

# Research on Digital Transformation Path and Development of the e-Commerce Industry: Taking Alibaba as an Example

Huaen Lu

*Aberdeen Institute of Data Science and Artificial Intelligence, South China Normal University, Foshan, China*

Keywords: e-Commerce, Digital Transformation, Alibaba.

Abstract: With the development of digital technology, the e-commerce industry has good opportunities for digital transformation. This paper takes Alibaba as the research object, uses PEST and Porter's Five Forces model to analyze the transformation motivation of its digital transformation, studies the implementation path and effectiveness of its digital transformation, and based on the analysis, puts forward the four trend of China's e-commerce industry's future development, and proposes three relevant development suggestions to e-commerce enterprises.

## 1 INTRODUCTION

### 1.1 Research Background

In an era of rapid technological progress, the digital economy is developing more and more rapidly, and is gradually transforming itself into a key force in reorganizing global factor resources and changing the pattern of international competition. In recent years, the government has issued a number of policies related to the "digital economy", such as the "Overall Layout Plan for the Construction of Digital China", the "14th Five-Year Plan for the Development of the Digital Economy", etc. These policies have repeatedly mentioned the importance of the development of a digital economy and encouraged enterprises to accelerate digital transformation and develop digital industries. The trend of digital economy scale and e-commerce transaction scale show convergence (Zhang et al., 2024). As one of the most dynamic economic activities in China at present, the e-commerce industry is a new focus to stimulate consumption potential. Driven by the digital economy era as well as policies, the e-commerce industry is also facing new challenges and opportunities.

### 1.2 Research Significance

Under the influence of digitization, consumers are more and more inclined to socialize and shop online, a trend that brings growth potential to the e-

commerce sector. However, the 2023 Accenture Digital Transformation of Chinese Enterprises research shows that only 2% of Chinese enterprises are undergoing comprehensive and sustained digital transformation, implying that Chinese enterprises have yet to establish an advantage in the area of building a digital core. By taking Alibaba as an example, this paper studies the digital transformation path of the e-commerce industry, which can provide practical cases for the transformation of the e-commerce field and help more e-commerce enterprises find new growth points in the fierce market competition.

## 2 LITERATURE REVIEW

### 2.1 Definitional of Enterprise Digital Transformation

Numerous scholars have been publishing different interpretations of the connotation of enterprise digital transformation. Before, it was considered the strategic positioning that supports the strategic transformation of an enterprise brought about by the application of digital technology as well as the development of the enterprise's operations during or after the transformation, and it is a blueprint for guiding and supporting the digital transformation (Matt et al., 2015). Nowadays, the process of enterprise digital transformation is regarded as a

transformation enabled by information technology change (Li et al., 2018). The essence of enterprise digital transformation is to use digital means to drive change within the organization (Ilvonen et al., 2018).

## 2.2 Drivers of Enterprise Digital Transformation

The main factors that drive the digital transformation of an organization are divided into external and internal factors. In terms of external factors, digital transformation is driven by digital technologies and requires the simultaneous assistance of multiple technologies (Chanias et al., 2019). In addition, a series of digital economy policies introduced by the state have likewise driven the digital transformation of enterprises (Liu et al., 2024). In terms of internal factors, the firm's own characteristics, such as the supportive attitude of corporate executives towards digital transformation, are prerequisites for firms to undergo digital transformation (Sun et al., 2020). Interdependence between the executive team and functional heads is essential to promote a high level of digital orientation (De Lomana et al., 2019).

## 2.3 Digital Transformation in the e-Commerce Industry

Currently, several e-commerce companies are already undergoing digital transformation and benefiting from it. For example, Alibaba has realized an online-offline integration model through its Taobao and Tmall platforms. Amazon has used its superior data analytics to recommend customized products to users, enabling precision marketing and increasing sales conversion rates. However, due to the uncertainty of the market environment, especially small and medium-sized enterprises still have not attempted digital transformation. With the rapid progress of big data and artificial intelligence, the future of the e-commerce industry should build a digital industrial ecosystem across the entire industrial chain, so that more SMEs and consumers can take advantage of the new e-commerce model to achieve rapid development (Gu, 2023).

## 2.4 Literature Evaluation

The definition of enterprise digital transformation can be summarized as the comprehensive change and upgrading activities within the organization based on digital intelligence empowerment and technological upgrading, with the enterprise as the main body. In addition, the author found that most of the current

literature is only a shallow example of an enterprise's digital transformation practices and their results and did not explore in depth the various stages of digital transformation and the business model of the enterprise adjusted according to the dynamic environment, which is of little reference value for SMEs to carry out digital transformation. Therefore, this paper takes Alibaba as an example, discusses the drivers of digital transformation and challenges faced by the e-commerce industry, and provides useful suggestions for the future development of Alibaba and the e-commerce industry.

