

The Impact of Digital Transformation Trends on Corporate ESG Case of Starbucks

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Abstract. With the intensification of the global greenhouse effect, people's attention to the environment is increasing day by day. Sustainable development has become an important indicator for evaluating enterprises, and the priority of the ESG concept in the business process is gradually increasing. This article takes Starbucks, a leading global coffee retail company, as a typical case of digital transformation for analysis. It successively elaborates on the impact of the company's five major digital transformation processes on ESG. At the same time, by comparing with other globally renowned enterprises, it analyzes the necessity of digital transformation for the ESG of enterprises. Through case analysis and comparison, it is concluded that the digital transformation of enterprises not only benefits ESG indicators in the long-term business development process, but also can expand the competitive advantage of enterprises. This study finds that after enterprises undergo digital transformation; they effectively enhance their ESG by leveraging the information processing and analysis capabilities of digital tools. For instance, Starbucks has promoted the sustainable development capacity of the enterprise by replacing the traditional physical marketing model with digital gift cards and electronic marketing emails. By showcasing the supply chain through blockchain technology and increasing the exposure of migrant workers who grow coffee beans, the transparency and image of enterprises have been further enhanced. Not only that, but Starbucks has also developed Deep brew AI based on machine learning models to analyze market consumption preferences and thereby enhance management efficiency. All the above examples can prove that the digital transformation of enterprises has a positive impact on ESG. There is a positive correlation between the investment of enterprises in technology and ESG.

Keywords: ESG, Digital transformation, Sustainable, Social responsibility.

1. Introduction

With the rapid improvement of industrial production technology after the Second Industrial Revolution, global business expanded rapidly. The widespread urbanization has led to the gradual warming of the global climate, and the greenhouse effect has come into people's view. The attention paid by all sectors of society to climate change is increasing day by day, so the sustainable development of enterprises has become an important consideration factor. Against this backdrop, a quantitative index ESG based on data from Environmental, Social, and Governance emerged. The implementation of environmental, social and governance principles is a key driving force for the global economy and society to enhance sustainable development. Since the ESG concept was officially proposed in 2004, the global business and trade systems have been implementing the core ESG principles [1]. ESG is a comprehensive evaluation system based on a company's sustainability and long-term value. This system not only covers the company's enthusiasm and effectiveness in environmental governance, but also assesses the company's sense of social responsibility towards the outside world and the feasibility of orderly governance within the company through quantitative data. Against the backdrop of the current green economy and global trade, ESG has become an important evaluation system for enterprises and society. Not only that, the popularization and application of Internet technology over the past 30 years have shaped today's business system. After the birth of AI in 2022, digital transformation marked the beginning of a milestone, laying a solid foundation for its application in business. The core competitive advantage of digital transformation lies in the rational allocation of business resources through the collection and reanalysis of past business data by digital models, thereby optimizing the operational efficiency of enterprises and maximizing operational

efficiency. It includes the reintegration process of analyzing market trends, consumer behavior, operation cycles, and online resource information. Among them are phased visibility optimizations and improvements in the ESG indicators of enterprises, including the environment, society, and governance. Digital transformation, benefiting from powerful computing power and various digital technologies, is also known as the third industrial revolution in human history. Digital transformation is not only a revolution in the production process brought about by Internet technology, but also the beginning of a wave of business change. The intelligent business model has become an inevitable development trend. Its unique advantage lies in leveraging the efficient dissemination of the Internet and its ability to integrate and analyze data. The most direct impact of digital transformation on business models is to enhance information processing capabilities and reduce operating costs, thereby improving production efficiency in multiple dimensions. Furthermore, digital innovation has abandoned the traditional manufacturing industry's high reliance on environmental and natural resources, and more efficient data integration technologies support the optimization of data transparency. The advantages of digital transformation are of great significance for promoting the development process of ESG in enterprises under the tripartite indices. ESG and digital transformation have a guiding significance for current business models. Research in these two fields has gradually emerged. However, after review, it was found that there are phased shortcomings and limitations in the areas where digital transformation is related to ESG. The main research purpose of this article is to explore the impact of digital transformation on enterprise ESG. Against this backdrop, the focus is on literature research on the mechanism and path of digital transformation in the ESG evaluation system. The key driving force of enterprise digital transformation for ESG lies in establishing a measurement method based on the mechanism of action of the tripartite index, thereby achieving quantitative data analysis on issues such as path policies.

