



Improving Inter-functional Coordination in Apparel Companies through Digital Transformation – An Exploratory Case Study in China

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Keywords: Digital Transformation, Inter-functional Coordination, Apparel Industry

Introduction. Digital transformation has emerged as a critical driver of change in the Textile and Apparel industry, offering new opportunities to streamline processes, enhance communication, improve coordination, and increase visibility (Ageron et al., 2020) involving design, sourcing, manufacturing, and retailing functions (Ha-Brookshire & Hawley, 2013). Adopting digital technologies such as 3D design toolsets, digital platforms, blockchain, and the Internet of Things, can help to improve the inter-functional coordination (IFC) among different functions in apparel companies (Bellemare, 2018). Existing research on IFC in the Textile and Apparel industry through digital transformation suggests that digital technologies can improve apparel companies' performance and enhance communication and coordination among different functions (Giri et al., 2019). However, there are still gaps in the existing literature to explore the implementation to improve IFC through digital transformation in an apparel company. Therefore, from the IFC point of view, this research aims to RQ1: explore how a traditional apparel company becomes a technology-driven company through digital transformation, RQ2: redefine major functions (activities) of an apparel company with the impact of digital transformation, and RQ3: evaluate the company's performance following its digital transformation implementation.

Literature Review. Coordination theory was used in this research, which is a set of principles and concepts that explains how different parts of an organization work together to achieve common goals (Cormack & Smith, 2005). The theory supports IFC through digital transformation by emphasizing the importance of adapting to new technologies and processes to improve communication, collaboration, and coordination (Danese & Romano, 2004). In an apparel company, digital transformation can greatly enhance IFC by providing real-time data, streamlining communication pathways, and broadening the availability of information (Keung Kwok & Wu, 2009). This includes implementing digital tools and platforms that allow for the easy sharing of information and resources between functions and creating a culture of digital literacy and innovation (Liu et al., 2022).

Method. A case study approach was conducted (Yin, 2009). Company A transitioned from a traditional apparel company into a technology-driven company through the implementation of a digital platform and management system. This transformation spans nearly all functions in the apparel industry, from design to retail. With 3,000 employees and a 26-year history, Company A can produce 1,500 distinct customized suits per day (official website). With a focus on digital transformation, it utilizes advanced technology to build a state-of-the-art custom smart factory and platform system, integrating end-to-end solutions. The researchers

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conducted semi-structured interviews with open-ended questions (Patton, 1990) involving seven employees from design, marketing, manufacturing, IT, human resources, and top management departments. Their years of experience at the company ranged from 8 to over 20 years. For data analysis, each transcript was analyzed and coded using a combination of manual coding methods (Merriam & Tisdell, 2015). To ensure data validity and reliability, the theme codes were checked with employees and crosschecked between the researchers (Fossey et al., 2002). Additionally, the researchers performed an extensive content analysis from Company A's website and other materials as supplementary data sources.

Findings. RQ1. Apparel companies must first embrace a digital mindset. To overcome "the biggest challenge of transforming is to change the way people think," Company A transformed the mindset of its employees by "hiring more digitally minded employees," "training new and existing employees" and "enhancing internal functional coordination to better understand digital innovation." Second, companies need to build or implement comprehensive digital platforms that encompass all functions rather than those limited to specific areas. Such closed-loop digital platform ensures that "customer needs are met throughout the organization," which is "a core value of our business model." Third, apparel companies need to take advantage of digital platforms to add value to their apparel to meet the needs of their customers. For example, as an apparel company, Company A's digital transformation not only "improved the standard quality of its products," but more importantly, "used data to align customer needs with the company's resources in a more timely and accurate way," thereby delivering greater value to its customers through improved IFC.

RQ2. All of Company A's functions work digitally and simultaneously on its own digital platform. For example, the product development and technology department convert products into digital codes, like "the red sewing thread is coded as 01, and the black one is coded as 02". Then, the production department extracts the product codes and orders data to transcribe into RFID. Workers only need to scan the RFID to access information on "more than 400 specific operations, such as sewing, buttoning, embroidery, etc." Second, the digital platform enables real-time internal coordination involving all functions to "increase efficiency" and "improve quality." Based on realtime data, the product development function has shifted from the previous "monthly or quarterly iterations" to "daily iterations." In addition, the design process has become "more precise" based on big data analytics. "We can predict which collections will sell well without having to wait until after the sale" and, as a result, "customers are increasingly satisfied with us." Furthermore, for the production department, since all product codes are already on the platform, therefore, from the moment a consumer places an order on the platform, "a synchronized IFC workflow begins among all functions though designers, manufacturers, suppliers and logistics." As a result, this streamlined coordination process allows Company A to "customize a suit in seven business days," significantly outpacing competitors who "take months."

RQ3. Digital transformation provides real-time visibility into the coordination of internal functions. By using a digital platform, the company can track the flow of entire products throughout the function, rather than waiting until "production or shipping of products to discover

various problems. " "We can identify problems and fix them in advance." This allows production, logistics, and sales functions to access the same information and improve coordination and decision-making. Second, another impact of digital transformation on IFC in apparel companies is the ability to leverage data analytics. With the big data provided by the platform, apparel companies have access to "real-time data" about "customer preferences and buying behavior." This data and data analytics capability provides insight for internal functional coordination. These insights can help different departments work together to make better decisions and improve overall business performance. Ultimately, the insights provided by the data enabled Company A to "reduce the apparel industry's average process of 1,000-piece starts and 1-month deliveries to 1piece starts and 7-day deliveries."

Discussion. Coordination theory provides a framework for understanding how IFC can be improved through digital transformation in an apparel company. By using digital tools and technologies, apparel companies can add value to apparel and facilitate inter-functional coordination, streamline processes, and enhance data sharing and analysis. The findings are important for apparel industry, stakeholders in business, and academic educators. Additionally, this research contributes to the broader body of literature on coordination theory and digital transformation in the apparel industry, providing insights into the specific challenges and opportunities faced by the apparel industry to improve IFC.

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