

## ***Research on the Development of E-commerce under the Background of Big Data***

Kaili Yan, Yumin Li

*Administrative Engineering College, Zhengzhou University, NO.100 Kexue Roadt, Zhengzhou, China  
yankaili9483@163.com, lli.yu.min@163.com*

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**Abstract:** Undoubtedly, big data will open a major transformation of the times. Especially with the development of e-commerce platform, big data has played a huge role in the development of electronic commerce. In the Internet age, with virtualization, transparency and advantages of high efficiency, e-commerce has become the mainstream market. Big data processing mode helps to capture and delete selected information data. This paper mainly discusses the combination of big data and electronic commerce, the opportunity and challenge of the development of electronic commerce in the era of big data, as well as the application in various fields.

### **1. INTRODUCTION**

With the rapid development of the mobile Internet, Internet of Things, cloud computing and other emerging industries in the Internet plus, big data has also been produced, being changing the industry competition in various industries by a variety of ways. Under the background of big data, through the collection, analysis and integration of data, enterprises can be personalized recommendation to improve the purchasing power of consumers. However, collecting data is not necessarily available, the middle will be interspersed with some of the wrong data, which makes a challenge to deal with big data. Data mining, processing and processes technology have entered the application phase, but because of higher cost, so it has not been widely popular application.

The emergence of big data to the e-commerce enterprises has brought great opportunities, in other words, big data, to some extent, can bring benefits, but accompanied by challenges. This paper focuses on the rapid development of today's e-commerce industry how to use big data applications to make themselves more powerful.

### **2. THE THEORETICAL BASIS OF BIG DATA AND E - COMMERCE**

#### **2.1 The theoretical basis of big data**

##### **2.1.1 Definition of big data**

"Big data" refers to a collection of data that can not be captured, managed, and processed with conventional software tools within an affordable timeframe, requiring a new processing model to have greater decision-making power, insight discovery and process optimization capabilities to adapt Massive, high growth rates and diversified information assets. In the B2B model, most of these data are collected from social networks such as social networks, e-commerce sites and customer visits, but the database of customer relationship management does not necessarily come from these data.

Big data and cloud computing are closely linked in

terms of technology, because a single computer has been unable to deal with the existing big data, which requires to strengthen the technology, such as distributed computing architecture that can dig a lot of data, but it needs other technologies to support, such as cloud computing distributed processing, cloud storage and so on.

Storage and analysis of big data is the core value, and big data prices are relatively low, the collection of data is relatively fast and will be technically optimized, which is the difference between the other existing technology.

##### **2.1.2 The characteristics of big data**

(1) Huge data volume. At present, hard disk capacity of the personal computer is the magnitude of TB, and some large enterprise data volume has been close to the EB level.

(2) Dynamic openness. In the data age, most of the information is open, data of Internet users can be obtained through some technology, even if it can protect the privacy, but most of the data expose to a relatively open environment, So the corresponding laws are made to deal with public data.

(3) Low value density. The density of the value is inversely proportional to the total amount of data. taking the 24-hour surveillance video for example, only two or three hours may be effective, which raises the question of how to filter useful data by some sort of algorithm.

(4) A wide variety of data. There are some data can be called structured data, such as, some text form of data; other data are unstructured data, such as, network log, geographical location information and so on. Data types are different result in the difference requirements of data processing capacity, that is, unstructured data requirements are higher than the structure data.

(5) Slow processing speed. Now is the information age, enterprises are using data to analyze the market trends, there is no doubt about that the processing speed is also a difficult problem, the data are updated all the time, the enterprise decision-making and processing data is closely connect together in the big data.

#### **2.2 The theoretical basis of e-commerce**

##### **2.2.1 Definition of e-commerce**

E-commerce is a kind of business activities on the

Internet, it is not subject to distance restrictions to trade around the world, company can integrate the information resources in various places to create a real global village. There are a lot of changes in e-commerce for traditional business models about time and space. However, e-commerce is not equivalent to electronic commerce. It can only survive and develop in a certain external environment. At present, e-commerce has not only included the main content of its shopping, there are some supporting services, such as logistics management. The core of these services is the network marketing and data-related content, which shows that the development of e-commerce is largely dependent on the data.

