

Analysis of How Enterprises Can Improve Market Competitiveness in the Context of Digital Transformation - Take Amazon as an Example

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Abstract. Multinational companies have emerged as the primary driving force behind the global economic integration trend. With the advancement of digital tools and technologies, there has been a significant increase in people's demand for digital services and experiences. This shift in consumer behaviour has created a pressing need for multinational companies to embrace digital transformation to meet these evolving needs and further stimulate economic development. One crucial aspect of this transformation is cross-border e-commerce, which plays a vital role in the strategies of multinational companies. As a successful example, Amazon has effectively undergone this transformation and is a model for others. By analyzing Amazon's experience using the 4P marketing model and data analysis, valuable insights and suggestions can be provided to companies seeking digital transformation. This will enable them to adapt to the changing digital landscape, enhance their global competitiveness, and thrive in the dynamic and interconnected global market. With the right strategies and implementation of digital tools, companies can leverage the power of technology to expand their reach, improve customer experiences, and drive sustainable growth in the digital era.

Keywords: Digital transformation; Amazon; 4p marketing model.

1. Introduction

1.1. International Digital Transformation and Economic Background

With the increasing degree of global economic integration, business information and data are gradually becoming transparent, the competition and cooperation relationships between international enterprises have also been reconstructed, the competition threshold has become lower, and the importance of innovation capabilities has increased. As a result, in digitalization, innovative and digital technologies are integrated into the context of technology development, and consumers' service experience and needs are also deepened and upgraded. To meet this demand, combining the economic environment with digitalization is necessary to develop the global digital economy. One of its essential ways is digital transformation. Digital transformation means using digital technology to change corporate business processes and models, improve corporate operating efficiency, and improve corporate competitiveness. Multinational companies are the leading force in the competition for global economic integration. Their prominent characteristics are their broad business scope and complex business data. Therefore, supply and demand information is easily delayed, resulting in certain losses. Digital transformation is needed to solve the problem. So far, governments in many countries have introduced a series of policies and regulations to encourage and guide the digital transformation of enterprises.

1.2. Amazon's Digital Transformation Background

Amazon is a world-renowned e-commerce company with a wide range of businesses and markets worldwide and branches and logistics centers in various countries. As a multinational company, it is representative. The e-commerce field in which it operates has many types of businesses and is universal. From its establishment to 2015, its digital transformation process has been transparent, and

its results in terms of business product expansion and financial accounting have been remarkable and can be used as a reference.

The time course of Amazon's digital transformation is as follows:

1997: Amazon begins a public offering to expand its market reach.

1998: Amazon launches music and video sales to expand its product line.

2000: Amazon launched a marketplace platform service to allow third-party sellers to join in selling goods.

2005: Amazon launches cloud computing service AWS.

2007: Amazon launches the Kindle e-reader, entering the digital realm.

2011: Amazon launches Kindle Fire tablet computer to expand digital media and mobile device business.

2015: Amazon launches prime membership program, offering fast shipping and other benefits.

2. Methodology

2.1. 4P Marketing Theory

Product refers to the physical goods or services the company provides to consumers.

Price refers to corporate pricing-related strategies, levels, flexibility, etc.

Place refers to the circulation path of products from producers to consumers, including sales channels, distribution strategies, logistics management, etc.

Promotion: means for enterprises to promote and promote products.

Since, in theory, the company's profits are mainly obtained by operating its primary business, and the development of the leading business is inseparable from marketing strategies and methods, the 4p theory can optimize the marketing mix, increase corporate profitability, and thereby improve market competitiveness, so the 4p marketing theory is chosen To assist in analyzing Amazon's digital transformation process.

2.2. Data Analysis

In this article, the authors did quantitative research on the business performance of Amazon. By analyzing the financial data of Amazon during and after the digital transformation process, the authors are allowed to further discuss the existing problems of Amazon at that time and the achievements Amazon has accomplished after the digital transformation.

All financial data the authors used in this article were from Amazon's annual report on its official websites, selected considering the time when the digital transformation of Amazon began and when new digital tools were put into services. The data analysis section could be divided into two parts: one focused on the financial situation of Amazon, and the other area emphasized the firm's investment value. To further establish how digital transformation affects Amazon's operation standard and investment value, the authors calculated these financial data to figure out Amazon's financial ratios. They made them into charts to analyze general trends or differences between several specific periods.