## 3 ANALYSIS

### 3.1 Digital Transformation Development Phase

#### 3.1.1 In 1999-2009

In the 10 years since its founding, Alibaba has launched Taobao, Alimama, and Tmall. In 2009, they began exploring digital transformation and created Aliyun, the cloud computing business, which is the backbone of Alibaba Group's digital technology and intelligence business, providing a full range of cloud services to global customers.

#### 3.1.2 In 2010-2015

From 2010 to 2012, Alibaba's e-commerce business entered an explosive period with the launch of "Express" and mobile Taobao client, and the emergence of several business teams, such as 1688 and AliExpresses, etc. From 2013 to 2015, Alibaba captured the opportunity of "Internet+" and put forward the new retail model and innovative O2O operation model. In order to solve the problem of rapid growth of data scale, all business department data are synchronized to a unified big data platform for management, which improves the efficiency of data processing.

#### 3.1.3 In 2016-2020

Alibaba announced the launch of its "Middle Platform Strategy", more businesses are beginning to move towards real-time.

During this period, Alibaba practiced new retail business with different brands and merchants, as well as upgraded its technology and expanded internationally. 2019 saw the successful listing on the

Hong Kong Stock Exchange, which provided an opportunity to expand the Company's capital base. Under the environment of the new crown epidemic outbreak in 2020, Alibaba has made steady progress, and its e-commerce platform Lazada has efficiently integrated its logistics capability and e-commerce business with a new logistics system through the Apollo Program.

### 3.1.4 2021 to Present

Since 2021, Alibaba has launched or upgraded a series of service measures around globalization, consumer market, innovation and technology, etc., to further promote enterprise data transformation. In terms of technology, Alibaba launched the ModelScope open-source model to promote business innovation, and the latest language model "Tongyiqianwne" to support the digital transformation of enterprises. In addition, Taobao and Tmall successively launched some analytics and marketing tools and other merchant support initiatives to help merchants improve operational efficiency. They also introduced a number of new e-commerce AI tools and services to bring consumers a brand new experience.

## 3.2 Driving Factors of Macro-Environment

### 3.2.1 Political

Over the years, the government has issued a number of policies to encourage enterprises to actively develop the digital industry. In addition, the national e-commerce demonstration city pilot policy is also a major move to promote the digital transformation of e-commerce. The policy was first implemented in 2009. Research shows that the pilot policy has promoted the development of logistics distribution system, electronic payment and key areas of information interconnection, and effectively improved the level of digital transformation of e-commerce enterprises (Liu et al., 2024).

### 3.2.2 Economical

Research shows that the development of digital economy can effectively promote the level of high-quality development of regional e-commerce (Zhang et al., 2024). The scale of China's digital economy reaches 50.2 trillion yuan in 2022, showing leapfrog development compared with previous years, which has a good development prospect for the digital

transformation of the e-commerce industry. However, since 2018, the ratio of per capita consumption expenditure to per capita disposable income has generally shown a downward trend, and the domestic consumer market is facing the pressure of tightening, which brings certain challenges for e-commerce platforms.

### 3.2.3 Sociocultural

Affected by the overall domestic consumption environment, China's e-commerce market user traffic dividend has been decreasing, and the overall growth rate of the industry has slowed down. However, in 2023, China's sinking markets account for more than 60% of China's total population. The e-commerce infrastructure and other elements of e-commerce development in these regions are accelerating reconstruction, bringing new opportunities for e-commerce platforms. Meanwhile, the development of cross-border e-commerce has entered a three-dimensional development stage in recent years, driving the digital transformation of e-commerce enterprises, thus enhancing the convenience of cross-border export business and promoting the healthy and orderly development of the industry.

### 3.2.4 Technological

Diverse modern technologies achieve more in-depth development and optimization today. Organizations can utilize big data technologies to store massive amounts of data, help segment customers (Mathew et al., 2021), and unlock business value. Cloud computing technology can likewise offer many advantages to large leading companies (Davydov et al., 2020). In the present time, it possesses more dynamic characteristics and can show great capability when dealing with rich data resources. Aliyun, the world's leading cloud computing service provider, has introduced several technologies that facilitate industries to stay ahead in the digital transformation.

