ISSN 2959-6130

Analysis of the Digital Transformation Path of Chinese E-commerce Companies

Han Li[1, *]

[1]Maxwell-Arts & Sciences, Syracuse University, Syracuse, United States
*Corresponding author: hli278@syr.edu

Abstract:

Digital technology has revolutionized China's e-commerce sector, changing company operations and client relationships. This article analyzes the impact of digital transformation on online purchasing patterns. This article concentrated on the important of cloud computing, AI, and big data have become essential to online retail tactics. Digitalization is fueling economic development and innovation in China as its digital economy grows and impacts GDP. Digital technologies enable e-commerce and other industrial sectors to interact easily, improving operational efficiency and market reach. Moving from isolated firm models to connected platforms is a sign of a more responsive and integrated economy. This integration fosters a value model of co-creation in which stakeholders (including companies) collaborate to develop product and service offerings, improving customer experience and operational productivity. The route to digital maturity is not without challenges. E-commerce companies struggle with inefficient logistics, costly digital transformation, and a dearth of competent digital workers, as this study shows. Companies must make dramatic organizational and technological adjustments to overcome these constraints and maximize digital technologies. The analysis concludes that China's e-commerce market will depend on enterprises' digital adoption. E-commerce enterprises must embrace ongoing learning and development and remove digital integration barriers to compete in today's dynamic online industry. The study illuminates digital transformation and how it will impact e-commerce.

Keywords: Digital transformation; e-commerce; big data; artificial intelligence; cloud computing.

1. Introduction

Digital innovations like digital currency, AI, and big data have a significant impact on people's lives and careers in the modern world. Because of its deep impact, broad reach, and rapid growth, the digital economy has steadily emerged as the main driver of China's economic development. In light of the evolving market conditions, it is also an unavoidable development decision.

In 2023, China's digital economy is expected to be worth over 45 trillion yuan, or almost 42.9% of the country's GDP, up 3.5% from 39.4% according to the "China Digital Economy Development White Paper" report. The growth rate of the digital industry with an average yearly growth rate of 16.4%, is noticeably higher than the average GDP growth rate for the same period. The digital economy is a driving force behind China's rapid economic growth rather than just a part of the overall economy. With the advent of the Internet and the digital era, a growing number of businesses have entered the e-commerce sector. As is shown in figure 1, from 2016 to 2021, the number of online shoppers in China increased from 466.7 million to 842.1 million, which is almost doubled. With the advent of digitization, there has been a notable increase in information openness along with a substantial shift in people's wants, structures, and lives. Product and service supply as well as market demand have altered because of the personalization and diversification of products and services. Traditional business models are no longer relevant due to changes in the corporate competitive environment and structure.