3. Literature Review of the Digitalization Process in 4P Marketing Theory

Previously a bookstore, Amazon aimed to build the most prominent online bookstore. To achieve this goal, there were great difficulties in scale and inventory management. In addition, Amazon chose a self-operated model to expand its ranking at the time, using losses in exchange for scale. It has not been optimistic for long[1]. At this time, how to combine the company's resources, funds and other advantages to find the most suitable solution has become a top priority. Amazon's self-operated model, cross-border e-commerce status, and central location in developed regions of North America have all pointed out a clear path to digital transformation for Amazon. Amazon began to build a digital landscape 1995 and used funds for digital development. After implementation, in 1998, the market profit exceeded 50%. At the beginning of the 21st century, it began to rationally acquire or invest in

digital technology companies and develop in the direction of e-commerce... After the digital transformation, the humanized and intelligent business model has made Amazon a more popular digital company with customers, which is worth learning from [2]. Han Jiaping and Li Yang (2022) said that the core path of digital transformation is mainly consumer demand and digital technology [3]. Through research on these two aspects, the authors found that Amazon's digital transformation can be mainly divided into four modules, namely product, marketing channel, pricing and promotion, which happens to be the composition of 4p marketing theory and 4p marketing theory has always been the basis of other marketing theories. It is the foundation and always plays a guiding role in the development direction of enterprises [4]. This article will use the 4p marketing model to analyze how to use digital tools to solve existing problems and improve market competitiveness in digital transformation.

Amazon's digital product transformation is first reflected in the innovation and sales of digital products, such as Kindle e-books. This innovation improves user satisfaction, strengthening users' stickiness to Amazon and prompting users to choose more e-books and related products on the Amazon platform. When Zhang Zixuan studied the business strategies of e-commerce companies through Amazon, she proposed that Amazon has successfully occupied a dominant position in specific fields in terms of innovating in the digital field, especially by launching new product categories such as Kindle e-books [5]. This demonstrates a solid competitive advantage in the market.

The second is reflected in the optimization of product selection through digital tools. When Lin Xiaofang analyzed cross-border e-commerce product selection strategies based on Amazon, she believed that Amazon uses data analysis to optimize products, deeply understand market demand, and achieve optimization of product classification, design, and positioning to meet user needs [6]. This data-based optimization enables Amazon to understand users' purchasing preferences better, thereby adjusting product design and positioning to provide products that align with market demand. At the same time, Li Qianqian and Zhao Haiyang also reached similar conclusions when studying the marketing strategy of the Amazon platform. They both emphasized using data analysis tools for market research to accurately select hot-selling products, optimize product positioning, and give products personality features [7]. This personalized positioning further strengthens the market competitiveness of the product.

Amazon's digital transformation in pricing strategy is reflected in three aspects: pricing from the perspective of data analysis from the consumer's perspective, optimizing the supply chain through data analysis to control costs and affecting pricing, and creating scale effects by expanding the scope of the sales market to affect pricing. First, data analysis of consumer spending power and types can optimize product positioning and thus affect pricing. Lin Xiaofang pointed out in the same 2023 report mentioned above that Amazon is based on data and can formulate more reasonable plans through in-depth analysis of consumer behaviour and market trends to make a proper price strategy [6]. This data-driven pricing strategy allows Amazon to adjust prices based on consumers' paying abilities and needs to maximize profits and improve market competitiveness.

Secondly, through data analysis, the authors can optimize the supply chain and shorten the supply chain of each supply link, thereby saving additional costs and creating more space for pricing. When analyzing Amazon's development history, Zhuoma Yongzhong and Cao Yuna found that Amazon has optimized the supply chain through digital transformation and used data to optimize and manage the supply chain [8]. Through independent procurement, strict selection of suppliers and cost control, this cost-saving advantage can be passed on to consumers through reasonable pricing strategies, improving competitiveness.

Finally, Amazon expands its market scope through its e-commerce platform and creates economies of scale, lowering and unifying pricing. When Zhuang Yuan took Amazon as an example to study the e-commerce platform supply chain, he believed that the scale effect had brought Amazon the ability to offer price concessions [9]. As one of the largest e-commerce companies in the world, through the scale effect, it has reduced the purchase of products. Costs and operating costs, ultimately providing consumers with more competitive prices.

