

## **'The Study of Impact of "Big Data" to Purchasing Intention**

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### **Abstract**

*The article discusses the feature of human purchasing intention based on "big data" environment. Analysis the mechanism of "big data" on consumer purchase intention, both positive and negative aspects: the value of "big data" resource and the innovation of "big data" technology, to analysis "big data" positive impact on consumer willingness to buy on the network; the privacy of data mining and the quality of data screening, to analysis the "big data" negative impact on the willingness of customers. On this basis, provide relevant advice for e-commerce vendors in the development of big data era.*

**Keywords:** Big data; Purchase intention; SOR model

### **Introduction**

2011, since McKinsey report the "big data era" in its report entitled "Big Data: The Next Frontier for Innovation Competition, and Productivity". Academics have begun to focus on the profound impact of "big data" on management theory and practice; 2012 World Economic Forum in Davos, participants declared: the power of data extremely powerful, data is a new economic asset, like currency and gold.

McAfee, Brynjoflsson (2012) pointed out that the boundaries between Internet users and consumers is to eliminate in "big data" era, enterprise boundaries become blurred, data become core assets and will profoundly affect the company's business model, and even reconstruct their cultural and organizational<sup>[1]</sup>. McGuire et al. (2012) explains the "big data" bring new competitive advantage in five ways: information transparency, more transactions of digital information, tailored products and services for a more narrow market segments, sophisticated analysis and product prospective development and services<sup>[2]</sup>. Goyal et al (2012) pointed out that "big data" is to enable enterprises to "Micro-Segments". And it is possible to accurate subdivide consumers<sup>[3]</sup>. Throughout the academic research of profound impact of "big data" on management theory and practice, we can see that most of these studies infinitely close to consumers, and directly or indirectly based on consumer behavior.

How companies effectively utilize the "big data" to guide the consumer? What will consumers variations in the "big data" era? In the era of "big data" has become the background of today's e-commerce development, analysis the impact mechanism of "big data" on consumer purchasing intention is a meaningful research questions!

### **1. Consumer Behavior Characteristics in "Big Data" Environment**

Big data era of electronic commerce based on advanced data mining analysis platform, its sales activities is not the traditional mass marketing, but the personalized marketing use of big data. E-commerce under the environment of big data, consumer behavior over traditional e-commerce, main show the following several characteristics.

### **1.1 Network Shopping Demand Innovation and Personalized**

According to Maslow's hierarchy of needs theory, people's needs in the lower level are satisfied, they will often produce a higher level of demand. When the Internet shopping become mainstream, especially in the big data environment, There are increasingly demanding consumers choose online shopping, not only demand the product function, quality, etc., but to meet their online shopping pleasure and experience. According to the McKinsey report, businesses can synthesis each dimension data and set up user's behavior by analysis of big data, so that merchant can provide the goods and services which corresponding to the needs of users. It can be see big data driving the personalized marketing of electric business, at the same time, consumers with innovative and personalized service demand is higher and higher.

### **1.2 Network Shopping Requires High Standardization**

Based on traditional network shopping bad phenomenon such as information search sex、 personal privacy and financial security、 logistics problems, consumers demands higher once they choose online shopping. The analysis of consumer behavior data, more privacy and security issues are produced, this not only influence consumer's trust on merchant, and reflect the interest and attention of network shopping, in this case, the requirements of protection of personal information security more and more strong.

### **1.3 Emphasis Shopping Experience**

Under the traditional e-commerce consumer shopping patterns, due to its easy transmission of information, consumers can browse the latest consumer product information just stay at home, which provides great advantages for the convenience of shopping. However, shopping in the e-commerce model, consumers can not personally experience the characteristics of the product, so consumers increases their desire for goods, and their desire for favored goods enhance the usage requirements. So, shopping experience in the era of big data has become the focus of consumer concern.

## ***2. The Research of Customer Purchase Intention Based on the "Big Data"***

### **2.1 Positive Impact of "Big Data" Bring**

#### **2.1.1 The Value of "Big Data" Resource**

Customer -oriented company a long time in the use of data segmentation to positioning their customers, but the real needs of consumers has a hidden, complexity, variability and scenario-dependent, the use of historical, static, structured data is difficult to obtain the real needs of business users. It is possible that the "big data" give enterprises real needs of consumers: human subtle behavior will directly expose their thoughts, such as users footprints in the network, click, browse, comment, etc. can directly reflect his character, preferences, wishes. Traditional consumer segments generally based on geographic, demographic characteristics and the "big data" can be achieved closer to the real needs of consumers' subdivision ways: First, segmentation criteria abstraction. When people's interest, hobbies, values , lifestyle, communication can be digitized, these features have a breakdown practical feasibility. Second, market segments miniaturization. Essentially, the number of people in the word will be equal to kinds of interests, preferences and needs of the world. Everyone is a niche market. "Big data" enable enterprises towards to "micro- market" oriented <sup>[4]</sup>.

From the perspective of the consumer's, big data real-time personalization and multi-source, fast multi-format comprehensive comparative capability make data collection, collation, analysis, feedback, response can be done in an instant, accurate delineation user groups for the enterprise anytime, anywhere <sup>[4]</sup>, which meet the real needs of consumers and potential demand, stimulate consumption.

