

Digital Transformation and Industrial Chain Reconstruction of Garment Industry under SOR Theory

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Abstract

Based on SOR theory, this paper focuses on the digital transformation and industrial chain reconstruction of the garment industry, analyzes the impact of digitalization on the production mode, sales approach and operation management of the garment industry, and puts forward strategies such as strengthening big data analysis, establishing man-machine combination design mechanism, introducing digital production analysis and process optimization. It is helpful for garment enterprises to accurately grasp the market demand, improve the level of product design and production efficiency, and optimize the supply chain management, which has certain significance for promoting the efficient, collaborative and sustainable development of the garment industry.

Keywords

SOR theory, garment industry, digital transformation, industrial chain restructuring.

1. Introduction

In the digital era, the wide application of advanced technologies such as the Internet, big data and artificial intelligence is profoundly changing the development pattern of all walks of life. The garment industry, as a traditional industry closely related to People's Daily life, has also ushered in unprecedented opportunities and challenges in this digital transformation. With the increasingly diversified and personalized demand of consumers, the production mode, sales mode and operation management of the traditional clothing industry have gradually revealed their limitations. In order to adapt to market changes and enhance competitiveness, the garment industry needs to carry out digital transformation, so as to better meet the increasingly personalized needs of consumers, and promote the development of the entire industry to a more efficient and intelligent direction.

2. The Digital Development Trend of the Clothing Industry

Driven by today's global digital wave, the garment industry is undergoing an unprecedented digital transformation. This change is not only reflected in the upgrading of production methods and the expansion of sales channels, but also goes deep into the operation and management of enterprises, reshaping the development pattern of the garment industry in an all-round way.

2.1. Digitization of Production Mode

The digitalization of production mode is the core link of the digital transformation of the garment industry. With the wide application of technologies such as the Internet of Things, big data and artificial intelligence, traditional manual or semi-automatic production methods have been gradually replaced by intelligent and automated production lines. The introduction of intelligent manufacturing systems, such as automated sewing machines, intelligent cutting equipment and robots, has greatly improved production efficiency and product quality. These smart devices are able to work 24 hours a day without interruption, reducing the reliance on

manual labor and reducing production costs. At the same time, through the Internet of Things technology, all links in the production process are interconnected, from raw material procurement, production and processing to finished products out of the warehouse, every link can be monitored and managed in real time, ensuring the transparency and traceability of the production process.

The application of big data analysis in production management is also becoming more and more extensive. Through in-depth mining and analysis of production data, enterprises can accurately predict market demand, optimize production plans and avoid excess or insufficient capacity. In addition, the rise of personalized customized services has also brought new changes to the way clothing is produced. With the help of digital technology, enterprises can carry out rapid design and production according to the individual needs of consumers, realizing the transformation from mass production to personalized customization. This mode of production not only satisfies consumers' pursuit of uniqueness and difference, but also brings higher added value and profit margin for enterprises.

2.2. Digitalization of Sales Channels

The digitalization of sales channels is another important manifestation of the digital transformation of the clothing industry. With the rise of e-commerce, online sales have gradually become one of the main channels of clothing sales. E-commerce platforms, such as Taobao, Jingdong and Vipshop, offer consumers a rich choice of clothing and a convenient shopping experience. Consumers can browse a wide variety of clothing products, place orders and pay for them with just a single click of the mouse or swipe the screen of their mobile phones. Meanwhile, e-commerce platforms also push personalized product recommendations and coupons for consumers through big data analysis, further enhancing the shopping experience. In addition to e-commerce platforms, social media has also become an important front for clothing brand promotion and sales. Social media platforms, such as Weibo, wechat and Douyin, provide clothing brands with opportunities to interact directly with consumers. Brands can attract consumers' attention and participation by releasing information such as fashion information, dressing tutorials, and event offers to enhance brand influence and customer stickiness. In addition, emerging sales models such as live streaming are also emerging. Anchors show clothing styles and matching effects through live streaming, and guide consumers to place orders to purchase, realizing the organic combination of sales and entertainment.