The digital transformation of Amazon's sales channels is mainly reflected in transforming and upgrading sales and supply. The sales part is reflected in the expansion of the overall market and the diversified development of sales models, and the supply part is reflected in the logistics of business activities. On network construction and supply chain optimization of support activities.

First, in the sales part, the first is the market expansion, which has improved Amazon's global popularity. Lin Xiaofang believes issues related to Amazon's market expansion that Amazon expands the global market and expands its sales scope through its global cross-border e-commerce business platform, thereby increasing its market share and selecting optimal sales channels [6]. For example, Li Qianqian and Zhao Haiyang emphasized increasing investment in the Japanese market, using Amazon's Japanese online translation service, and increasing advertising and on-site promotion to enhance product visibility in Japan [7]. This digital market expansion strategy is realized, further consolidating Amazon's global market competitiveness.

The second is the diversified development of sales models. By establishing a digital website and setting up different e-commerce models, the authors can adapt to different consumer needs. When Han Xiaozhu et al studied the operation strategy of the Amazon platform, they found that Amazon adopts a diversified sales model and uses FBA and VC to improve product transaction efficiency and customer shopping experience [10]. At the same time, in terms of specific sales models, Zhuoma Yongzhong & Cao Yuna pointed out that Amazon adopts a department store-style cross-border e-commerce model, has its e-commerce website and warehouse, provides multiple categories of products, and has its brands to meet the daily needs of customers [8]. This diversified sales channel enhances sellers' flexibility and product visibility and improves sales efficiency.

In terms of supply activities, one is to optimize the supply chain between various businesses through digital transformation, and the other is to optimize and upgrade logistics management through digital transformation. First of all, in terms of supply chain optimization, Zhuang Yuan found when studying issues related to the supply chain of cross-border e-commerce Amazon that by optimizing the supply chain through FBA, VC and other platforms, suppliers can be merged or acquired by category, reducing the Product purchase prices improve competitiveness [9]. Optimizing the supply chain enables more efficient and accurate inventory management, reduces operating costs, and improves product availability. Secondly, platforms such as FBA and VC also affect logistics and distribution efficiency. Zhuang Yuan also pointed out that Amazon optimizes distribution services and reduces logistics costs by establishing these logistics center networks and outsourcing distribution services [9]. Amazon has comprehensive network construction, self-operated e-commerce, a complete online sales network and large-scale warehousing outlets. This logistics network construction improves distribution efficiency and gives customers a faster shopping experience.

In the digital transformation of Amazon's sales methods, increasing promotion channels can increase purchasing power. Han Xiaozhu et al pointed out that multi-channel promotion strategies, including on-site and off-site promotion, can effectively increase product exposure and purchase rates [10]. Through on-site promotion, such as CPC advertising and promotions, and off-site promotion, such as social media marketing and Google ads, Amazon can attract more potential customers, expand promotion channels, and increase purchase rates.

Secondly, digital analysis helps improve the accuracy of advertising. Lin Xiaofang emphasized the importance of digital platforms and proposed using data analysis to achieve precise promotion and improve advertising efficiency [6]. Through in-depth data analysis and understanding of target customers' behaviour patterns and preferences, more targeted advertising strategies can be developed to improve the effectiveness of advertising and reduce promotion costs.

Finally, the sales method has become more customer-centric due to the transparency of customer information. The first is using digital platforms to complete the membership system. Zhuang Yuan proposed that by establishing a membership system, customers can be prompted to register as members, establish customer files, and understand customer purchase history and preferences [9]. Such a membership system can provide customers with a personalized shopping experience, enhance customer loyalty, and, at the same time, provide Amazon with more precise promotion and promotion

opportunities. Second, the analysis of customer service data helps improve service quality. Zhuang Yuan also pointed out that customers' complaints and suggestions can be understood by analyzing customer service data, thereby optimizing the quality of customer service [9]. This kind of data analysis can help Amazon identify deficiencies in customer service and make timely improvements to improve customer satisfaction. Third, data analysis can be used to carry out preferential promotions and improve customer satisfaction. Li Qianqian et al and Zhang Zixuan emphasized that by analyzing customers' purchasing behaviour and preferences, personalized promotion strategies can be formulated, and discounts that meet customer needs can be provided, thereby improving customer satisfaction and loyalty [5, 7].

