Strategic Digital Transformation in B2B Companies: Enhancing Competitiveness Through Technological Innovation

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Abstract: With the rapid development of information technology and the intensification of competition in the global market, B2B companies face unprecedented pressure to transform. This study examines how B2B companies can enhance their competitiveness through digital transformation in response to technological changes in the business environment and increasing market competition. Through the literature, this study analyses the role of data in B2B digital transformation, the impact of emerging digital technologies, changes in business models and user experience, and the challenges of digital transformation. The study shows that effective use of data, adoption of advanced digital technologies, and innovation in business models are essential for B2B companies to achieve successful digital transformation. This study also points out that digital transformation is not just about technological change but involves a complete reorientation of corporate culture, strategic positioning, and internal structure. The study highlights the importance of cross-functional collaboration and discusses strategies to ensure data security and privacy during digital transformation.

1 INTRODUCTION

Technological advancement and change in the commercial environment have intensified industry competition, compelling business-to-business (B2B) companies to accelerate their transformation efforts to adapt to the external environment by enhancing their competitiveness. As a result, B2B marketing faces increased pressures to engage in digital transformation.

Digital transformation is generally understood as the innovative process through which companies adopt digital technologies for reshaping various aspects of their business, ranging from vision and strategy to organizational structure, processes, capabilities, and culture to adapt to the highly dynamic external environment (Warner & Wäger, 2019). The external factors influencing digital transformation primarily include developing and penetrating digital technologies, intensified competitive environments, and changing user demands. Through digital transformation, B2B enterprises must also actively leverage innovative technologies and digital tools, such as SaaS, marketing automation, and artificial intelligence (AI). These technologies are crucial for enhancing business efficiency and reducing costs, thereby increasing competitiveness. One of the transformation focuses for B2B companies is the digitalization of marketing.

This literature review focuses on the digital transformation of B2B companies, particularly in marketing. The first section introduces digital transformation for businesses and its role in strategic management. The second section discusses the role of data in digital transformation for B2B companies. The third section examines emerging digital technologies relevant to digital transformation, and the following section focuses on the changes that digital transformation brings to business models and user experience. Lastly, the challenges of digital transformation are identified.

2 DEFINING DIGITAL TRANSFORMATION

The exploration of digital transformation of companies began with the development of informatization. According to Morton (1991),

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information technology has transcended the limitations of time and space. For businesses, effectively utilizing information technology to address future economic changes requires transforming their existing organizational structures. The definitions of digital transformation in existing literature in management are diverse. Fitzgerald et al. (2014) define digital transformation as using digital technologies of various types to achieve substantial improvements. According to Vial (2021), digital transformation can be defined as significant changes in the properties of an organization triggered by integrating information, computing, communication, and connectivity technologies to improve organizational processes. Digital transformation is believed to reflect the inherent complexity found in the external environment of the business as well as the disruptive impacts brought forth by the adoption of digital technologies on businesses and the broader society.

Many scholarly attempts to define digital transformation highlight its impacts beyond improving operations and processes. Warner and Wäger (2019) emphasize that digital transformation can be considered a continuous strategic renewal process, leveraging digital technological advancements to renew or replace organizational business models, collaboration methods, and culture. Warner and Wäger (2019) suggest that digital transformation often begins with the strategic renewal of existing business models and business model changes, followed by broader corporate collaboration methods, ultimately leading to deeper cultural changes within the business if properly implemented. Similarly, Furr and Shipilov (2019) highlight that digital transformation involves adopting digital tools to transform core functions and identifying and capturing new opportunities brought by digitalization.

The impacts of digital transformation on organizational strategy are often highlighted. Gurbaxani and Dunkle (2019) view digital transformation as an innovative process through which companies adopt digital technologies to make large-scale organizational changes. This process encompasses both technological and strategic aspects of the business, requiring the company to reshape its vision, strategy, organizational structure, etc., to adapt to a rapidly changing digital environment. Singh and Hess (2020) note that transformation implies comprehensive action beyond functional thinking. Hess et al. (2016) state that digital transformation involves changing business models, products, organizational structures, and strategy. Research also agrees that digital transformation is an organization-wide and highly complex endeavor that requires strategic alignment (Li et al., 2016; Smith & Beretta, 2021). Yoo et al. (2012) emphasized that the success of digital transformation hinges on the compatibility between organizational conditions and the application of digital technologies, without which value creation may be hindered.