2.3. Digitalization of Operation and Management

At the management level, the application of digital technology has also brought profound changes. The application of digital management tools such as Enterprise Resource Planning (ERP) system and Customer Relationship Management (CRM) system makes the operation and management of enterprises more efficient and accurate. Through in-depth mining and analysis of massive data, enterprises can accurately grasp market trends and consumer behaviors, and provide scientific basis for product development, marketing, and customer service. At the same time, the application of intelligent decision support system also makes the decision-making process of enterprises more scientific and efficient. Data-based decision making not only improves the accuracy and feasibility of decision making, but also reduces the risk and cost of decision making. In addition, digital technology also plays an important role in supply chain management, inventory management and human resource management. Initiatives such as optimizing supply chain processes through digital means, realizing accurate inventory management and improving the efficiency of human resource allocation have all brought significant economic benefits and management improvements to enterprises.

3. Opportunities and Challenges of the Clothing Industry under the Digital Background

The digital market has brought new challenges and opportunities to the garment industry. In the face of challenges, enterprises must keep up with the pace of market changes and technological development, and continuously achieve breakthroughs in improving product quality, design innovation and service level, so as to achieve sustainable development in the digital market.

3.1. Market Competition Intensifies

In the past, due to geographical restrictions and information asymmetry, consumers were often limited to clothing brands in their local or neighboring regions. With the booming development of the digital market, the garment industry is facing unprecedented competition. The popularization of the Internet and the rapid development of information technology have greatly eliminated the regional information barriers of clothing, so that consumers can easily obtain product information from all over the world, and compare different brands and styles. This wide selectivity not only improves the shopping experience of consumers, but also intensifies the competition among clothing enterprises. In particular, the rise of e-commerce platforms and the widespread use of social media have allowed global clothing brands to get in front of consumers. Consumers can easily browse fashion trends across the globe and choose the styles and brands that best suit their preferences. This wide selection has prompted clothing companies to continuously improve product quality, design innovation and service level to stand out in the fierce market competition.

3.2. Expansion of Customer Base

The convenience of the Internet not only provides consumers with more choices, but also enables them to consume across regions, thus greatly increasing the circulation of clothing. Consumers are no longer restricted by regions, and can place orders to buy their favorite clothing products through the Internet anytime and anywhere. This trend of cross-regional consumption makes the market coverage of a single enterprise expand, and the customer sources become more abundant and diversified. For garment enterprises, good product quality and design are the key to attract and retain customers. In the digital market, excellent clothing products can quickly spread on social media and e-commerce platforms, forming a good word-of-mouth effect. This kind of word-of-mouth communication can not only help enterprises obtain more customer resources at a lower marketing cost, but also enhance brand awareness and reputation, laying a solid foundation for the long-term development of enterprises.

3.3. The Reduction of Production Costs and the Increase of Marketing Costs

The wide application of digital production technology has brought unprecedented production efficiency improvement and cost reduction to the garment industry. Through intelligent equipment and big data analysis, enterprises can achieve accurate control and optimization of production processes, thereby saving production costs and improving product quality. However, with the intensification of market competition and the diversification of consumer demand, the role of the sales end in the market competition has gradually increased, resulting in clothing enterprises have to spend money on marketing promotion.

In the digital market, marketing is no longer limited to the traditional advertising and promotion activities, but pays more attention to the influence of online marketing and social media. Companies need to invest a lot of money and resources to create attractive brand images and marketing campaigns to attract consumers' attention and purchase. This increase in marketing costs is undoubtedly a new challenge for apparel companies. Therefore, how to

effectively control marketing costs while ensuring product quality and production efficiency has become an urgent problem for garment enterprises.

3.4. the Diversification of Product Classification and the Assimilation of Single Products

The fragmentation of customer demand under the digital market is easier to form a cluster, resulting in large-scale demand. This kind of demand aggregation prompts the garment industry to subdivide product categories more carefully to meet the individual needs of different consumers. For example, fashion trend brands for young consumers, formal clothing brands for business people and outdoor equipment brands for sports enthusiasts. Such diversified product categories not only enhance the market competitiveness of enterprises, but also meet the growing personalized needs of consumers.

However, the popularization of digital production technology has also made it easier to imitate clothing design and production of individual items. Under the digital market, designers and manufacturers can easily access and share the latest fashion trends and design elements, resulting in an increased possibility of identical products from different brands in the market. This convergence of single products not only weakens the brand differentiation and market competitiveness of enterprises, but also intensifies the homogenization competition in the market. Therefore, how to maintain the uniqueness and innovation of the brand while ensuring the diversification of products has become an important issue for garment enterprises to think about.

4. SOR Theory of Clothing Industry in the Digital Background

SOR theory has a wide range of application value in the clothing industry under the background of digitalization. It not only reveals the psychological mechanism behind consumer behavior, but also provides important theoretical guidance and practical direction for garment enterprises' product innovation, business model reform and digital reform. With the continuous development and application of digital technology, SOR theory will play an increasingly important role in the garment industry.