4. Data Analysis

4.1. 1999-2022 Financial Situation

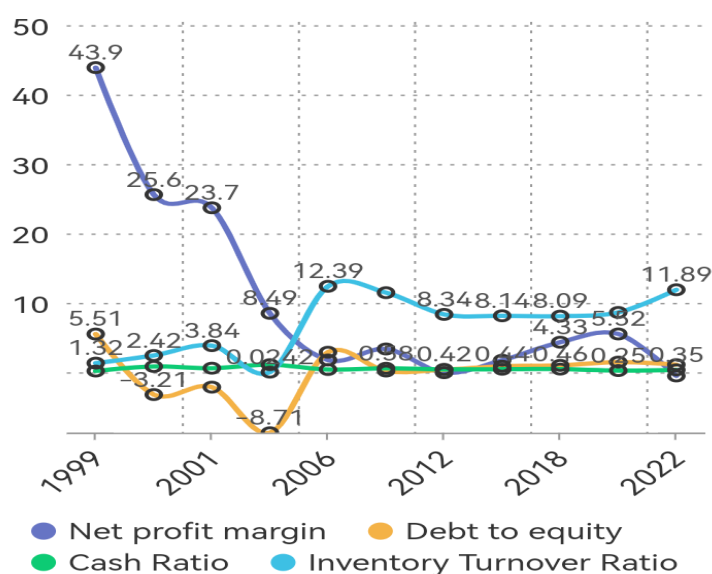


Fig. 1 Some financial indicators of Amazon's financial stability and liquidity in selected years from 1999 to 2022 (data source: Amazon's 1999-2022 financial statements)

4.1.1 Financial development trend analysis

According to the Figure.1, Amazon's financial information can be derived from the following indicators:

Net profit margin: The overall trend was downward from 1999 to 2016, with ups and downs. It increased from 2016 to 2020 but continued to decline in 2022.

Debt to equity ratio: In 2000 and 2001, the ratio and debt were significantly high. However, the ratio has steadily declined since then, indicating the improvement of debt management capabilities.

Cash ratio: The cash ratio could be higher, reflecting that Amazon uses more cash for investment and operations.

Inventory turnover ratio: Although the ratio fluctuates, the trend is increasing, reflecting Amazon's higher sales efficiency.

4.1.2 The financial impact of digital transformation on Amazon

Establishing digital network platforms such as AWS provides financial stability as it increases revenue streams for Amazon.

Improved operational efficiency, cloud computing management of logistics and inventory improves inventory sales efficiency.

Improved customer experience. As seen from the fluctuating trend of net profit, establishing membership programs and AWS may lead to increased customer loyalty.

It helps to expand market scope: can reduce competitive pressure to a certain extent.

4.2. Investment Value Analysis

4.2.1 Share price analysis



Fig. 2 Amazon share price change (picture from: Amazon - 26 years stock price history |AMZN| Macrotrends)

As shown in Figure 2, the general trend of Amazon's stock price from 1999 to 2018 is upward. At the end of 2018, there was a significant drop in stock price. Due to the trade war between the U.S. and China, the U.S. government implied steel and aluminum tariffs on all countries; meanwhile, the Federal Reserve raised the interest rate for the fourth time in 2018. These factors led to a stock market dive in the U.S., causing Amazon's stock price to drop.