3 ROLE OF DATA IN B2B DIGITAL TRANSFORMATION

Data has become recognized as one of the crucial factors of production in the current economy driven by digital technologies, along with labor, capital, technology, knowledge, and management (McAfee et al., 2012). According to Vermesan and Bacquet (2017), the digital transformation of businesses is also largely facilitated by the generation and utilization of data, most notably through creating digital traces with various mobile digital devices and the operational data generated by embedded digital devices. Moreover, data has become a significant competitive resource for companies, enhancing learning abilities and dynamic capabilities (Ghasemaghaei & Calic, 2019). Through the processing and analysis of big data, enterprises can engage in effective exploratory learning to provide better services that meet the growing needs of users. For example, Kane (2014) studied data usability in the case of KLM Royal Dutch Airlines, which interacts with users through social media platforms. KLM analyzes the data generated from these interactions and services to understand the dynamic changes in user sentiments and takes targeted actions to maintain user satisfaction (Kane, 2014).

Loebbecke and Picot (2015) argue that integrating digitalization and big data analytics enables new work methods, communication, and collaboration. For B2B companies, digital transformation involves adopting data-driven operation mechanisms that acquire data from internal and external sources, generate and structure new information, and upgrade and refine existing information (Troisi et al., 2020). These mechanisms employ big data analytics to provide key organizational resources for service innovation. Companies engaged in digital innovation are better positioned to manage market uncertainties and reduce risks by combining user data with other data sources, thus gaining an advantage in exploring unknown territories.

Traditional businesses have the majority of their data as dark data, which lacks a strategic application and cannot generate commercial value. This data is dispersed across multiple databases, and the lack of comprehensive customer profiles puts these businesses at a competitive disadvantage. Additionally, traditional B2B companies face fragmented customer acquisition funnels. Marketing and sales departments fail to effectively consolidate leads, making it difficult to identify high-quality prospects and losing potential customers. Digital marketing addresses these issues by creating a flexible digital business platform within the company, integrating business processes between marketing and sales in real time and enabling more effective business analysis (Pandey et al., 2020).

4 EMERGING DIGITAL TECHNOLOGIES

In regard to digital technologies relevant to organizational digital transformation, debates revolve around which technologies qualify as transformational. Disagreements primarily arise in enterprise-focused research, divided into views on transforming either business domains alone or the entire organization with technologies. Westerman et al. (2014) contend that businesses engage in digital transformation to improve or restructure business operations. In contrast, Heilig et al. (2017) believe that emerging new technologies and technological trends in the market are the key driving forces for digital transformation. Legner et al. (2017) argue that enterprise transformation through any information technologies constitutes digital transformation. Conversely, Hess et al. (2016) and Kane et al. (2015) assert that digital transformation only refers to organizational changes that involve the adoption of next-generation digital technologies rather than technologies new to the organization itself; however, there is no consensus on the definition of the scope of such technologies.

The scope of digital technologies that enable the transformation of businesses remains one of the most debated issues among scholars in this field. Bharadwaj et al. (2013) suggest that digital technologies combine information, computing, communication, and connectivity technologies. A widely accepted definition by Sebastian et al. (2020) identifies next-generation digital technologies as SMACIT: social, mobile, analytics, cloud, and Internet of Things technologies, including big data, cloud computing, blockchain, IoT, artificial intelligence (AI), and virtual reality. However, some scholars suggest that this specific set of definitions for digitally transformational strategies limits the inclusion of new emerging technologies that may become adopted in the digitalization process of companies (Fragapane et al., 2022).

Companies invest heavily in advanced digital technologies to remain competitive in the constantly changing market environment. These technologies can disrupt production activities, often being cheaper, simpler, more compact, and more convenient, enabling faster access to computing resources (Christensen, 2016). Upgrading software and hardware is believed to be a fundamental characteristic of digital transformation (Sturgeon, 2021). The emergence of broader computing resources and new computing models necessitates organizations to reassess their plans to invest effectively and use these new technologies to suit their strategic goals and existing capabilities (Loebbecke & Picot, 2015). For instance, organizations need to consider effectively deploying scalable computing resources internally or through the cloud to analyze better and manage the continuously accumulating data (Yoshida, 2017).