### **2.2.2 The characteristics of e-commerce**

(1) Low cost. Companies use online transactions to reduce costs, and then prices will be lower than the traditional model, that is to say, enterprises can achieve small profits but quick turnover.

(2) Electronic. In e-commerce, most of the economic resources are in the form of data, which is different from the traditional form of enterprise materialization. Although it brings a lot of convenience, the credit business poses a challenge.

(3) Security. This is the core issue of e-commerce, it is not feasible that people transact the offline to online without security, after all, there are a lot of personal privacy problems, such as identity cards, bank cards.

(4) Convenience and Fastness. The entire process of e-commerce activities are electronic, coupled with the current speed of the Internet, which makes e-commerce activities more quickly.

According to the classification and characteristics of e-commerce, there is no geographical boundary that is the greatest advantage of e-commerce with respect to the traditional business model, it really makes use of the Internet platform, and businesses and customers can communicate anonymously through the Internet to provide more freedom and openness, and in this process, big data will bring business opportunities for the business, no matter what the e-commerce will produce.

## **3. DEVELOPMENT OPPORTUNITIES OF E - COMMERCE ENTERPRISES IN THE BACKGROUND OF BIG DATA**

### **3.1 Service reform strategy under the background of big data**

Under the background of big data, enterprises can classify consumers to make personalized recommendations and accurate marketing in the light of the characteristics of various types. The consumer's browsing, recording and other behaviors on the Internet provide the basis for e-commerce enterprises to accurately grasp the user groups and individual consumer behavior. E-commerce enterprises have developed the precision of advertising and personalized recommendation, making their products more targeted and slowly changing before the business model so that enterprises can stand steadily in the Internet age. In addition, they can increase the user's viscosity while

developing new products and services to meet consumers' psychology and find ways to reduce costs. Taking Jingdong Mall as an example: In 2012, Jingdong Mall presented the data mining strategy to the outside world at the purchase signing ceremony of the mobile phone, in the future, if the phone service of Jingdong realizes the construction of the EDI data exchange system on the basis of the open platform of the supplier, the open function will be reached more quickly.

### **3.2 Data capitalization strategy under the background of big data**

Under the background of big data, "data is assets" will become the core of industry trend. The competition of future enterprises will be the competition of scale and activity, and the economic benefit and function of data will attract more and more enterprises to pay attention, which will bring large amount of data business. "Data is an asset" is a kind of capitalization of the Internet, so that the function of the Internet is not only reflected in the "use value" of the product, but also becomes a real value in addition to the application and service.

### **3.3 Personalized shopping strategy under the background of big data**

In the internet age, to solve the problem of consumer information overload and guide consumers to purchase goods more easily, the shopping guide system will become the service form of many e-commerce enterprises. In the area of e-commerce, Amazon is a good example that provides users with intelligent shopping guides through personalized technology, which greatly improves user experience and sales performance. Data will completely change customer service, as data records consumer behavior and is a key factor in providing high-quality customer service, while the lack of data or missing tool-processing data may interfere with personalized customer service, which often fails to meet the customer's expectations.

### **3.4 Product service positioning strategy under the background of big data**

Under the background of big data, the data become assets, in other words, the rational use of consumer business information is the enterprise to tap the commercial value, but often because of technical and other reasons can not be large data analysis, mining, but there is a certain data technology E-commerce enterprises can make good use of this point, the analysis of massive amounts of data sold to the needs of enterprises, thus opening up a new e-commerce service model. The biggest feature of Mobile e-commerce is not subject to time and space constraints, you can do business on the phone at any time, because the mobile terminal can get location information, and the data is more accurate, which is different from PC.

### **3.5 Subdivision of domain service strategy under the background of big data**

Under the background of big data, The enterprise must made more precise to become powerful, especially small businesses, because of low cost, they can provide more professional and accurate services than the large

e-commerce enterprises in data mining, and then gradually improve their products and services.