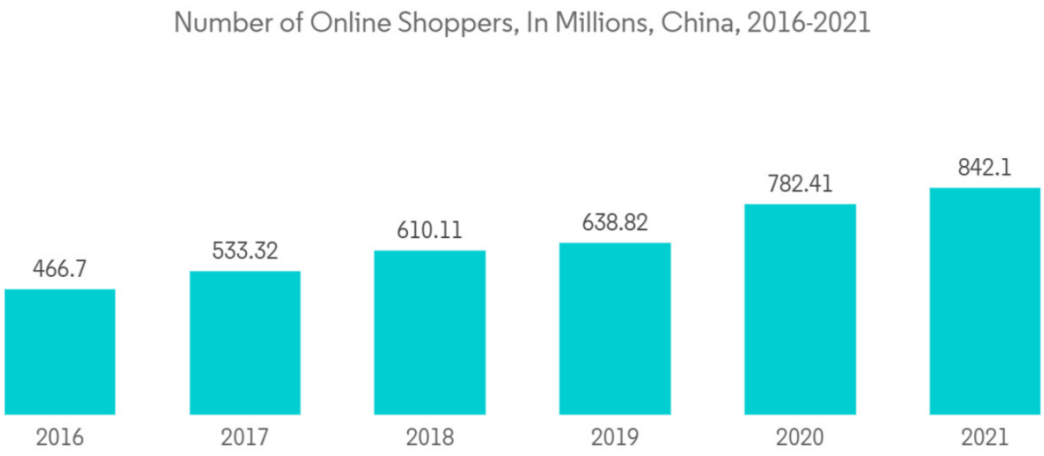

Fig 1. Number of Online Shoppers in China

Source: CNNIC

In the big data era, businesses must adapt to change and upgrade as they can only follow the trend. The advent of the big data era is a revolution in human society, according to Frankel & Reid [1]. Modern businesses now aim to use Internet information technology scientifically and efficiently while also actively addressing the digital wave, whether it is due to concerns about the influence on the growth of the new retail industry or the need to create a healthy corporate ecology. Lamberton & Stephen contend that the pervasive usage of digital technology has significantly diminished the information asymmetry-related online buying experience due to data sharing [2]. To find the right e-commerce platform or store, customers can look at other users' reviews. According to Kannan, there has been a notable surge in the quantity and complexity of user data as a result of the Internet's widespread use [3]. To meet the demands of precision marketing and consumer psychology analysis, businesses must employ increasingly sophisticated digital tools. At the same time, encourage business development and increase operational efficiency in businesses. According to Vial, company strategies are inapplicable in the current economic climate [4]. Businesses must undergo modernization and transformation by creating new goods, streamlining their manufacturing procedures, altering their profit structures, increasing their operational and managerial effectiveness, cutting expenses, and increasing productivity. Therefore, the objective of this paper is to analyze the digital transformation path in China's E-commerce industry. To be specific, this paper will analyze digital development, current obstacles and potential solutions for E-commerce companies in China.

2. The Meaning of Digitalization and Its Impact on E-commerce

2.1 Definition of Digital Transformation

Digital transformation is a popular topic and an inescapable choice for the sustainable development of businesses in recent years. Scholars' perspectives and understandings of what constitutes a digital transformation vary. According to Gregory et al., digital transformation is the use of information technology to achieve the innovation of enterprise value creation paths and organizations, as well as to achieve the goals of reducing costs and increasing efficiency [5]. Fitzgerald et al. believe that digital transformation refers to the application of digital technology in the production and operation process of enterprises to promote the renewal and reshaping of enterprise operation models [6].

2.2 The Advancement of Digital Technology Impact on the Growth of the E-commerce Sector

First, the ongoing integration of e-commerce with other industries is being propelled by digital technology. This includes the shift from transaction-matching-based e-commerce to the "Internet+" digital economy, as well as the digitalization of trade matching, trade services, and trade-oriented industries. Integration is one of the features of digital technology, and e-commerce is a field that generates a lot of data. The automated and intelligent digital technology model modifies the previous isolated development model by enabling e-commerce and various industries to achieve mobile interconnection and gradually integrate and develop. Second, the e-commerce industry's value co-creation model has evolved because of digitization. The reality of interconnectedness is brought about by digital technology, which also modifies the value gener-

ation model. By building a value network that integrates logistics, information flow, and capital flow, the deployment of digital technology has significantly increased the efficiency with which factors and resources are allocated within the supply chain system. This has also continuously enabled traditional e-commerce to produce new value. Businesses, customers, stakeholders, and all other social and economic members of the enterprise business ecosystem collaborate to evolve value co-creation under the empowerment of digitalization. They also exhibit binary interaction, third-party undertaking, and interactive sharing relationships with one another. Third, digital e-commerce is more intelligent, has stronger community characteristics, more precise population segmentation, and products that better suit market demands than traditional e-commerce. Pure e-commerce, as exemplified by sites like Vipshop, JD.com, and Alibaba, is currently moving more quickly towards digital e-commerce. Social e-commerce platforms like WeChat, Pinduoduo, and Douyin satisfy users' innate social needs in addition to their necessities. The emergence of the digital e-commerce era will push businesses to completely restructure their organizational structures, labor divisions, modes of production, and business models. Customers will eventually participate in the creation of products, and shifts in their preferences will direct the entire "research and development-production-sales" process.

The integration of e-commerce and the real economy is accelerating and is becoming a significant force in reshaping the spatial structure of urban and regional industries. This is due to the development of new technologies like the Internet of Things, cloud computing, and mobile terminals, as well as the construction of infrastructure like 5G and high-speed rail networks.

2.3 The Dilemma of Digital Transformation for E-commerce Enterprises

Customers of e-commerce enterprises choose and buy products entirely online. The ease and efficiency of logistics play a significant role in this process. It is not feasible to achieve the digital labeling of every object in the sphere of logistics since the logistics system is not highly digitalized. Issues with e-commerce businesses include poor investment rates, unreasonableness, and long-term losses. There are numerous logistics service providers in existence at various levels at the same time. The majority of them employ paper logistics labels and the conventional large-scale approach, which makes the project time-consuming, difficult to track, and prone to loss. As a result of their incapacity to promptly comprehend the freight condition, e-commerce businesses are vulnerable to delivery delays, lengthy order delivery times, high cargo loss rates, etc. These events consequently impact their sales and profitability.

