

Analysis of E-commerce Business Decision-making in the Era of Big Data

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Abstract: With the increasing benefit of the new economy, e-commerce has become a popular business model around the world, but also because of the traditional business activities of all links to realize the electronic network and people's attention, and is regarded as a service industry with great potential. At present, the market size of e-commerce is rising, and digitalization has become the main trend in the development of e-commerce. Strengthening logistics and supply chain systems through digital construction has become an important means for major e-commerce competitors. In order to make big data operate efficiently in the rich scenarios of e-commerce and transform data into real benefits, analyzing the vulnerabilities of the e-commerce industry itself and the reasons favored by consumers has become a necessary method for the specific application of big data. And it is definitely vital to propose feasible future strategic measures from the aspects of marketing and law according to the above content so that big data can better promote the development of the e-commerce industry and not weaken the disadvantages brought by it.

Keywords: e-commerce, big data, decision-making

1. Introduction

With the rapid development of information technology, the network economy is becoming one of the main driving forces of the global economy. As the world's second largest economy, the impact of network economy on its national economy is also increasingly prominent, the network economy not only improves the transmission efficiency of information resources but also makes the management and development of all walks of life have changed greatly. Although the explanations given by domestic and foreign books and research institutions are also different because of the continuous diversity of e-commerce forms, the basic characteristics of e-commerce have been more deeply rooted in people's hearts. Generally speaking, "If we focus on a relatively local point to interpret the micro, the operation of e-commerce is also a process of buying and selling goods and services, and the digital economy uses securitization to transfer assets. In a macro and comprehensive way, e-commerce can be a commercial activity that uses computer network technology to interact between any business-related stakeholders" [1]. At present, economic globalization has come, and international economic competition is becoming increasingly fierce. The traditional trade model can not meet the requirements of the current international market competition, but the business model in the e-commerce economy can solve the current dilemma. Therefore, it is imperative to promote e-commerce.

The source of big data is the interconnection of modern computer networks, the Internet and network we-media. With the help of the maturity of modern data perception collection and processing technology or business contacts, personalized content is purposefully generated from different rich sources [2]. Big data is crucial to building consumer profiles. Online sales companies rely on personalized consumption behavior data of different consumers to analyze the most popular products and then develop marketing strategies. This can also radiate to the improvement of customer service. E-commerce companies use big data to collect customer evaluations to clarify the indicators that service needs to be improved, and then allocate more resources to improve the problem. When there is enough data in the database, a customer profile can be built to identify the price range that the individual needs the product has tended to choose for dynamic pricing and give special offers. Track customer behavior to interact with an online store run by an e-commerce company. The custom quotation is the second option, and it also follows the same rule. Utilize data to ascertain the purchasing patterns of your consumers and give them special offers and discount codes that are relevant to their past purchases. Utilize big data in supply chain management to improve the management of supply chains. Any delays or possible inventory problems in the supply chain can be found using data analytics. To assist e-commerce businesses in creating their long-term business objectives, predictive analytics examines the various e-commerce channel types.

According to the research shows that in the next few years, the market size of e-commerce will continue to expand, the competitive landscape will become more and more simple, and the development of mobile terminals will become an important trend. Similarly, this industry is also facing great opportunities and challenges. With the continuous upgrading of technology, e-commerce enterprises can use the advantages of big data technology and artificial intelligence technology to achieve innovative marketing and better serve consumers. At the same time, the convenience of mobile devices can also be used to achieve online and offline linkage sales. These are growth opportunities. However, e-commerce companies also face many challenges. Due to the fierce competition, companies need to consider how to maintain a good brand image and reputation. In addition, e-commerce platforms also need to strengthen the protection of consumer rights and interests to ensure that the legitimate rights and interests of consumers are protected. The main objective of this article is to examine the strengths and weaknesses of big data's use in e-commerce and to suggest potential strategies for upcoming e-commerce decisions in order to advance e-commerce and better meet the demands of the new digital economy era in order to achieve further positive development.

2. The Advantages and Disadvantages of the Era of Big Data

Data is the foundation for accountability and the lifeblood of decision-making [3]. Big data processing and analysis can now be done in real-time thanks to recent advancements in computer infrastructure and data-science engineering [3]. However, there are still some challenges to applying big data properly to e-commerce. Some of these issues are brought on by present analytic methods, while others are brought on by the features of large data and the constraints of already in-use data processing platforms [4].

