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Extracting and Investigating the Success Factors of Digital Transformation in Textile and Garment Enterprises: Based on the TOE Framework

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Abstract

This paper extracts 13 success factors based on the TOE framework in the three dimensions of Technology, Organization, and Environment (TOE). The factors are developed from investigating the challenges in the digital transformation of textile and garment enterprises and based on the literature and case studies on the success factors of digital transformation within the TOE theoretical framework. Descriptive statistics and factor analysis are performed on ample data from 201 textile and garment enterprises to verify the applicability of the TOE framework for the classification of success factors of digital transformation of textile and garment enterprises. The basic situation of the digital application of textile and garment enterprises is then summarised. The study finds that the organisational factors have the highest scores, followed by technical factors. From the observation indicators of 13 detailed success factors, the average score is greater than 4, indicating that the role of these success factors in textile and garment enterprises is generally recognised. The "digital strategic thinking" of senior managers has the highest score, followed by the "digital transformation project team." Environmental factor scores of enterprises in the Beijing Tianjin Hebei region are the highest, followed by enterprises in the Yangtze River Delta and Pearl River Delta regions. Medium and large enterprises have higher scores for technical factors and organisational factors. Finally, the paper discusses which success factors should be addressed and improved.

Keywords: Digital Transformation; Success Factors; TOE Framework; Textile and Garment Enterprises

1 Introduction

Not only is the textile and garment industry an essential traditional industry in China, but it is also a significant component of the global industrial supply chain. The international political and economic environment has undergone substantial changes. Textile and garment enterprises face uncertain and unstable problems such as weakening labour resource advantages, declining order volume, and inventory backlog. Therefore, they need to accelerate their transformation and actively deal with these difficulties in the development process. The Chinese government

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attaches great importance to digital development. Various industries have started taking digital transformation as one of the development strategies. Areas of digital transformation of textile and garment enterprises include the digitisation of basic fabrics, personalisation, personalisation of design and customisation, intellectualisation of product production, and digitisation of process management and quality detection. The process can also improve production efficiency and significantly reduce labour costs, allowing rapid response and agile delivery to consumer needs. Therefore, digital transformation is an inevitable solution for textile and garment enterprises to face their challenges. However, the digitalisation of textile and garment enterprises is still relatively weak, and the digital transformation process is uncertain and inefficient. As a result, studying the success factors of the digital transformation of textile and garment enterprises has become an essential issue of widespread concern in theoretical and practical circles.

Tornatzky and Fleischer first proposed the TOE framework in the process of technological innovation. It combines the diffusion of innovation (DOI) and the technology acceptance model (TAM) to select influencing factors of technological innovation from the perspectives of technology, organisation, and environment (TOE) [1]. Among them, technical factor refers to the internal technology and technical support of the organisation; organisational factor refers to the support of senior management, employee participation, the internal structure of the enterprise and other characteristics and resources of the company; and environmental factor refers to the external resources and capabilities of the government, industry and other factors that have an impact on the development of the enterprise. The three factors work together to promote the adoption of innovative technologies. Under the TOE framework, combined with the resource-based theory and the organisational system theory, success factors of digital transformation can be divided into three dimensions: technical factors, organisational factors, and environmental factors. Other studies also believe these are the critical success factors of digital transformation. Zhu K et al. (2006) believe that the influencing factors of informatisation can be studied from these three aspects, and different industries can further refine the influencing factors according to this standard [2]. Solis B. et al. (2014) point out that the success factors of digital transformation can be divided into internal and external resources and capabilities, emphasising the important role of external capabilities in achieving this goal [3]. Deloitte (2018) believes that the influencing factors of digital transformation are organisational structure, organisational culture, digital environment, employees and customers [4]. KPMG (2018) believes that digital strategy, corporate culture, customers and channels, organisations and processes, personnel and dynamic capabilities and other factors affect digital transformation [5]. The role of the three elements in the TOE framework in digital transformation is summarised as follows:

Research on technical factors: the new generation of information technology is the foundation and driving force of enterprise digital transformation. Tong Yu (2022) and Sirilertsuwan P et al. (2022) believe that technological input and application are the driving forces of enterprise digital transformation, which is conducive to achieving higher transformation performance [6-7]. Verhoef P C (2021) and Liu ZC et al. (2018) believe that information technology can help enterprises improve the speed of information transmission and communication and is an important factor in enterprise digital transformation [8-9]. Research on organisational factors: digital transformation is not only a simple technical mutation but also a management problem. It mainly changes the business process and organisational structure to implement strategic changes and create new business models. Feng XB et al. (2022) believe that the resources and capabilities within the organisation are crucial to digital transformation [10]. Yang JD et al. (2021) point out that resources such as the structure and talents within the organisation will play an important role