4.1. The Basic Theory of SOR

SOR theory, or "stimulus-organic-response" theory, was first proposed by environmental psychologists Mehrabian and Russell to explain the process of how an individual responds to an external Stimulus. When considering Stimulus, it emphasizes that stimulus acts on the Organism, which in turn induces a Response. In the field of marketing, SOR theory is widely used to explain consumer behavior, that is, external stimuli (such as advertisements, product features, etc.) act on individual consumers to stimulate their intrinsic motivation, and eventually produce purchase behavior or other related responses.

4.2. The mapping of SOR Theory in the Garment Industry

In the garment industry, SOR theory presents a unique mapping relationship, especially in the context of digitalization, which is more complex and dynamic.

At the micro level, SOR theory is represented as "stimulation of product and advertisement - customer's purchase intention - customer's purchase behavior". Among them, the stimulation of products and advertisements refers to the wide dissemination of clothing products and their advertisements through various channels such as social media and e-commerce platforms, so that product design, color, material, price, promotional activities and advertising creativity form a powerful visual and psychological stimulus. After receiving these stimuli, consumers will form purchase intention according to their own needs, preferences and economic ability. User reviews and recommendations on digital platforms and word-of-mouth spread on social media

will further influence the purchase intention. Finally, the purchase intention is transformed into the actual purchase behavior, and consumers complete the transaction through online ordering and payment to realize the purchase of clothing products.

At the macro level, SOR theory is manifested as "the purchase demand stimulates product innovation - the conflict between product innovation and enterprise business model generates the demand for change - the enterprise carries out the change". With the acceleration of the digitization process, this macro-mapping relationship is particularly significant in the garment industry: First, the purchasing demand of consumers is constantly changing with the market changes and technological progress, and these demands become the direct driving force to promote product innovation. And product innovation is often accompanied by the demand for change in production process, supply chain management, marketing strategy and other aspects, which may conflict with the existing business model of the enterprise. For example, the adoption of new environmentally friendly fabrics may require the adjustment of production lines and procurement strategies, which may trigger the demand for change within the enterprise. In order to adapt to product innovation and market changes, enterprises have to adjust and innovate their business models. This may include digital transformation, supply chain optimization, upgrading of marketing strategies, etc., to form more effective product and advertising incentives.

Under the background of digitalization, the garment industry has formed a double-cycle SOR theoretical model from micro to macro: the stimulus of products and advertisements triggers customers' purchase intention and behavior, which in turn generates new purchase demand. These demands in turn promote the enterprise to carry out product innovation, thus leading to the change of business model; After the reform, enterprises continue to act on the market with more effective products and advertising incentives, forming a closed loop.

4.3. The Guiding Significance of SOR Theory to the Digital Transformation of the Garment Industry

a. Dynamic change of customer demand. In the digital age, customer demand is characterized by diversification, individuation and rapid change. SOR theory emphasizes the impact of stimulus factors on the body (consumers), reminding garment enterprises to always pay attention to market dynamics and changes in consumer behavior, and timely adjust product strategies and marketing strategies. For example, through big data analysis of consumer buying behavior and preferences, personalized advertisements and product recommendations can be accurately pushed.

b. Driving force of product innovation. The change of customer demand is the direct driving force for product innovation. SOR theory reveals the stimulating effect of purchase demand on product innovation, encouraging garment enterprises to increase investment in research and development, and constantly innovate product design, materials and technology. At the same time, enterprises should also pay attention to the interaction and feedback with consumers, integrate consumer demand into the process of product innovation, and enhance the market competitiveness of products and customer satisfaction.

c. The need for change of business model. Product innovation is often accompanied by the need for business model change. SOR theory emphasizes that between stimulus and response, the organism (firm) needs to adapt to changes in the external environment and make internal adjustments. In the context of digitalization, garment enterprises need to accelerate digital transformation, optimize supply chain management, improve production efficiency, expand sales channels, etc., in order to adapt to product innovation and market changes.

d. Guiding factors for digital reform. SOR theory provides guiding factors for the digital reform of clothing enterprises. By capturing consumer demand and behavior patterns through data analysis technology, enterprises can formulate more accurate marketing strategies and

marketing plans. At the same time, digital platforms also facilitate the interaction between businesses and consumers, helping companies collect feedback and continuously optimize products and services.