### **3.6 Summary of quality product information strategy under the background of big data**

According to the purchase and browsing data of the commodity, the hottest and the best commodities are screened out, so as to attract more consumers, and meanwhile help the consumer to save the time for picking and comparing. For example, Taobao buyers link their favorite items to their web pages, or make smart collocations to filter and comment on more consumers and build a powerful purchasing communication group.

### **3.7 Information retrieval service strategy under the background of big data**

Consumers often find it difficult to find the goods they need when faced with the quantity of commodity information on the e-commerce website, which requires an electrical business to provide them with accurate information retrieval services. According to the method, the product is classified, subdivided in each large class, so that the consumer can quickly and accurately match the keywords provided by the user and the product information when searching, and the corresponding intelligent search is carried out so as to obtain the information and the product meeting the requirements of the user, and the maximum extent Increase customer satisfaction. and the consumer needs to be further screened according to the requirements of the consumer, so that the consumer demand and the commodity are rapidly matched, and the time for purchasing screening is greatly saved.

## **4. CHALLENGES FACING E - COMMERCE ENTERPRISES UNDER THE BACKGROUND OF BIG DATA**

### **4.1 Failed to identify useful information**

With the development of Internet technology, the terminals that can access the Internet are getting cheaper and cheaper, and the population coverage is also increasing, so the data of Internet users is easily acquired, but the collection of these data paths and types is different and inevitably contains large amounts of useless data. Obviously, a large number of useless data will affect the results of data analysis, which is a big challenge. Although there is data that is essential, if useful data cannot be identified, the company cannot accurately analyze and make personalized recommendations.

### **4.2 The ability is insufficient to handle**

Under the background of large data, a new technical requirement is proposed. First of all, there is a lack of comprehensive system training system to master knowledge such as mathematics, statistics, computer, database and so on. In addition, some companies that have data do not want to disclose and share data so that data from departments and businesses form isolated silos, limiting the wide use of large data. Finally, how to

collect, save, maintain, manage, analyze and share exponential growth data is a challenge for enterprises. While large data can be converted into services to form the core capabilities that can be opened and commercialized, massive data presents challenges to the performance of computer hardware, and it is difficult to ensure the real-time performance of the data without proper storage technology and analysis techniques. MapReduce and Hadoop have not been improved in performance, and cost is high, to some extent, small and medium-sized enterprises are hard to bear.

### **4.3 Security is difficult to guarantee**

Under the background of big data, the e-commerce company collects the consumer's personal network behavior and various kinds of privacy information. If the data is stolen or leaked, the consequences will be very serious. On the one hand, it is inevitable to prevent data theft and tampering. On the other hand, the e-commerce company takes the consumer behavior through the processing and analysis of the data, so that the potential business value is excavated, a new business item is created, and the profit margin is improved. But at present, many sensitive data are owned by an enterprise, which depends on how the enterprise analyzes and uses large data, so the consumer must consider the personal privacy leaks caused by big data analytics.

### **4.4 Failed to share data information**

Just because of the great value of big data, some departments and businesses with big data have doubts about opening shared data. Some enterprises with data do not have the ability to handle, analyze and apply data, but they are not willing to share them open; some data collection, processing and analysis of the enterprise processing and utilization data has a strong ability to develop a new business model, and it is not willing to hold it Some data are open and shared. The data of various departments and enterprises form "information island", which restricts the wide application of big data.

## **5. THE DEVELOPMENT COUNTERMEASURES OF E - COMMERCE ENTERPRISES UNDER THE BACKGROUND OF BIG DATA**

### **5.1 Strengthen the cluster effect**

Although there are many e-commerce industrial parks, professional cloud computing providers and data analysis companies are still needed to promote data sharing and the development of e-commerce enterprises, and infrastructure is scarce, so it is necessary to include elements within an industrial park.

### **5.2 Speed up the training of big data professionals**

Talent is the blood of enterprise operation, especially the compound talents with multiple field knowledge and many skills. Under the background of big data, it is necessary to master the talents of mathematics, statistics, computer, database and so on. However, the shortage of talents in this field, whether quality or quantity, can not meet the speed of industry development. As a result, we

can set up relevant majors at universities to retain talents that are suitable for the age of large data.