## 3.3 Driving Factors of Micro-Environment

### 3.3.1 Competitive Rivalry

The threat of competitors in the e-commerce industry is higher. China's e-commerce industry is mainly categorized into traditional e-commerce platforms and emerging e-commerce platforms, and in recent years, emerging forces in the e-commerce industry have continued to join the market competition. Data

shows that the total amount of fast e-commerce transactions in 2022 increased by 32.5% year-on-year, demonstrating a strong growth momentum. At the same time, traditional e-commerce is constantly seeking breakthroughs. PDD adopts a new e-commerce model of "social + shopping" mode, which enables it to obtain a large number of active online shopping users in a short period of time at a low cost. Although Alibaba's deposit in the e-commerce supply chain is larger than that of PDD, the competitive pressure has increased dramatically in the face of PDD's "low-priced strategy".

### 3.3.2 Power of Buyers

The bargaining power of consumers is high. As the domestic demand conflicts continue to highlight, consumers have a higher demand for low-priced goods. At the same time, consumer psychology has become more rational. Among the factors attracting consumers to e-commerce platforms, the importance of price concessions and ease of return and exchange has increased significantly in 2023. PDD and JD have clear and wide range of major target markets, and the diversity of goods also meets the needs of most consumers, the cost of consumers switching products is small.

### 3.3.3 Power of Suppliers

The bargaining power of suppliers was low, due to the impact of competition from low price strategies. In addition, in recent years, Alibaba has invested in a number of suppliers to promote new product innovation and technological upgrading of suppliers and formed a good cooperative relationship with suppliers. For example, Mengniu's "Tianxianpei". Under the long-term and in-depth cooperative relationship, the bargaining power of suppliers is lower.

### 3.3.4 Power of Substitutes

The power of substitutes is moderate. Offline retail and digital retail are alternation to the e-commerce industry. Although offline retailing has gradually withdrawn from the competitive market, digital retailing has a strong hidden shopping potential as it operates on the WeChat platform, which simplifies the circulation of goods and saves resource costs and circulation expenses for enterprises. Although Alibaba has a more complete industrial chain, the price advantage will still pose a threat to Alibaba.

### 3.3.5 Threat of New Entrants

The threat of new entrants is moderate. In China, due to the rise of short videos as well as live e-commerce, more startups have tried to enter the market in recent years. However, with Alibaba's many years of experience in the business, it has significant brand effect and large user base, as well as emerging e-commerce platforms "Douyin" and "Xiaohongshu" also occupying some of the market's resources and traffic heat, it is not easy for new entrants to enter the market and earn a certain amount of exposure in a short period of time. To summarize, although the threshold of entry for startups is low, it is more difficult to obtain resources as well as traffic, so the threat of potential entrants in the e-commerce industry is moderate.

## 3.4 The Effect of Digital Transformation

Alibaba has developed into a comprehensive e-commerce ecosystem covering a wide range of areas including B2B, new retail and other areas through continuous business model optimization. According to Alibaba's full-year results reports for the fiscal years since 2015, the GMV (as shown in Table 1) and the annual active user base (as shown in Table 2) of the retail platform in China are generally on an upward trend. In particular, during the period from FY2016 to FY2019, the Group utilized advanced technologies such as big data to enhance platform personalization, and Taobao's functions based on big data technology boosted user engagement, increased conversion rates and drove active users. Tmall is equipped with comprehensive analytics tools for merchants, attracting many brands to the platform.

So far in FY2020, the Group's e-commerce platform has been actively exploring new businesses, leveraging short videos and other forms to meet the digital needs of consumers, with strong growth in revenues from the retail commerce business and cloud computing. The Group is focusing on expanding its digital supply chain, multi-format new retail business and cross-border e-commerce. In FY2022, more than 124 million AACs will spend more than RMB10,000 per capita on Taobao and Tmall, while the Group's APP matrix is starting to take off, and platforms such as Taote and Taocaicai will bring more consumers to the Group's e-commerce system.

Table 1: Alibaba China Commerce Retail Platforms’s Annual GMV.