5. Digital Transformation of Garment Industry under SOR Theory

Under the SOR theoretical framework, the digital transformation of the garment industry requires enterprises to start from many aspects such as customer demand analysis, product design mechanism and production process optimization. By strengthening big data analysis, establishing man-machine combination design mechanism and introducing digital production analysis and process optimization and other measures, clothing enterprises can more accurately grasp the market demand, improve product design level, improve production efficiency and product quality, so as to stand out in the fierce market competition.

5.1. Strengthen the Guidance of Big Data Analysis for Enterprise Transformation

Under the SOR theoretical framework, the stimulation of customer demand is an important driving force to promote enterprise transformation. Strengthening big data analysis and in-depth insight into customer needs is crucial for garment enterprises to achieve digital transformation.

a. Use big data to analyze customer needs. In the digital age, big data has become an important tool for enterprises to understand market demand and grasp consumer psychology. By collecting data from multiple channels such as social media, e-commerce platforms and customer relationship management systems, clothing companies can use big data analysis technology to mine information such as customer preferences, purchasing behaviors and consumption trends. These data can not only help enterprises understand the current market demand, but also predict the future market trend, providing strong support for the product design, marketing strategy and digital transformation of enterprises.

b. Guide enterprises to determine the direction of transformation according to customer needs. Through big data analysis, enterprises can clearly see the diversity and change of customer needs. Based on these analysis results, enterprises can more accurately locate the target market and clarify the direction of transformation. For example, if data analysis shows that young consumers have a growing demand for sustainable fashion and environmentally friendly materials, companies can consider transitioning to environmentally friendly materials, sustainable production, etc., to meet this market demand. At the same time, big data analysis can also help enterprises identify potential market opportunities, such as exploring new consumer groups and expanding into international markets, and provide clear strategic guidance for enterprises' digital transformation.

5.2. Establish a Human-machine Integrated Clothing Product Design Mechanism

In SOR theory, stimulus factors (such as product design) have an important impact on customers' purchase intention. Therefore, establishing an efficient and innovative product design mechanism is the key to the digital transformation of clothing enterprises.

a. Use artificial intelligence technology to collect customer demands. The rapid development of artificial intelligence technology provides a new idea and method for fashion design. Enterprises can use artificial intelligence technologies such as natural language processing and image recognition to collect customers' demands on clothing styles, colors and materials through channels such as social media, online surveys and customer service. These demands will become an important reference for product design and help companies design products that better meet market demands.

- b. Transform customer needs into a fashion design framework. After collecting customer demands, enterprises can use artificial intelligence technology to transform these demands into a fashion design framework. For example, machine learning algorithms are used to analyze a large number of clothing pictures, extract design rules such as popular elements and color matching, and then combine customer demands to form a preliminary clothing design framework. This framework will guide the subsequent specific design work to ensure that product design meets both market trends and customer needs.
- c. manually complete the specific design of clothing products. Although artificial intelligence technology provides strong support for clothing design, human design is still an indispensable part. After forming a design framework, designers can complete the specific design of clothing products based on their own creativity and experience, combined with customer needs and market trends. In this process, the flexibility and creativity of manual design will be given full play, adding unique personality and charm to product design.

5.3. Introducing Digital Production Analysis and Process Optimization

In SOR theory, an enterprise's production efficiency and cost control have an indirect impact on customers' purchasing behavior. Therefore, the introduction of digital production analysis and process optimization is an important link in the digital transformation of clothing enterprises.

- a. Use digital technology to analyze the production process. Digital technology provides powerful tools for production process analysis. Enterprises can make use of the Internet of Things, big data, cloud computing and other technical means to carry out real-time monitoring and data collection in all aspects of the production process. Through the analysis of these data, enterprises can clearly understand the bottlenecks and problems in the production process, and provide strong support for process optimization.
- b. optimize the production process, improve production efficiency. After identifying the bottlenecks and problems in the production process, enterprises can take targeted measures to optimize. For example, by introducing automation equipment, adjusting production layout and improving production processes, they can improve production efficiency and product quality. At the same time, enterprises can also make use of digital technology to accurately forecast and schedule production plans to ensure the rational utilization of production resources and effective control of production costs.
- c. Realize cost control and resource optimization. Digital production analysis and process optimization can not only help improve production efficiency and product quality, but also help enterprises achieve cost control and resource optimization. Through real-time monitoring and analysis of production data, enterprises can find waste and redundancy in the production process in time, and take corresponding measures to improve. At the same time, digital technology can also help enterprises realize the transparency and coordination of supply chains, reduce procurement costs and management costs, and improve the overall competitiveness of enterprises.