For marketing, digital technology enables the circumvention of intermediaries, allowing direct communication participants in its value network, such as business partners; this allows companies to achieve disintermediation (Hansen & Sia, 2015). On the other hand, it also strengthens the connections among various value network participants, facilitating their collaboration. Digital technology also empowers users to act as co-creators of value within the value network. Digitalization assists B2B companies in establishing digital channels and expanding and improving sales and communication avenues. Companies use social media to create direct dialogue channels with users, linking the digital and physical worlds to support a multi-channel marketing strategy (Hansen & Sia, 2015). Additionally, digital technology enhances internal communication channels, with digital algorithmic decision-making coordinating internal activities (Newell & Marabelli, 2015).

B2B companies sell products or services to other businesses, whose procurement processes often involve multiple stakeholders. This results in long and complex sales cycles, sometimes spanning decades and involving hundreds of employees (Hutt & Speh, 2021). This makes data-driven personalized marketing technologies crucial in B2B marketing. For example, account-based marketing (ABM) targets

specific key customers by understanding their needs, preferences, and behaviors and developing tailored marketing strategies (Bacon, 2021).

5 CHANGES IN BUSINESS MODELS AND USER EXPERIENCE

Digital technology has significantly disrupted long-established processes and structures in traditional companies (Mithas et al., 2013). The recombination of products and technologies through digital means has created new products and services (Mithas et al., 2013). New business models, transaction methods, collaboration modes, and competitive strategies have also emerged (Mithas et al., 2013). Kahre et al. (2017) suggest that digital technologies have been shifting competition within industries from a physical to a virtual realm, where information flows more freely; in turn, businesses now compete in terms of their effective access and utilization of information.

Digitalization also promotes industrial specialization by reducing search and contract costs (Cirillo & Molero Zayas, 2019). At the same time, digitalization reduces information asymmetry, providing more basis for contract formation and decreasing the likelihood of opportunistic behavior or partner non-performance (Cirillo & Molero Zayas, 2019). Scholars generally agree that digitalization positively impacts various aspects of business performance, enhancing overall industrial flexibility, improving product quality, increasing production efficiency, and reducing production costs, thereby optimizing industries. For instance, production planning optimization software can enhance industrial flexibility, and simulation tools can reduce design and development costs (Fragapane et al., 2022). Tan et al. (2015) state that digital technology has significantly transformed how companies create value, most notably through platforms and ecosystems utilized by companies like Google and Apple. Traditional physical product manufacturers now focus on services and software as core value creators, incorporating data collection and exchange capabilities in their next-generation products (Porter & Heppelmann, 2014).

The digital revolution has profoundly affected consumer behavior. Digital technology empowers consumers with extensive information access and social capabilities, such as using mobile devices for social engagement with others or obtaining information from different online communication platforms, including interactions with companies. This shift has changed consumers' perceptions; they now see themselves as active participants in corporate activities, with higher expectations for products and services (Lucas Jr. et al., 2013). Consequently, markets demand higher dynamic capabilities from enterprises, requiring accurate anticipation and timely responses to consumer needs. For example, advertising companies develop algorithms to understand consumer preference changes in real-time, enabling dynamic placement of advertisements and frequent consumer interactions.

Existing literature shows a growing interest in the digital transformation process, with fragmented research beginning to explore the coordination processes of implementing digital transformation in companies. Digital transformation in companies is a continuous strategic renewal process involving updating business models, collaboration methods, and culture. The formulation of a digital transformation strategy is believed to be a dynamic process, iterating and improving through experimentation and learning (Furr & Shipilov, 2019). Furr and Shipilov (2019) emphasize that the successful outcomes of digital transformation are the results of adapting the business to the technological environment rather than reinventing the organization based on available technologies. Based on interviews with over 60 companies and their executives, Furr and Shipilov (2019) assert that for most companies, digital transformation involves delivering core value propositions through incremental changes leveraging new technologies identified as suitable for the company rather than radical disruption. Key aspects of digital transformation include focusing on user needs, organizational flexibility, and respecting gradual changes to seize opportunities presented by digital technologies. Using grounded theory, Vial (2021) reviews relevant literature and constructs a framework for the digital transformation process, suggesting that the creative destruction caused by digital technology triggers organizational strategic responses.