2.1. The Advantages of the Era of Big Data

Before anything else, it's important to understand what big data is. Big data is a collection of data that, within a given timeframe, cannot be enslaved handled, and processed using conventional software. It is also a vast, expanding, and diverse information asset that calls for new processing models in order to go through with greater choice-making, insight, and operational optimization capabilities. It has four characteristics of large quantity, high speed, variety and low value density.

These characteristics are reflected in e-commerce, which has become its unique advantage. First of all, big data can help businesses understand user patterns. Big data on customers' purchasing habits and frequency, specifically consumers' browsing history, historical consumption data, and after-sales feedback data, can be used to get the preference and focus of price categories in the range of demand. In a convenient and quick way, increase the possibility of buying their own products to customers, thereby increasing consumption and increasing turnover. That said, we can't guarantee that big data has the function of predicting the future, but we strive to make big data accurately Fenxi consumer needs.

Not only that, the way big data locks resources, the way it plans production, the way it operates, and the way services are rolled out are also part of its advantages. That is to say, when buying a product, consumers can first learn about it online and screen the products they like.

2.2. The Disadvantage of the Era of Big Data

There may also be downsides to big data. The first is the issue of social security. Nearly 600 million people in China use the Internet, producing and consuming a substantial amount of data at all times. Network amplification, speed of communication and ability to mobilize are becoming increasingly important, and the occurrence of frequent social group incidents is due to the superposition of various social contradictions.

The issue of personal privacy is also widely mentioned, and information technology tools available to people are everywhere, as are all kinds of information about individuals. In cyberspace, identities are becoming more virtual, and privacy is becoming more important. Approximately 87 percent of private data about an individual may be retrieved in publicly accessible databases just by identifying their gender, age, and postcode, according to a new Harvard University study. The famous Yahoo breach occurred in August 2013 and affected 3 billion accounts. The alleged event, which allegedly occurred in 2013, was first made known to the general population by the corporation in December 2016. The accounts of more than 1 billion of the company's clients are thought to have been compromised during the time the company was in the process of being bought by Verizon. A little over a year later, Yahoo revealed that 3 billion user accounts had actually been compromised. Yahoo said that the updated estimate did not signify a brand-new "security issue" and said that it was forwarding notifications to all "other compromised member accounts." The investigation found that account information such as security questions and answers, plaintext passwords, payment cards and bank data accessed by the attackers was not stolen. The running of the national economy and the growth of the technologically advanced society as a whole known as intelligent transportation and smart electricity networks depend substantially on an accurate data base, and the more sophisticated these essential networks of information and connection are, the more security is at risk.

National security interests are also a very important point, the cyber space information security, the seriousness of the problem, All unconventional security risks that sovereign governments confront nowadays always encounter an iceberg in the ocean dilemma, the needle that the authorities seek is frequently sunk in the huge sea since the urgency has significantly outweighed other traditional security measures.

Finally, secrecy protection. Due to their shared access to powerful computing resources and vast amounts of data, the Internet companies and the NSA control the majority of the world's data, much of which is exposed online.

3. Utilization of Large-Scale Data Science in E-Commerce

3.1. To Offer Clients More Individualized Service and to Cross-sell Products

In the era of big data, fast meeting consumer demand has become the core competitiveness of enterprises. Thus, providing personalized service is essential. When selling enterprises utilize data to customize messages to certain consumers' tastes, such a practice is known as personalization in marketing [5]. The integration of international data from multiple sources, as well as the connection and construction of businesses along the value chain, are all supported by next-generation information technologies like big data. Enterprises with different geographical distribution take consumer demand as the center, form dynamic alliances, integrate research and development, production, operation, warehousing, logistics, service and other links, work together, develop and market distinct goods and services, as well as sophisticated and quick reaction systems. Through database accessibility and collaboration, efficient utilization of resources, labor division, and collaboration, businesses create new value in the age of big data. The detail is 1, Data collection: collect consumer purchase records, behavior data, online interaction, search records and other information, not only from its own system but also from other data sources. 2. Data processing and analysis: clean and process the collected data, and carry out data mining and analysis, including data modeling. Use machine learning algorithms to analyze personalized needs, trends and patterns, perform cluster analysis on data, and dig out consumer needs and preferences. 3, personalized product design and production: through the results of big data analysis, the production of products that meet the needs of consumers, including the design of appearance, function and other aspects, to improve the purchase desire of consumer groups. 4, personalized product sales and promotion: integrated social media, search engines, advertising, marketing campaigns and other promotional strategies to promote personalized products to consumers.