2. ESG in Starbucks' Digital Transformation

Digital transformation is to carry out the application of digital technologies centered on enterprises to optimize business processes, improve the rationality of organizational structure, and thereby enhance customer experience. The underlying operational logic of enterprise digital transformation, based on a competitive market, lies in enhancing efficiency to sustain competitiveness. Digital transformation is a systematic process of change in Internet technology, and the ultimate outcome lies in the derivation and leveraging of tools such as artificial intelligence, cloud computing, and the Internet of Things to enable enterprises to drive strategic transformation in their business models with digital technologies. The main reason why Starbucks, as a globally renowned coffee brand, has maintained a leading position in the long-term industry competition is that it has integrated and broken through its operational capabilities by leveraging digital tools.

2.1. Environment

Environment, society and governance together constitute ESG. The "E" in ESG stands for the environmental Pillar, which is currently the only quantifiable indicator, but it is still not complete in commercial applications [2]. Starbucks invested in the development of the Square mobile payment system in 2015 and combined it with Apple Passbook. This move by Starbucks enables consumers to make mobile payments and place orders within the app, marking the official launch of Starbucks' research and application in the Fintech field. With the launch of the Square mobile payment system, not only has the waiting time for customers in physical stores been reduced, but also the lower transaction fees and diverse and flexible payment methods have been highly favored by customers. The most direct positive feedback of the Square mobile payment system to Starbucks' marketing model is to enhance the customer's consumption experience. Research data shows that in 2015, Starbucks set an industry record of 3 million transactions in a single month relying on the Square mobile payment system [3]. In addition, in order to implement the concept of sustainable development and environmental friendliness, Starbucks has launched digital gift cards and email marketing to

replace traditional physical plastic cards and printed paper advertisements. The promotion of digital gift cards has become a social label and trend guide for Generation Z. Starbucks has achieved excellent brand marketing through this and gained brand loyalty from a large audience. One year later, Apple, a renowned American technology company and one of the world's most competitive enterprises, issued \$1.5 billion in green bonds to provide financial support for sustainability projects, becoming the largest green bond issuance in the history of an American company [4,5]. Apple's sustainable development has not only been optimized by the implementation of Green Move but also set a guiding trend for the sustainable development of the industry. The successful implementation of Green Move has promoted the standardization and transparency of green bonds for the development of the global social business system. In 2020, Apple announced its goal of achieving complete carbon neutrality in its development over the next decade. To this end, Apple issued green bonds again [6]. Young people of Generation Z have a higher degree of inclusiveness in proposing environmentally friendly concepts, and the idea of sustainable development is also subtly influencing the purchasing behavior and preferences of the Generation Z group. Research shows that 55% of Generation z young people are willing to pay a premium of 47% to 53% for goods packaged with sustainable materials [7].

2.2. Social

"Social" represents the social pillar. The social part can be further divided into four major aspects: employment practices, human rights, society, and product responsibility. From the perspective of enterprises, all interactions with related groups can be covered within the social scope, such as the protection of consumers' information security, the establishment of local communities for operation, the improvement of staff skills, and the social commitment of suppliers [8]. As carbon emissions from automobiles have drawn attention, global electric vehicles have begun to expand rapidly and seize market share in the automotive industry. BMW has begun to shift from traditional fuel vehicles to the production of electric vehicles. Batteries, as the core components of electric vehicles, have a significant demand for cobalt. However, when expanding its product line, BMW overlooked human rights risks, and the production of cobalt sparked social human rights disputes. Approximately 60% of BMW's cobalt is produced in the Democratic Republic of the Congo. An investigation named Amnesty International has disclosed that the cobalt supply chain of BMW vehicles contains inhumane labor practices and child labor. Research shows that 40% of the workforce is child labor, among which 8% are under 10 years old, and 90% of the workers are not equipped with any pneumatic tools, including gloves and shoes [9]. Unstable underground structures often experience rockfalls, causing injuries and deaths to workers. However, laborers have to work dozens of meters underground under the premise of lacking safety guarantees and supervision. Furthermore, exposure to chemicals and toxic dust further undermines the health and well-being of workers, yet their wages are only \$35. On the contrary, in August 2020, Starbucks launched the application of blockchain technology to enhance the transparency of its coffee supply chain. The key role of blockchain technology in Starbucks lies in enabling customers to trace the origin of the coffee they purchase. Customers only need to scan the QR code on the packaging of Starbucks coffee to learn about the origin of the coffee, including the country, the farm and the farmers who grow the coffee beans [3]. This move not only strengthens consumers' trust in product quality, but also demonstrates Starbucks' commitment to sustainability and transparency. The core role of Starbucks in demonstrating its supply chain through the use of blockchain technology lies in enhancing the transparency of links such as the source of products and the production process within the supply chain. The improvement of transparency is conducive to information disclosure and the implementation of social regulatory responsibilities. High transparency is an important cornerstone for enterprises to establish brand image and build social reputation, and it can effectively build a bridge of trust with consumers. The key to blockchain technology lies in ensuring the immutability and security of data, thereby enhancing the transparency of all links in the supply chain. The information displayed through blockchain technology helps enhance consumers' trust in product quality and also provides farmers with more exposure