Industrial digital technology is not given enough attention and there is a dearth of digital talent. Most e-commerce businesses place too much emphasis on cutting costs while ignoring the adoption of high-tech, which disadvantages them in the cutthroat competition. Emerging technologies like big data, the Internet of Things, and intelligent technology are now crucial instruments for changing how international e-commerce businesses operate. These technologies are essential for e-commerce businesses to employ to advance their degree of development and productivity. However, the truth is that all businesses and sectors struggle to find digital talent in relevant domains, which makes it challenging to assist businesses in undergoing digital transformation. The lack of digital talent in enterprises is further exacerbated by the fact that small, dispersed e-commerce businesses have limited advantages when it comes to welfare benefits, wage levels, and development platforms that can draw in many talented people.

According to Besson and Rowe, for businesses to successfully undergo digital transformation, they must first address management issues, implement organizational renewal and transformation, and reengineer business processes [7]. Secondly, they must raise their technical proficiency to reduce costs and increase efficiency. According to Demirkan et al., digital transformation is the complete overhaul of an organization's business divisions, encompassing development concepts, business activities, and business processes [8]. Businesses need to take advantage of the opportunity, immediately modify their development strategies, and fully utilize digital technologies.

3. Path to Digital Transformation

3.1 Precision Marketing is Made Possible for E-commerce Businesses by Artificial Intelligence Technologies

Using contemporary intelligent technologies like text analysis, association rule mining, and clustering to dynamically analyze customer behavior data, create a customer segmentation database, and then make appropriate marketing decisions based on various customer types are the fundamental method of applying artificial intelligence to precision marketing. Lastly, include data from client feedback to raise the bar and boost the effectiveness of precision marketing. In particular, it leverages big data technology to create a consumer analysis model for commodities based on the information of commodity consumer groups. It is built on contemporary Internet technology and sophisticated algorithms. Various customer types can be divided using this technique. The model states

that various customer groupings can be precisely locked. The target demographic is then taken into consideration when choosing various marketing strategies, such as price positioning, packaging design, celebrity effects, and indirect advertising. It can significantly increase transaction success rates in addition to optimizing marketing effects and reducing corporate marketing expenses. For instance, Baidu pioneered the use of big data mining technology for precision marketing in collaboration with the Shenzhen Online Home Furnishing Industry Association. Baidu Information Platform can give businesses the necessary consumer population, behavior, brand preference, style trend, and other analyses by importing Baidu big data. It can also accurately understand consumer and market dynamics and provide a foundation for decision-making for corporate Research and Development(R&D) design, brand marketing, and other activities. Finally, it can effectively serve the target market.

3.2 Cloud Computing Facilitates Resource Aggregation and the Transition of E-commerce Businesses to a Platform Economy

The intermediary links in the industrial chain are cross-border e-commerce platforms and cross-border e-commerce service providers. They offer comprehensive services like store management, product information, marketing promotion, and after-sales dispute resolution for both parties to the transaction, ensuring that the entire cross-border e-commerce trade can be carried out in an orderly manner. They also provide operating platforms for product suppliers to conduct internal operations and external marketing. But based on the current situation of China's e-commerce businesses, there are still a lot of platform providers with inadequate all-around service capacities. When faced with large volumes of data, their limited computing power and relatively nascent technological applications prevent them from processing the data efficiently and rapidly enough to provide the intended outcomes. Cross-border e-commerce platforms have gradually started to use big data and cloud computing technologies to optimize platform websites, improve the platform's information, service, and promotion functions, and transition to a digital platform economy due to the deep integration of these two technologies. "Centralized" thinking is what cloud computing is. This "centralization" is not centralized; rather, it is a transition from "private capabilities" to "public capabilities" in computing and data storage. Put another way, the goal is to compile resources and then offer a search and interpretation platform so that all user data and web browsing history can be "unified," computed, and analyzed in the cloud, and the data can be expanded to eventually become a valuable resource for the global community. The cloud computing scheduling algorithm is mostly used in big data and cloud computing-integrated applications in cross-border e-commerce to schedule resources. The computational capabilities of typical small and medium-sized businesses are unable to handle the demands of real data processing once the volume of data collected reaches a particular magnitude. To address this and provide more time and space flexibility as well as subsequent upgrades to the virtual world, cloud computing platforms must be used. In the end, it guarantees that cross-border e-commerce product page content is more substantial, merchant service is more considerate, marketing promotion is more focused, and after-sales dispute resolution is handled more quickly. As a result, the overall trend will be the clever growth of big data, cloud computing, and artificial intelligence together.