3.2. The Application of Big Data Analysis in Intelligent Storage

The following are some smart storage big data application scenarios:

First of all, goods tracking and management, intelligent warehousing can identify and track goods through RFID which is a type of wireless communication that uses bar codes, additional tools, and electromagnetic or electrostatic coupling in the radio frequency region of the electromagnetic spectrum to uniquely identify an object, animal, or person in order to achieve immediate surveillance and oversight of goods [6]. Through big data analysis, information such as the flow direction, storage and transportation of goods can be analyzed and predicted, helping warehouse managers find problems in time, optimize warehousing processes, and improve warehousing efficiency.

The second transportation route optimization, intelligent warehousing can optimize the transportation route of goods through big data analysis. Through the analysis of historical transportation data and real-time traffic data, it is possible to find the optimal transportation route, and transportation mode, and reduce transportation time and cost.

Third, inventory optimization, and intelligent warehousing can optimize the inventory of goods in the warehouse through big data analysis. By analyzing sales data and the flow of goods, the demand and sales trend of goods can be predicted, so as to optimize the storage location and quantity of goods and reduce inventory overstock and waste.

Yiyou Technology's leading MRO material intelligent access system has provided a good example. When using the NVM industrial Material Intelligent access system, is the most comprehensive and effective solution for implementing lean inventory management of materials throughout the company. With standardized processes and visualized data information, you can better serve and win customer orders, understand the real workflow of the business, trace defective batch items and inventory

demand forecasts based on actual data, and know at any time what they took, when they took it, what work they did, and how much they took. With a complete inventory control system, know where your entire inventory is at all times.

Fourth, security monitoring, intelligent warehousing can monitor the security of the warehouse through big data analysis. Through surveillance video, sensor data, etc.

3.3. Legal Loopholes in E-commerce Industry

A loophole is a typographical error that results in certain people being able to lawfully disregard a rule, law, or contract [7]. in Britannica dictionary. Big data utilization in e-commerce is at risk due to legal flaws.

3.3.1. Information Fatigue Excessive Duplication and Bias

Because the data is the same, we can't make too many personalized changes, which means that the unique experience given by big data is very limited. And it can be repetitive and simple.

In terms of data integrity and accuracy, many enterprises, due to the lack of a unified data governance system, may have unscientific and non-standard problems in data collection, storage, processing and other links, resulting in wrong data, abnormal data, missing data and other "dirty data", unable to ensure the integrity and accuracy of data. Moreover, in terms of consistency, due to the complex business lines and diverse business types of many enterprises, multiple business systems or departments often have different data collection standards and different statistical caliber, the same data source may be completely different in different departments, and the actual meaning of seemingly the same data may also be very different, and the data consistency is difficult to guarantee. This hinders the sharing of information between systems and makes the utilization rate of organizational resources relatively low. The era of big data has put forward higher requirements for marketers.

3.3.2. Privacy of Customers

The data that customers generate as they use digital technology more and more presents businesses with a chance to enhance consumer engagement and a duty to protect consumer data [8]. It might be challenging to organize data from numerous sources, though. In order to service an extensive spectrum of business components, the data is derived from a variety of various business units, it is necessary to set different permissions for employees at different levels. How to prevent enterprise data from being accessed by unauthorized users, manage data sharing among different business units, and isolate sensitive enterprise data? That said, businesses may face some challenges. For example, data isolation, business data of different projects need to be isolated, such as game operation data. When designing A big data analysis platform, enterprises may expect business data generated by Game A to support Game A operation analysis, and business data generated by Game B to support Game B's operation analysis, so business data needs to be isolated by the project. Employees of the game operations department of A can only access the game operations data of A, and employees of the game operations department of B can only access the game operations data of B. The second is hierarchical data access. Business departments at different levels have different access rights to data. Higher-level departments can access the data of lower-level departments, while lower-level departments cannot access the data of higher-level departments. For example, provincial departments can access prefecture-level data, while prefecture-level departments can only access local city data, and cannot access cross-district data or provincial department data. This requires permission to manage the data.