6. Industrial Chain Reconstruction of Garment Industry under SOR Theory

Under the guidance of SOR theory, the industry chain reconstruction of the clothing industry should pay attention to expanding the proportion of marketing in the industry chain, and give full play to the role of marketing data in driving the operation of the industry chain; At the same time, actively introduce the participation of science and technology enterprises, especially big data analysis enterprises and intelligent equipment manufacturing industry, to inject new vitality and momentum into the industrial chain, and achieve more efficient, collaborative and sustainable development.

6.1. Expand the Proportion of Marketing in the Industrial Chain

From the perspective of SOR theory (stimulus-body-response), the marketing end is not only the entrance to receive external stimuli (such as market demand, popular trends, etc.), but also the key link to drive the response of the entire industry chain. Therefore, in the process of digital transformation and industrial chain reconstruction of the clothing industry, it is particularly important to expand the proportion of marketing end and give full play to its role in the data-driven industrial chain.

- a. Increase the investment and proportion of marketing end. Under the digital background, marketing is no longer limited to traditional advertising and promotion, but covers multiple dimensions such as market analysis, brand promotion and customer relationship management. In order to capture market signals more effectively, garment enterprises should increase investment in marketing and establish a more refined market analysis and prediction mechanism. Through market research, social media analysis, customer feedback collection and other means, real-time capture of consumer preference changes and potential demand, to provide data support for product design, production and supply chain adjustment.
- b. Marketing data through the industrial chain. The data generated at the marketing end is a valuable resource that drives the operation of the industrial chain. In SOR theory, these data can be seen as a response to external environmental stimuli, and they not only reflect current market demand, but also predict future consumption trends. Therefore, the data generated by the marketing end runs through the entire garment industry chain, which is the key to realizing efficient collaboration and accurate decision-making in the industry chain. Specifically, enterprises should establish a unified data platform to realize real-time docking and sharing of marketing data with production, procurement, logistics and other links. Through data analysis, enterprises can accurately predict market demand, optimize inventory management, reduce inventory overhangs and out-of-stock costs, guide the optimization of product design and production processes, and improve the operational efficiency of the overall industrial chain.

6.2. Integrating Technology Enterprises into the Garment Industry Chain

Under the SOR theoretical framework, the addition of science and technology enterprises has brought a new stimulus and response mechanism to the clothing industry chain. Through the introduction of advanced technologies such as big data analysis, artificial intelligence and the Internet of Things, science and technology enterprises can deeply participate in the design, production, sales and other links of the clothing industry chain, and promote the restructuring and upgrading of the industry chain.

- a. Integration of big data analysis enterprises. Big data analysis enterprises can provide accurate market insight and consumer behavior analysis for the apparel industry. By collecting and analyzing massive market data, social media data, transaction data, etc., big data analysis companies can help garment companies more accurately grasp market trends, predict consumer demand, and provide scientific basis for product design, inventory management, and marketing strategy formulation. At the same time, big data analysis can also help enterprises optimize supply chain management, improve operational efficiency, and reduce operating costs.
- b. Participation of smart device manufacturing industry. The participation of intelligent equipment manufacturing industry has brought revolutionary changes to clothing production. Through the introduction of intelligent production lines, automatic cutting and sewing equipment, intelligent warehousing and logistics systems, garment enterprises can realize the automation and intelligence of the production process, improve production efficiency and product quality. In addition, intelligent equipment can also be combined with big data analysis to realize real-time monitoring and dynamic adjustment of the production process, ensuring the accurate execution of production plans and effective management of inventory. At the sales end, the application of smart devices such as smart fitting mirrors and virtual fitting rooms also

provides consumers with a more convenient and personalized shopping experience, enhancing the appeal and competitiveness of the brand.

7. Conclusion

In the wave of digitalization, the garment industry has achieved significant improvement in production efficiency and market responsiveness through the digitalization of production methods, sales channels and operation and management. SOR theory reveals the stimulus-body-response consumer behavior pattern, and provides theoretical guidance for garment enterprises to accurately grasp market demand and optimize product design and business mode. In the future, the garment industry will continue to deepen digital transformation, use big data, artificial intelligence and other technologies to improve the level of personalized customization and supply chain management, at the same time, strengthen cooperation between science and technology enterprises, promote the restructuring of the industrial chain, and achieve more efficient, collaborative and sustainable development.

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