The intelligent operating platform allows Sophia's management to intuitively evaluate the dealer service index on the mobile smartphone APP program, and details the on-time delivery rate, product error rate, service satisfaction and complaints rate, and check the actual production level of each factory, and rank PK. The strategic cooperation between Sophia and Tencent Smart Retail can also better improve store operation efficiency and dealers' service level to consumers, thereby accumulating customers' digital assets, and WeChat Pay can fundamentally provide terminal stores with convenient and safe payment collection,ways to realize all-digital accurate reports.

4.2.3. Digital Intelligence Brand Marketing Capability

Digital intelligence brand marketing capability refers to an adaptive process driven by digital technology by which companies create, communicate with customers and other partners to create, publish and maintain the value of all stakeholders. In 2018, Sophia Home Furnishing raised its digital brand customer acquisition capability to the height of its corporate strategy to better adapt to the changes in the market from the blue ocean to the red ocean. Sophia uses big data to better understand market dynamics and consumer needs, reduce customer acquisition costs, create a corporate private domain traffic pool, accurately acquire customers, and continuously innovate the combination of online and offline through the combination of offline promotion and online live broadcast marketing model. Specifically, in order to adapt to the reality of the epidemic that keeps consumers at home for a long time, Sophia quickly deploys online live broadcasts, converts online store experience into online scene display, and cooperate with Tmall live broadcast queen Wei Ya to carry out brand exposure and drainage, and further, cooperate with celebrities and artists to conduct online new product launches, exhibition hall visits, factory live broadcasts, and brand joint live broadcasts. In January 2021,Sophia Home Furnishing cooperated with Tencent Smart Retail to promote the digital upgrade of its retail business.The WeChat applet provides Sophia Home Furnishing with functions such as VR online virtualized immersive experience decoration effects, and based on accurate user insights, Tencent will also assist Sophia Home Furnishing to implement a "thousand-thousand-thousand-face" of content and product recommendations in the official account and the applet. Promote more refined private domain traffic operations. With the help of Tencent Advertising's big data marketing platform, using Tencent's full-scenario marketing, and using Tencent's resource products, such as IP authorization and data resources,Sophia can establish a deeper emotional connection and interaction with users, and create high-quality and efficient digital marketing with Tencent Ecology.

4.3. Digital business model innovation

Digital technology has driven the subversion of the entire business logic, and the supply chain in the traditional industrial era has been transformed into a data-driven and network-driven C2B, that is, the customer to business model. The C2B business model is user-oriented. Users become active participants and decision-makers instead of passive receivers. Users create brand value together, participate in product development and design, so that products can reflect the unique personality of users And consumer trends. As a brand of wardrobe customization and a complete set of matching furniture customization, Sophia has established a digital transformation corporate strategy. Sophia has also carried out digital business model innovation, from design to installation, the entire production, service order and the entire process of data penetration and connection, so as to quickly and conveniently Provide users with in-depth customization and personalized style of home furnishing product delivery. Specifically, Sofia's digital transformation strategy includes: cooperating with Oracle, adopting ERP for enterprise infrastructure informatization, building a 3D DIYHome design platform, and displaying 3D environments and three-dimensional furniture displays through perspective display processing. Consumers can experience the whole house with VR. The design scenario enhances the depth of user customization and scenario experience. At the same time, it can collect consumer behavior data and accurately grasp consumer needs. In addition, it has created consumer interactive smart phone APP, O2O e-commerce platform, etc. Through the reconfiguration and construction of a series of resources and capabilities, Sofia's digital business model innovation has been supported, and Sofia has successfully transformed into a leading brand in the smart custom home furnishing industry.

5. Research conclusions and countermeasures

This article uses Sophia Home Furnishings as a case study to discuss the mechanism of digital

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strategic transformation of traditional manufacturing companies, and summarize and extract the transformation of traditional manufacturing companies from the reconstruction of digital capabilities and the innovation of digital business models.The building of digital capabilities mainly includes three key dimensions:digital intelligence manufacturing capabilities, digital intelligence operations and management capabilities,and digital intelligence brand marketing capabilities.The construction of digital capabilities requires the top leaders of the company to provide financial resources that match the strategic goals of the transformation, and the strategic goals based on the digital strategy and key business strategies must be consistent, the adoption of appropriate digital technologies, the allocation of digital human resources, and the ultimate goal of creating customer value.Purpose, continuously adapt and innovate digital business models.

Specifically,the key to building digital intelligence manufacturing capabilities is to first clarify the strategic goals of digital intelligence manufacturing. The highly integrated information systems such as PLM/CAD, BOM, ERP, CRM, SCM, MES, OA are the foundation to fully support product development, production, operation, and marketing. Services and supply chains provide effective collaboration and resource sharing for the value innovation chain of enterprises.. In addition, digital technologies such as industrial robots, industrial Internet of Things, and industrial big data are applied to improve production efficiency and ensure product quality and stability, optimize production links, and realize large-scale customized production.At the same time, the introduction of advanced intelligent, automated, and networked production technology continuously optimizes the production efficiency of the manufacturing process. On this basis, digital technology is used to open up the coordination of the whole process from product store display, consumer customized business order demand and production plan, logistics supply chain, product development end, furniture style design, etc., to adapt to flexible production and meet Consumers' personalized customization needs.

Data intelligence operation capabilities are mainly reflected in organizational structure reform and business process reconstruction. Sophia established an independent department IDC as the core leading department and decision-making center for the transformation of the company's digital strategy transformation, with production system department and operation system department. , Marketing system department, data architecture department, data processing department, IT project management department, infrastructure and operation and maintenance department, and branch IT department. Each branch establishes a corresponding functional department to support the company's O2O marketing activities and new Business goals such as channel development, full-link service tracking, data quality assurance, automated production capacity improvement, operational efficiency improvement, safety and reliability of information systems, and project delivery assurance. Digital wisdom brand marketing capabilities are reflected in the combination of online and offline omni-channel layout, including online e-commerce channels such as Taobao, Tmall, Jingdong, Douyin Kuaishou Xiaohongshu and other public domain traffic, WeChat corporate service accounts, mini programs, social marketing, etc. The management of private domain traffic and the development of to B engineering channels, and cooperate with real estate companies to create projects such as bag check-in, home improvement/refurbishment, and offline stores, etc.The marketing channel extends to Meituan Life Services. Consumers can make an appointment for door-to-door measurement at the Meituan Sofia store, and even place an order for furniture customization throughout the house.

Digital capability is the prerequisite for digital business model innovation, and digital business model innovation is the ultimate goal of digital capability construction. Sophia continues to create innovative new value for consumers through the innovative combination of digital technology and business processes and scene applications.This article is based on Sophia's exploratory case study results, which has certain reference significance for other similar traditional manufacturing enterprises' digital strategic transformation.

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