4. Strategies to Optimize Business

4.1. Marketing

First of all, enterprises should develop a perfect cross-marketing system (In many industries where a seller sells both a primary and a secondary product, a cross-market network effect exists, and the value of the secondary product is influenced by the size of the first product's user base build an e-commerce platform, dig deeply into customers' purchase information, analyze customers' needs [9]. So as to provide a data basis for marketing and formulate targeted marketing strategies. Secondly, it is necessary to reduce channel costs, optimize and integrate marketing channels, change the traditional pyramid marketing structure, and make full use of the Internet to plan sales channels, so as to reduce marketing costs. Big data can not only analyze user data but also business data. Through the analysis of goods, the hot characteristics, popular elements and trends of goods can be mined, so as to formulate corresponding marketing strategies, and by continuously improving the supply and product styles, the product framework may be altered to suit consumer needs. For example, through the analysis of the sales data of commodities in a certain period, the website can find out which commodities are more popular in these periods, and then take these commodities as the key commodities in marketing, carry out corresponding promotional activities, and analyze the purchase behavior of these crop commodities to understand the browsing, searching and clicking information of commodities, so as to provide more accurate marketing strategies for merchants.

Not only that, e-commerce competitors are strong, so big data technology is also applied in competitor analysis. By analyzing competitors' marketing strategies, promotion measures, professional quality and other aspects of cell, we can improve our own marketing strategies and ensure product competitive advantages. For example, simple, practical, reliable and efficient business analysis tools can be used to collect information on e-commerce platforms, and subdivide industries, analyze competitors, and then combine the analysis results with their actual situation to carry out corresponding marketing strategies.

4.2. Legal Aspects

In addition, the enterprise Marketing Department also needs to have a comprehensive understanding of China's relevant laws and regulations, regulate their own behavior, and improve the legitimacy of marketing work, so as to promote the stable and healthy development of enterprises

Participants in a meeting on internet commerce negotiations hosted on June 21 addressed progress in resolving disagreements and their possibilities for incorporating any future results of the negotiations into the WTO ("the sole worldwide intergovernmental body addressing international trade regulations") legal framework [10]. The co-convenors (Australia, Japan, and Singapore) acknowledged the necessity for varied strategies to meet the many legally acceptable channels that exist and observed that there are multiple of them. They encourages and regulations also play a big role in personal privacy. Although some consumers' awareness of risk and information protection is still weak, it is certain that the current legal system related to personal privacy protection is not perfect, so the establishment and improvement of laws and regulations on personal privacy protection should be strengthened. At the same time, increasing law enforcement agencies should also increase the enforcement of laws to fundamentally eliminate all kinds of criminal interactions involving personal privacy violations. For example, China's legislative departments have fully clarified the criminal standards for violating China's personal privacy and personal information security behavior and constructed a combination of relief methods such as eliminating the impact, economic compensation and other ways to increase the intensity of the criminal behavior of violating personal privacy. It can also purify the network to enhance the awareness of personal privacy protection, and optimize and

improve the technology and means of personal privacy protection. For example, A more effective and practical data encryption technique was created by the technicians of a particular internet technology engineering team in China. On this basis, it also realizes the establishment of a personal information database in network space based on cloud space and cloud computing. The establishment of such cloud space gets rid of the limitation on the storage time and space of traditional information data and can access and use their own information on the network anytime and anywhere.

5. Conclusion

In the era of big data, it has indeed brought us a lot of dividends, such as being able to determine consumers' preferences more quickly and conveniently, and then lock resources for marketing, and also obtain the data needed by the company from many aspects, and then carry out production improvement at a high cost. The drawbacks it presents, however, must also be taken into consideration, because the data about personal privacy can be obtained, which will cause privacy disclosure, thus bringing security risks to consumers, and so on. Therefore, companies need to learn to make good use of the advantages of big data, such as establishing a cross-marketing system, and learn to use various strategies to reduce the disadvantages that can not be ignored, such as reducing the infringement of privacy in the form of laws. To sum up, the era of big data does bring a lot of impact on business decisions, in fact, these impacts have positive and negative aspects, the important thing is how companies use these strategies.

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