4.2.2 P/E ratio analysis

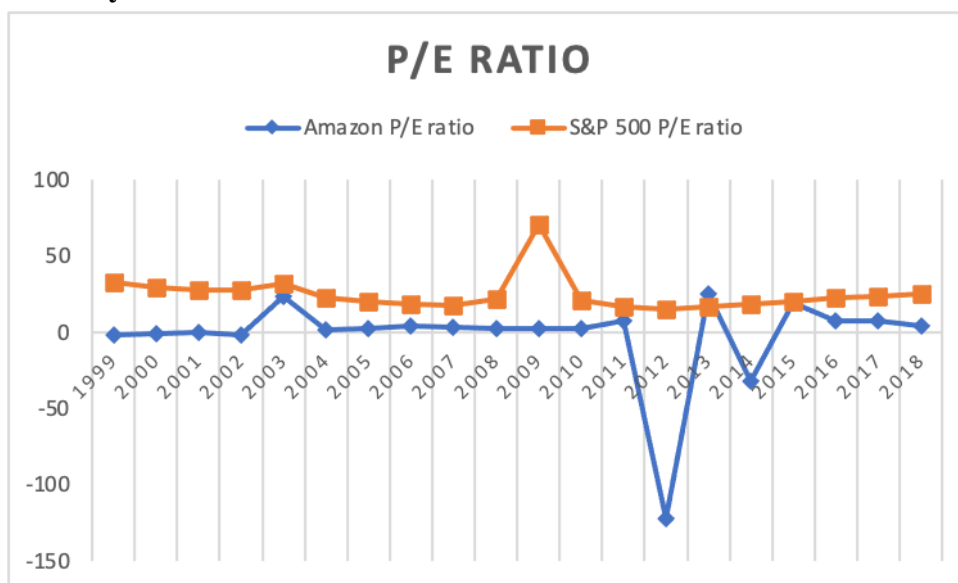


Fig. 3 1999-2018 price to earnings ratio of Amazon and S&P 500 (chart credit: original)

The P/E ratio of Amazon is calculated by using the yearly average of the stock price of Amazon and the diluted earnings per share of Amazon published in the annual report. The P/E ratio is used to evaluate the market value of a share to compare to a company's earnings. As shown in Figure 3, excluding those periods when Amazon has a negative net income, Amazon's P/E ratio is mostly lower

than the market average, except for 2013, and maintains a low level. A low P/E ratio indicates that the stock price of Amazon is undervalued; since Amazon's P/E ratio fluctuates at a low level and below the market average, the author could conclude that Amazon's stock price is likely to be undervalued because it has high investment value.

4.2.3 Free cash flow to firm analysis

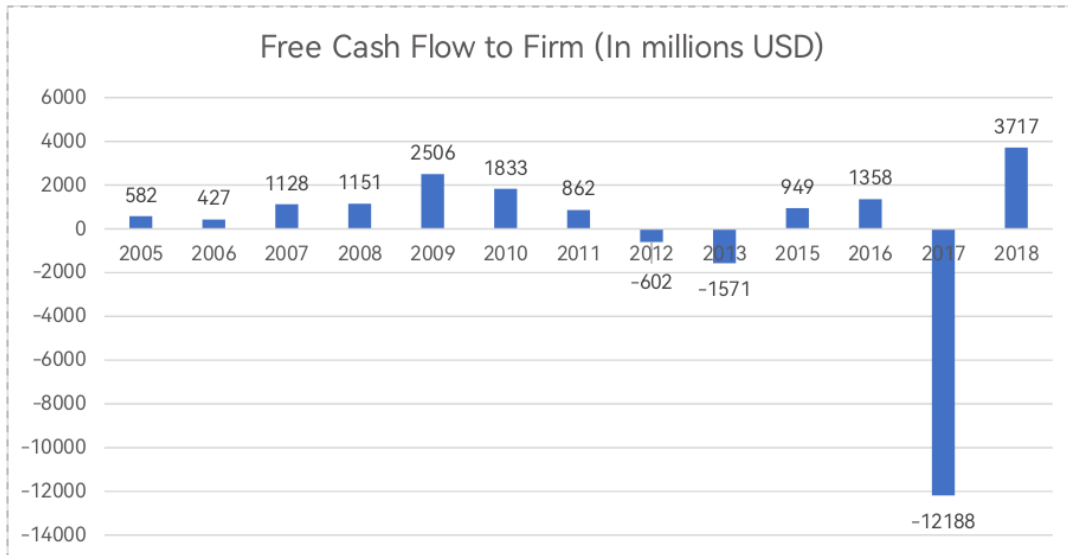


Fig. 4 2005-2018 Amazon free cash flow to firm (chart credit: original)

Free cash flow to firms (FCFF) measures the cash available from operation after accounting for taxes, working capital, depreciation expenses and investments. Using the formula free cash flow to firm = cash flow from operations + interest expense * (1 - tax rate) - capital expenditure and data from Amazon's annual report, the FCFF of Amazon was calculated. Due to the tax policies, the effective tax rate 2014 could not be calculated; thus, it was excluded from the chart.