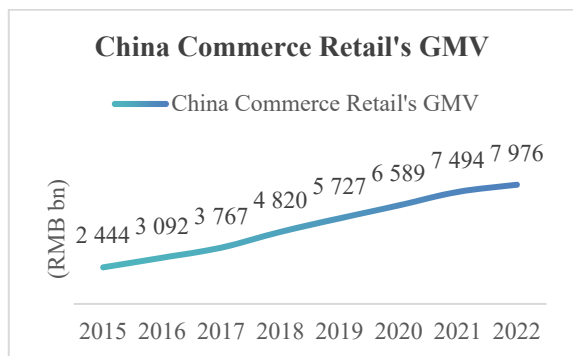
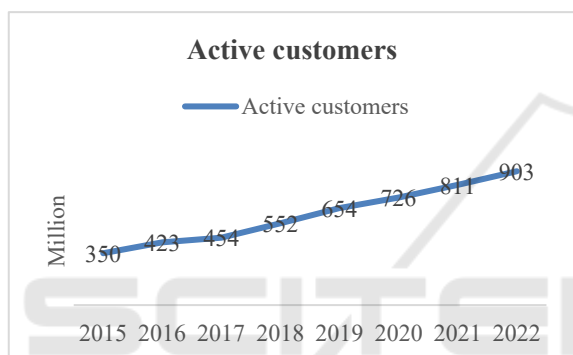
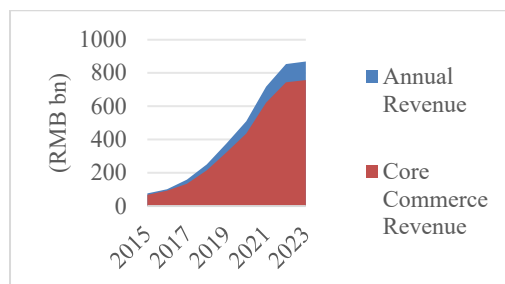


Table 2: Alibaba China Commerce Retail Platforms Active Customers.



Alibaba's e-commerce business digital transformation initiatives over the years have brought extraordinary revenues to the group (as shown in Table 3), but the turbulent market environment continues to bring negative impacts to Alibaba. In recent years, Alibaba has made frequent adjustments to its internal organizational structure to cope with the vagaries of the market, but plans have failed to catch up with changes, and Alibaba's market share in e-commerce has continued to decline. Alibaba's revenues from its China retail business segment declined by 2% in FY2023. In the future, it will be important to deepen and accelerate the digital transformation of enterprises in line with consumer trends and the direction of the industry.

Table 3: Alibaba Annual Revenue.



## 4 DISCUSSION

### 4.1 Future Development Trend

#### 4.1.1 Diversified Model Sets off the Heat

The e-commerce industry is an ever-changing market. Based on past accumulation and the recent rise of various types of social media and short videos, the e-commerce industry has already given rise to a variety of segments, such as shelf e-commerce, short video + live broadcasting, community group purchasing, etc. Each segment of the market is different at different times and places to set off a different trend, showing different competitiveness, it can be said that, in the ever-changing market environment as well as the basis of the existing segmentation mode, there are more unnoticed multi-modal, diversified modes to be explored.

#### 4.1.2 Sinking Markets Become the next Growth Market

Currently, the population of China's sinking market accounts for more than 60% of China's overall population, and with the development of the Internet and the widespread use of mobile payments, the use of online shopping services in the countryside is gradually becoming more common. In addition, compared with urban residents, rural residents have relatively less pressure to purchase houses and live in consumption, indicating that rural residents have huge consumption potential, which may become a new impetus for the development of e-commerce. This shows that the sinking market will definitely bring new opportunities for the e-commerce industry.

#### 4.1.3 Breaking down the Low Price Strategy

Consumer preferences have tended to be low-priced in recent years. In 2023, the major platforms are

committed to attracting users and seizing market share through various subsidies and other forms. However, the low price strategy is always not a long-term initiative to maintain the competitiveness of the enterprise market, but only a way to obtain the market in the short term. In the future, major platforms will be committed to increasing reform efforts in the industry chain as well as platform rules to solve the problems brought by the low price strategy.

#### 4.1.4 Exploiting Offshore Markets

The Ministry of Commerce of China has proposed to expand "Silk Road E-commerce" cooperation and accelerate the construction of "Silk Road E-commerce" cooperation pilot zones. This is an opportunity for e-commerce enterprises to develop overseas markets, following the country's strategic pace of expanding the international market, more effectively grasp the country to promote the new trend of international development, and therefore have more potential to utilize cross-border trade to achieve the development of this path to leap.

### 4.2 Recommendations

#### 4.2.1 Develop Diversified Modes

When developing its e-commerce business, Alibaba has not only developed its core e-commerce platforms Taobao and Tmall, but has also launched platforms such as Taote and Taocaicai. Synergistic eco-businesses effectively driving user retention and high-quality growth. E-commerce consumption field is extremely decentralized today, how business integration of multiple modes to enhance user stickiness and conversion rate, aiming at a more segmented market to seize the market opportunity, is the current enterprise needs to think about the place. Enterprises in this wave of digital technology, enterprises should seize the opportunity to utilize digital technology, break the single operation mode, and actively layout multi-modal business model. Through technological innovation, model innovation and business innovation, the core competitiveness of enterprises is constantly improved.