3.3 Blockchain Technology Enhances E-commerce Businesses‘ Security

Since e-commerce is open, anonymous, and virtual, it is simple for dishonest transactions to occur on its platforms. Risks in e-commerce businesses include user information leaks and illicit activity by merchants. These difficulties raise concerns among customers over the quality of the products they purchase in addition to harming the reputation of e-commerce companies themselves. Big data and blockchain technology can be used to build a fair credit evaluation system that fully protects consumer privacy, addresses issues of data leakage and intrusion, enhances the mechanism for evaluating credit, and manages the digital aspects of the e-commerce market. This will assist e-commerce businesses in effectively addressing issues related to credit and transaction risk. A chain data structure called a blockchain sequentially links data blocks. It is a collection of connected data blocks produced by encryption. Multiple pieces of information that have been successfully verified by Bitcoin network transactions are contained in each data block. Because it forbids arbitrary fabrication or manipulation, the data's security and validity are guaranteed. With its distributed data storage, consensus mechanism, and encryption method, blockchain applications might be considered novel technologies. This technology can be combined to package "production" and "transportation" information about products and deliver it encrypted to the system for use in e-commerce operations. The security and authenticity of product transactions are ensured because information cannot be altered. In addition, blockchain offers the feature of traceability, which can improve user privacy protection, grant users additional rights, and alter Internet production relations. For instance, JD.com developed a blockchain-based anti-counterfeiting tracing platform using cloud computing and

big data. Users of this platform may effectively solve the issue of subpar, counterfeit, and shoddy items as well as defend the legitimate rights and interests of consumers by tracking every step of the production and sales process. As the above analysis makes clear, the key to e-commerce's digital transformation is the deep integration of digital technologies like artificial intelligence, cloud computing, and blockchain with every link in the supply and demand chain. This not only allows for a perfect match between supply and demand, but it also significantly increases e-commerce's overall operational efficiency.

4. Conclusion

Chinese enterprises are changing their operations, generation of new goods, and engagement with customers due to the e-commerce industry's digital revolution. Digital technological developments have transformed e-commerce into a more efficient, customer-focused, and integrated sector. The report summarizes this digital revolution, including its origins, implications, and challenges for development of E-commerce.

The combination of e-commerce with AI, big data, and cloud computing has transformed transactional models into interactive platforms that create great value. This change allows supply chain actors to connect more meaningfully and productively, encouraging a co-creation paradigm in which corporations, consumers, and other interested parties work more closely together. This cooperation makes e-commerce platforms work more smoothly and enables customer-tailored products and services.

This paper demonstrates that this digital shift has considerable challenges. Many e-commerce enterprises are suffering from the digital transformation, which is worrying. Digital technology's promised efficiency and market reach in logistics and the wider operational framework are hindered by insufficient digital infrastructure, high starting costs, and a lack of digital skills. In light of these issues, firms should embrace new tech and modify their organizational structure and business processes to maximize it.

Further, the discussion of cloud computing and AI in respect to resource aggregation and precision marketing highlights how these technologies might alter enterprises. By managing huge amounts of data using cloud computing, online merchants may increase operational agility and decision-making. For the same reason, today's competitive digital market requires more targeted marketing to maintain and acquire clients. AI enables this.

Finally, China's multi-pronged transition toward digital e-commerce has great potential and great challenges. Everyone must collaborate to overcome digital adaptation issues for organizations to prosper in this digital age. This requires a full makeover of the company's culture, operations, and long-term goals, plus technical advances. If organizations want e-commerce to succeed, they must leverage digital technology and foster a culture of innovation and consumer engagement. One must be well-versed in technology, have a strong eye for strategy, and be able to adapt rapidly to survive this digital revolution and achieve sustainable development and enhanced global competitiveness.

References

[1] Frankel F, Reid R. Big data: Distilling meaning from data. Nature, 2008, 455(7209): 30.

[2] Lamberton C, Stephen A T. A thematic exploration of digital, social media, and mobile marketing: Research evolution from 2000 to 2015 and an agenda for future inquiry. Journal of Marketing, 2016, 80(6): 146-172.

[3] Kannan P K. Digital marketing: A framework, review and research agenda. International Journal of Research in Marketing, 2017, 34(1): 22-45.

[4] Vial G. Understanding digital transformation: A review and a research agenda. Managing Digital Transformation, 2021, 13-66.

[5] Drechsler K, Gregory R, Wagner H T, et al. At the crossroads between digital innovation and digital transformation. Communications of the Association for Information Systems, 2020, 47(1): 23.

[6] Fitzgerald M, Kruschwitz N, Bonnet D, et al. Embracing digital technology: A new strategic imperative. MIT Sloan Management Review, 2014, 55(2): 1.

[7] Besson P, Rowe F. Strategizing information systems-enabled organizational transformation: A transdisciplinary review and new directions. The Journal of Strategic Information Systems, 2012, 21(2): 103-124.

[8] Demirkan H, Spohrer J C, Welser J J. Digital innovation and strategic transformation. It Professional, 2016, 18(6): 14-18.