opportunities. Through blockchain technology, enterprises have not only enhanced the social status of these coffee bean growers, but also aimed to address the sluggish economic development in poverty-stricken areas. Commercial charitable marketing for poverty-stricken areas not only demonstrates Starbucks' sense of social responsibility as an industry leader, but also broadens the market channels for local cash crops, alleviating the social well-being of the local area that has been damaged due to economic reasons through actual economic benefits. Moreover, blockchain technology can help Starbucks better manage its supply chain from the source of products and reduce production costs in the middle links. As a key means of digital transformation, blockchain makes every process of a product from the farm to the consumer transparent and traceable. This move by Starbucks not only fulfills its sense of social responsibility as an enterprise, but also establishes a good brand reputation. It is worth noting that the visualized blockchain technology has allayed consumers' concerns about potential risks in product production and reduced the cost of social supervision.

2.3. Governance

The "G" in ESG encompasses all governance factors that arise during a company's decision-making process. Governance is composed of sovereign decision-making and the allocation of rights and responsibilities among different participants within a company, demonstrating operational rules and screening mechanisms. The company's mission, the role and composition of the board of directors, shareholders' rights, and the standards for measuring the company's performance are all core elements of the corporate governance structure [10]. On February 28, 2022, Ashneer Grover, co-founder and managing director of BharatPe, resigned from his position. A recording of Ashneer Grover abusing an employee of Kotak Mahindra Bank has sparked an even greater public opinion storm. The cause was that the employee's mistake led him to miss the initial public offering of the online beauty products company Nykaa. With Grover and Uday Suresh Kotak, the chairman and managing director of Kotak Bank, filing a legal lawsuit against Ashneer Grover, the brand image of BharatPe has come under further controversy. Grover claimed that Kotak Bank refused to provide him with 5 billion rupees in financing for his investment in Nykaa's IPO. After that, Grover decided to continue his vacation until the end of March 2022. Regarding Grover's comments on Shark Tank India and his deal with Harshajit Sethi, an executive of Sequoia Capital, Grover's language and behavior have been criticized by society. As public opinion escalated, more and more attention shifted to BharatPe's large-scale corporate governance issues. During BharatPe's initial public offering, investors expressed concerns about the damage to BharatPe's image. BharatPe had to appoint the risk consulting firm Alvarez and Marsal to conduct an independent audit of the company's existing internal processes and systems and examine issues related to corporate governance. Ultimately, Grover resigned from his position [11]. BharatPe's corporate governance mechanism did indeed alleviate the company's financial predicament in the short term, but improper supervision of the behavior of managers could lead to violations that would harm the company's long-term development. BharatPe lacks whistleblowers to establish a mutual supervision mechanism and has no specific accountability system to impose corresponding penalties on violations. Starbucks, as a direct-to-customer fast-moving consumer goods brand, has taken the following measures to address internal governance issues and customer maintenance. Starbucks has deployed the Internet of Things (IOT) in all its offline stores to predict the maintenance of coffee machines, blenders and grinders, thereby reducing operating costs and maximizing the operational efficiency of its stores. The instability of the labor force has been fully compensated for by digital transformation, and the labor cost has also been reduced accordingly in response to the positive feedback of digital transformation. To ensure the normal operation of the Internet of Things, Starbucks and Microsoft jointly developed the AZURE SPHERE system, which uses Internet technology to monitor the operation status of the Internet of Things in stores in real time, reduce the failure rate of equipment and thereby reduce governance costs. In 2017, Starbucks developed Deepbrew AI based on machine learning to predict and analyze market consumption preferences. Not only does it reduce the cost of managing the company, but it

can also avoid the internal human resource problems of mutual shielding in workplace relationships [3]. The core data-driven capability of Deepbrew AI lies in extracting consumers' purchase records through big data. The data samples cover time, weather, community preferences, and even the time when customers return to the store. Through the computer's efficient data processing capabilities, market trends are perceived to implement customized menus and intelligent recommendations. The collected cloud data helps Starbucks better predict the peak demand of customers. Compared with the traditional method of manual record-keeping and business experience analysis to adjust business ideas, digital transformation avoids subjective misjudgment by humans and saves high training costs. The computing power analysis of digital transformation precisely makes feasible adjustments to business strategies, avoiding fluctuations in raw material supply and the risk of theft. The ultimate goal is to enhance the customer experience and optimize the internal governance procedures. For internal corporate governance, Starbucks has created My Starbucks Creative Platform. This platform belongs to the early form of one-way interaction forums between enterprises and consumers. During the early period when Internet construction was weak, this platform became an important medium bridge for interaction between consumers and enterprises. The interaction model between enterprises and consumers serves to collect consumers' suggestions related to products, services and advertisements. On the other hand, good communication channels can help enterprises consolidate the quality and base of consumers. In 2008, Starbucks launched the "Starbucks Rewards Program" and integrated it with the mobile application, allowing customers to earn stars through consumption and redeem rewards [3]. This move by Starbucks has stimulated the repurchase rate in the consumer market and enhanced customer engagement. Therefore, the company has a more loyal and high-quality customer base, establishing an effective competitive barrier in the industry competition and becoming a core competitive advantage for seizing market share.