As shown in Figure 4, from 2005 to 2009, the FCFF of Amazon has achieved continuous growth, indicating that the firm has increasing profitability during this period, which makes the firm worth investing in. However, after 2009, the FCFF value started to decrease, caused by either poor operating performance or heavy investment in fixed assets, for example, the acquisition of Whole Foods in 2017. So, in general, the FCFF value of Amazon is still growing from 2015 to 2018; thus, the investment value of Amazon is growing during this period.

5. Discussion

Through the establishment of an e-commerce platform and cloud computing AWS, the innovative combination of artificial intelligence technology and customer service experience, and the establishment of an electronic social platform promotion and logistics network, Amazon has successfully solved the existing problems and improved overall competitiveness. Measures are inseparable from digital technology, that is, digital transformation.

As one of the largest online retailers in the world, Amazon is also known as the first company to implement cloud services. The AWS cloud computing service Amazon provided is now supporting companies worldwide to achieve their digital transformation. To many companies nowadays, how Amazon achieves digital transformation and uses digital tools to solve questions they encounter in their operation would provide an excellent reference to them. The authors will discuss some examples of Amazons' solutions to common problems.

Firstly, what did Amazon do to improve their product listing, allowing them to provide products that match their customers' needs? The way Amazon optimizes their list is to use analyzing tools to study data within the website and track data from search engines and social media to figure out

popular trends of products[6]. Data within the websites, like product sales and the purchase rate, could support Amazon in evaluating existing products, whether they need to spend more resources on promoting them or removing them from the list. Data on other platforms, like search engines and social media, would reflect customers' interest, contributing to improving existing products or introducing new goods.

Secondly, how Amazon priced its goods to make them attractive to customers while maintaining its competitiveness. To find the optimal price for its goods, Amazon used data analysis and market research by balancing consumer's ability to pay and consumption based on real-time data to achieve maximum profit[6]. Meanwhile, Amazon would adjust the price based on its competitor's pricing strategy. With the support of price tracking tools, Amazon could adjust prices based on competitive situations[7]. Besides, while Amazon expands its business, the scale effect also helps lower the cost so that Amazon could have more advantages in pricing competition.

Thirdly, how does Amazon make its products reach customers around the world? To answer this question, the authors need to analyze Amazon's strategy from two different aspects: marketing and supply. From a marketing perspective, Amazon established business websites for every country. Like Japan, by offering online translation services, sellers worldwide could start a business with customers in Japan, while advertising in Japan and in-site promotion could raise product awareness [7]. From the supply perspective, Amazon built warehouses in every new market. Because of Amazon's FBS delivery system, buyers only need to deliver the goods to the nearest Amazon warehouse, and business becomes more flexible for sellers. Hence, the expansion of business becomes much more accessible. Moreover, Amazon is also merging and acquiring some of the local suppliers, which helps improve the supply chain and lowers the unit cost of products[9]. As for supply chain management, Amazon used supply chain management software and cloud computing to track stock and delivery, and using automation technology in warehouses, like robots and auto-picking systems, further improved logistics efficiency.

Lastly, how does Amazon provide customers with personalized product recommendations that could increase sales and customer satisfaction? Amazon is known for its customer-centric culture; they are developing their business based on customers' needs. By collecting customer data, Amazon built a database of their browsing and purchasing history, and by using MI and cross-comparison of historical behaviours between customers, Amazon delivered personalized recommendations[8]. With real-time customer behaviour and comments updates, Amazon maintained its high-quality customer services.

6. Conclusion

In this article, the background of Amazon's digital transformation was introduced, and with the support of marketing and financial analysis, how digital transformation could promote business development was further established. The final discussion on Amazon's problem solutions provides solid proof of digital tools' efficiency and an excellent reference to companies facing similar situations and those now searching for advice to mitigate risks. However, this article has many defects, such as the 4p portfolio is mainly from a marketing perspective, with more design of the business activities part of the value chain and insufficient analysis of support activities. Secondly, due to the limitations of relevant literature, it is difficult for us to analyze the specific operating principles and ideas of digital tools such as AWS. Discussions in this area can only be analyzed at the commercial and economic level, with limited depth. What is more, the authors have Insufficient data analysis indicators.

Our future outlook is expanding from e-commerce industries such as Amazon to other industries to improve the universality of digital path recommendations.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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