### **5.3 Develop cloud computing technology**

For the e-commerce industry, cloud computing technology cannot be replaced because cloud computing can strengthen data computing ability, reduce information security risk, and improve economic benefit. The government should also support the enterprise's self-development and the trend of "Internet +".

First, we should perfect the relevant policies and regulations. The government should regulate the market access mechanism, reduce the threshold of entrepreneurship, establish a standard norm system, formulate national standards in terms of service, facilities, security and confidentiality to make market competition available. Second, increase fiscal and tax policy support. Government should give preferential tax policies of related enterprises, increase financing and credit support, set up government investment fund, reduce the burden of enterprises, guide enterprises to carry out technical research and development and upgrade, promote the healthy development of the industry. Third, cultivate talents through various means. Government will effectively integrate resources such as enterprises, universities and scientific research institutions and focus on cultivating cutting-edge talents. Fourth, strengthen standardization. Government will actively participate in the formulation of international standards, strengthen research and development cooperation among international enterprises, and enhance the voice of the world.

### **5.4 Improve big data legislation to ensure information security**

E-commerce enterprises have a large number of consumer personal information data, including name, address, mobile phone number, credit card number, consumption record, etc. How to protect users' privacy through legal means is a problem that China must solve. National legislation is mandatory but not specific. In terms of regulating behavior of e-commerce enterprises, it is suggested that the government give full play to their advantages, make up for the deficiencies and promote the healthy development of the e-commerce industry.

### **5.5 Strengthen the cooperative development of logistics and e-commerce**

With the development of e-commerce, the whole logistics industry is an important link in e-commerce. With strong logistics in the operation of the electric business, buyers can deliver goods on the network platform, and the logistics can be delivered to the door in a very short time. So it is necessary to pay attention to the construction and development of logistics as an indispensable supporting facilities service for E-commerce enterprises, especially in the background of large data information, so as to enhance the timeliness of the data transfer of logistics information. Only through the fast and efficient logistics to send the goods to the buyer's hand is the improvement of the operation of the electric business. Therefore, for logistics, we should try to achieve its wider coverage, faster and convenient

distribution efficiency, and make the delivery way of logistics more convenient and faster.

### **5.6 Promote business model innovation**

Along with the extensive popularization of the Internet in the commercial field and the arrival of the big data era, the business model has been continuously updated, and the representative business model has O2O, O2P, etc. O2O (Online To Offline) refers to a business model that combines offline opportunities with electronic commerce on a line to transform electronic commerce on line to offline trading platforms. O2P (Online To Partners) refers to the use of mobile Internet technology to reach out-of-line interactive electrical business platforms with localized, social features to achieve channel-to-community, full coverage of town outlets, and different brand types. Through the establishment of multi-party participation in the multi-party win-win situation, the enterprise constructs the core competitive internet ecosphere, transforms into the relevant standard definer and the game rule maker. Regardless of which new type of business model is adopted, it should focus on the consumer and optimize integration of a series of port data, so as to realize the real-time push of the data information.

## **6. CONCLUSIONS**

The reform and innovation of the development of the E-commerce industry based on the background of big data is the inner requirement of the development of the E-commerce industry. Through the analysis of the present situation of e-commerce industry and the corresponding countermeasures, it can be seen that the development of electric business has always had huge market potential, based on its current situation in economy and society, we must put forward a new idea of operation and combine it in actual operation. The new concept of new technology has been continuously improved in the same period, so that the good development of the electric commerce industry can be promoted.

The development of big data technology and platform brings opportunities for e-commerce enterprises to create their own brand services. electricity enterprises should seize the opportunity, this update thinking, make full use of the strong condition of big data, to explore marketing channels, to create his own interests, traditional enterprise, of course, should also start transformation, to the Internet and the era of big data. Laws and regulations on data security and e-business security should also be improved to ensure that companies use data without threatening consumers' information.

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