6 CHALLENGES OF DIGITAL TRANSFORMATION

The digital transformation of companies is not a change confined to a single department; it is a process involving a series of continuous and long-term activities. As previously noted, successful transformation requires coordinated efforts across all

departments and comprehensive business operations. Consequently, during digital transformation, changes in products and business, business models, organizational structures, and corporate strategies may occur simultaneously, sequentially, or in an overlapping manner, depending on the specific circumstances of different industries and companies (Brown et al., 2014). In scope and depth, the progression typically follows from the digitalization of products and business to business model digitalization, organizational structure digitalization, and corporate strategy digitalization. Businesses continually generate new business models through integration with digital technologies, while some traditional business models gradually become obsolete.

Digital transformation is challenging, with many companies either abandoning it midway or failing to achieve the desired outcomes. Research indicates that the lack of flexibility is one of the primary barriers to digital transformation. Svahn et al. (2017) argued that the rigidity found in the current resources and capabilities of the organization is the most significant obstacle to the transformation process; particularly, companies are commonly deeply entrenched in their networks of customers and suppliers, as well as in their optimized business processes established through experience. Furthermore, entrenched corporate culture can be a significant hindrance to transformation. Haffke et al. (2017) found that there is separation between digital technologies and business functions in many established companies, even becoming part of the corporate values. Hess et al. (2016) studied the digital transformation processes of three German media companies and found that each faced issues with traditional financial systems incompatible with digital technologies. Hess et al. (2016) emphasized that companies must carefully design organizational changes to better leverage digital technologies. Sia et al. (2016) suggested creating an independent department to drive the digital transformation strategy, maintaining a degree of autonomy to foster innovation.

Feher and Varga (2017) proposed that companies should conduct small-scale pilot projects before fully rolling out a digital transformation strategy to foster a willingness to transform and take risks within the organization, laying the foundation for broader implementation. This iterative approach enables learning and continuous adjustment based on pilot results, ultimately achieving long-term digital transformation goals. Maedche (2016) noted that successful digital transformation requires strong cross-functional collaboration, necessitating integrating the organizational structure with the digital transformation strategy. This integration is challenging and involves overcoming numerous obstacles related to professional skills and communication.

Digital disruption has also introduced new issues, particularly in terms of security and privacy. In the context of big data, digitalization inevitably involves consumer information, which companies can use for product customization and targeted marketing to enhance consumer utility. However, this also poses risks of price discrimination and privacy breaches for consumers. In the study of digitalization in the automobile industry Piccinini et al. (2015) found significant data and privacy breaches. Piccinini et al. (2015) suggest that many data and privacy breaches have not been adequately addressed after their identification by the companies for a long period of time, up to several years. Another study by Newell and Marabelli (2015) highlighted that algorithmic decision-making poses substantial security risks. These processes risk breaching privacy without sufficient supervision, affecting society and individuals. Newell and Marabelli (2015) further suggest that a key issue to insufficient data and privacy protection is not technical but the reluctance of relevant institutions and personnel. Many companies and their management are unwilling to acknowledge and invest in addressing these problems related to adopting new technologies. Thus, it is suggested that security and privacy should be a focus for relevant government regulators, companies, and professionals involved.

7 CONCLUSIONS

This study comprehensively examines the key elements and challenges for B2B companies in digital transformation. The study reveals that data-driven operational mechanisms, investment in advanced digital technologies, and changes to business models and user experience drive this transformation. Digital transformation enhances efficiency and reduces costs through technologies like SaaS and AI. It also improves customer engagement by enabling personalized marketing through data analytics. Additionally, it allows businesses to adapt quickly to market changes and fosters better collaboration across departments.

However, organizational resistance to change and entrenched corporate cultures can hinder digital transformation efforts. Data security and privacy concerns increase with the reliance on digital

technologies, and ensuring robust security measures can be complex and costly. The initial implementation costs can be substantial, and there is a dependency on continuous technology upgrades to avoid operational disruptions. Enterprises need to adopt a comprehensive strategy, including cross-functional collaboration and small-scale pilot projects, to overcome these obstacles and achieve their long-term digital transformation goals. Future research should focus on enhancing cross-functional collaboration during digital transformation initiatives and investigating effective change management practices. Developing comprehensive data security frameworks and conducting longitudinal studies on the long-term impacts of digital transformation are also important. Additionally, exploring the latest technological advancements and their applications in B2B marketing can provide valuable insights for businesses.

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