#### 4.2.2 Enhance Platform Personalized Services

E-commerce applications have gradually adopted a user-centered product and service operation model. In the future, the sinking market is a new direction for the e-commerce industry to develop, which has a decentralized and large scale, and it is essential to

label users and apply technologies to analyze consumer behavior to develop different marketing strategies. In addition, e-commerce companies need to integrate local resources, visualize the logistics and warehousing chain, and maximize the convenience of consumption in the sinking market. As can be seen by the example of Alibaba, personalized services effectively promote GMV as well as annual active users. Under the macro environment of the continuous development of big data technology, the e-commerce industry will be more convenient and comfortable in the processing and analysis of data.

#### 4.2.3 Make Good Use of AI

Generative AI is being widely used as an e-commerce assistant. During the Double Eleven Shopping Festival in 2023, Taobao launched a shopping assistant called "Taobao Wenwen", which improved the platform's e-commerce conversion rate during the Double Eleven Shopping Festival. At the same time, "Alimama" launched the "AI live room" function to effectively reduce the cost of live broadcasting by 90%. It can be seen that artificial intelligence has become a key technology for major e-commerce platforms to improve user experience and ensure the prosperity of the ecosystem. In the future diversified modal, cross-channel e-commerce environment, the best experience will take place on new AI-based technologies, and enterprises should study and optimize the internal structure of commodity information in greater depth, increase investment in science and technology research and development, and promote a closer integration of AI technology and business processes.

## 5 CONCLUSIONS

This paper argues that Alibaba's digital transformation is promoted by national policy, digital technology, competition in the e-commerce industry and many other factors. Its use of digital technology to achieve product and service personalization and other initiatives to effectively improve performance. Based on the analysis of the market environment and Alibaba's development path, the author believes that the current development trend of the e-commerce industry is the popularity of platform model diversification, the sinking market has become the next step in the development of the market, the low-priced strategy has been broken and cross-border e-commerce heat is rising. E-commerce enterprises should use digital technology to develop diversified

models, personalized services, and most importantly, make good use of artificial intelligence to achieve cost reduction and efficiency, and help enterprises develop sustainably.

## REFERENCES

- Chanias, S., Myers, M. D., & Hess, T., 2019. Digital transformation strategy making in pre-digital organizations: The case of a financial services provider. *The Journal of Strategic Information Systems*, 28(1), 17-33.
- Davydov, D. S., Riabovol, D. A., Kramarenko, A. O., & Kvitka, A. V., 2020. The role of cloud technologies in the digital economy. *Бизнес информ*, (8), 171-177.
- De Lomana, G. G., Strese, S., & Brinckmann, J., 2019. Adjusting to the digital age: the effects of TMT characteristics on the digital orientation of firms. *Acad Manag Proc*, 2019, 13589.
- Gu, Y., 2023. Break down the password for the strong growth of new e-commerce companies. *The Economic Daily Journal*, 005.
- Iivonen, I., Thalmann, S., Manhart, M., & Sillaber, C., 2018. Reconciling digital transformation and knowledge protection: A research agenda. *Knowledge Management Research & Practice*, 16(2), 235-244.
- Li, L., Su, F., Zhang, W., & Mao, J. Y., 2018. Digital transformation by SME entrepreneurs: A capability perspective. *Information Systems Journal*, 28(6), 1129-1157.
- Liu, Y. B., Neng, L. G., Su, C., & Sun, Z., 2024. The digital effect of e-commerce policy: action mechanism and double spillover. *Industrial Economy Research (01)*, 85-98. doi:10.13269/j.cnki.ier.2024.01.004.
- Mathew, A., Scholar, P. G., & Jobin, T. J., 2021. Role of Big Data Analysis and Machine Learning in Ecommerce-Customer Segmentation. In *Proceedings of the National Conference on Emerging Computer Applications (NCECA)*, Online (p. 189).
- Matt, C., Hess, T., & Benlian, A., 2015. Digital transformation strategies. *Business & information systems engineering*, 57, 339-343.
- Sun, S., Hall, D. J., & Cegielski, C. G., 2020. Organizational intention to adopt big data in the B2B context: An integrated view. *Industrial Marketing Management*, 86, 109-121.
- Zhang, J., Zhang, J. L., & Zhou, Z. Y., 2024. Research on the influence mechanism of high-quality development of e-commerce, driven by digital economy. *Journal of Ezhou University (01)*, 94-98. doi:10.16732/j.cnki.jeu.2024.01.034.