3. Starbucks' Digital Transformation and the Impact of ESG

Starbucks' digital transformation was not achieved overnight but was gradually completed through continuous experience and capital accumulation. During its digital transformation, Starbucks has invested in fintech (Square mobile payment system), digital gift cards and email marketing, blockchain technology, artificial intelligence (Deepbrew AI), Internet of Things, and the AZURE SPHERE system. These core products of digital transformation have undoubtedly injected a strong hardware foundation into Starbucks' ESG. Fintech and e-marketing have reduced the waste of traditional commercial materials, thereby enhancing the sustainable development capabilities of enterprises. As a global trendsetter in technology, Apple has pioneered a sustainable business model by issuing green bonds, while Starbucks' digital transformation provides a technological foundation that aligns with the backdrop of green development. Starbucks' commitment to sustainable development aligns perfectly with that of Apple. BMW's negligence in digital transformation has become one of the factors contributing to the controversy over human rights and welfare in society. The low transparency has led to social doubts about BMW, and the customer favorability it has accumulated over the years has been destroyed in an instant. On the contrary, Starbucks discloses every link from production to transportation by using blockchain technology. The disclosure of information has significantly enhanced the transparency of enterprises. Consumers and society have dispelled their doubts and strengthened their trust in the brand through the visual display of information. In addition, Starbucks has also showcased the origin of coffee and information about local farmers through blockchain technology, bringing commercial sales channels to the local area and thereby generating actual economic benefits. This move is precisely Starbucks' demonstration of social responsibility by leveraging the advantages of digital transformation, and it has become a solid foundation for consolidating its brand image. In terms of governance, the governance loopholes of BharatPe Company have plunged the company into a public opinion storm and caused actual economic losses. Traditional business governance is bound to have inherent flaws in regulatory mechanisms and workplace relationships. Starbucks has established artificial intelligence and the

Internet of Things through digital transformation. Artificial intelligence provides quantifiable governance strategies by leveraging reliable data collection and analysis capabilities. Another advantage of artificial intelligence lies in simplifying the cumbersome steps in the industry governance process and saving the costs that enterprises invest in labor supervision. The application of the Internet of Things (IoT) prevents the recurrence and continuous development of governance loopholes through real-time data detection, and data quantification avoids personal subjective speculation and improper workplace governance in enterprise governance. Digital transformation has provided a feasible optimization solution for Starbucks' governance, ensuring a reasonable governance framework for the enterprise.

4. Conclusion

This article analyzes the five significant digital transformation processes of Starbucks. The current commercial status and social reputation of Starbucks in the retail industry are closely related to the core competitive advantages of its digital transformation. Digital transformation has played a positive role in the sustainable development, social responsibility and internal and external governance of this enterprise. This contrasts sharply with the social responsibility and internal regulatory issues of Bavarian Automobile Company and BharatPe. The improvement of Starbucks' ESG through digital transformation is evident. Apple's green bond issuance case provides direct business data as theoretical support for this conclusion. From the perspective of short-term business operation, the investment in digital transformation is bound to be accompanied by considerable economic costs, time testing costs and investment in technological improvement for the phased operation of enterprises. However, it is an inevitable trend that the influence of ESG indicators in the global business context is gradually increasing. In the subsequent business competition, ESG has become a key factor in judging the development capabilities and competitive advantages of enterprises, and digital transformation has laid a solid hardware foundation for enterprises to enhance ESG. The digital data integration capability and information openness have targeted advantages for enterprises' ESG and are gradually becoming key competitive means that cannot be ignored in the global business competition. The core objective of this study is to analyze the positive impact of digital transformation on the ESG and business development of enterprises. The research has enhanced the necessity and influence of digital transformation through case analysis and horizontal comparison among enterprises. This research analyzes the impact of enterprise digital transformation under the current global business market trend of attaching great importance to ESG. The current problem with ESG lies in the fact that the quantitative standards of business systems in various countries have not yet reached a unified measurement. It is hoped that in future research, the quantification problem of ESG data can be solved and the authenticity of the data can be improved, providing more data analysis foundations for the research field.

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