#### **2.1.2 The Innovation of "Big Data" Technology**

The arrival of big data, attracted more and more attention, a new data storage technology, data mining technology is also appropriate to generate, based on the tedious data, previous studies also raised a commodity recommendation system and applied in the e-commerce field. Information under this era of big data caused by massive data overload can be can be resolved through information technology itself, the most important way is by building a recommendation system to deliver information which best suit the needs of users at the right time and right place. The recommendation system powerful information retrieval and recommendation features provide consumers with a more comprehensive, more fully, more personalized information, which enable consumers to give product features, performance and price reasonableness and other more in-depth and accurate evaluation, thereby reducing the perception deviation of different brands <sup>[5]</sup>.

In addition, with the rapid development of the Internet, virtual experience is more and more prosperous. Consumers buy more goods is to meet the emotional desire, Preference for those products which can be meet emotional and psychological needs of self-resonate. In the virtual shopping experience, more vivid emotional experience, a more direct experience of personalized products, active participation of autonomy and other factors will stimulate consumer desire to buy the product.

## **2.2 Negative Impact of "Big Data" Bring**

### **2.2.1 Privacy Issues of Data Mining**

Data privacy, data security is unavoidable problem in "Big Data" era. Stage, consumers have generated a lot of data records, such as Internet traces, transaction records, where the use of digital tools will leave records. The data get through all aspects of the future; a person's behavior cannot be hidden. Data holders can speculate the behavior trajectory and the trajectory of thinking of person's behavior from historical data. People tend to emphasize data integration can be achieved "1 +1> 2" effect, but ignored the effect of this expanded penetration of privacy is also greater than 2. Lack of "data rights" is one embodies endless personal data breaches.

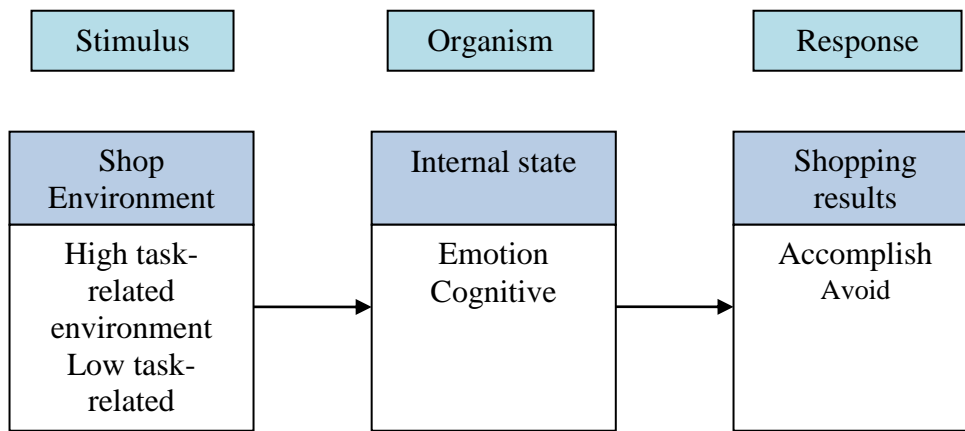
Cyberspace covers a broad range of data sources, such as sensors, social networks, record archiving, e-mail, a large collection of data inevitably increase the risk of privacy leaking [6]. While relying on the birth of e-commerce Internet technology also faces the risk of disclosure of consumer information, including personal contact and personal information leakage type attribute information in the proportion of larger. The reason, the following two aspects: on the one hand, centralized storage of data increases the risk of data leakage, and to ensure that these data are not abused become part of the maintenance of public security. On the other hand, some of the ownership and use of sensitive data is not clearly defined, many analysis of large data do not consider the privacy issues involving individuals. In addition, over-reliance on foreign technology and big data analytics platform, it is difficult to avoid the risk of information leakage.

### **2.2.2 Quality Issues of Data Screening**

Faced with a flood of data, if not screening, it is difficult to ensure the integrity and objectivity of data, data analysis and integration on the basis of flawed inevitably will lose its value. Kenneth • library yeah , edits "big data era , " a book affirming the core functionality of big data is to predict , but also pointed out that the adverse effects of it is the abuse of big data to predict . In addition, the "big data" in the site mainly as follows: the product description in text, images, descriptions and dynamic description. In this case, data tampering and manipulation, forgery and counterfeit goods, brush credit and other issues have generated, cumbersome of data and false of information not only lead to changes in consumer sentiment, but also reflects the confidence of the consumer website, thereby affecting the online shopping intentions <sup>[7]</sup> . While data mining and data analysis of big data technology brings business value, it also been used by hackers to attack. Hackers maximize gather more useful information, such as social networking, e-commerce, e-mail, telephone, micro-blogging and home address and other information to prepare for the attack, big data analysis allows hackers more accurate <sup>[8]</sup> . In addition, hackers attacked big data provides more opportunities. Hackers use botnets launching attacks big data may simultaneously control a puppet on millions of machines and attack, this magnitude is a traditional single-point attack are not available.

## **2.3 The Mechanism of "Big Data" on Consumer Purchase Intention**

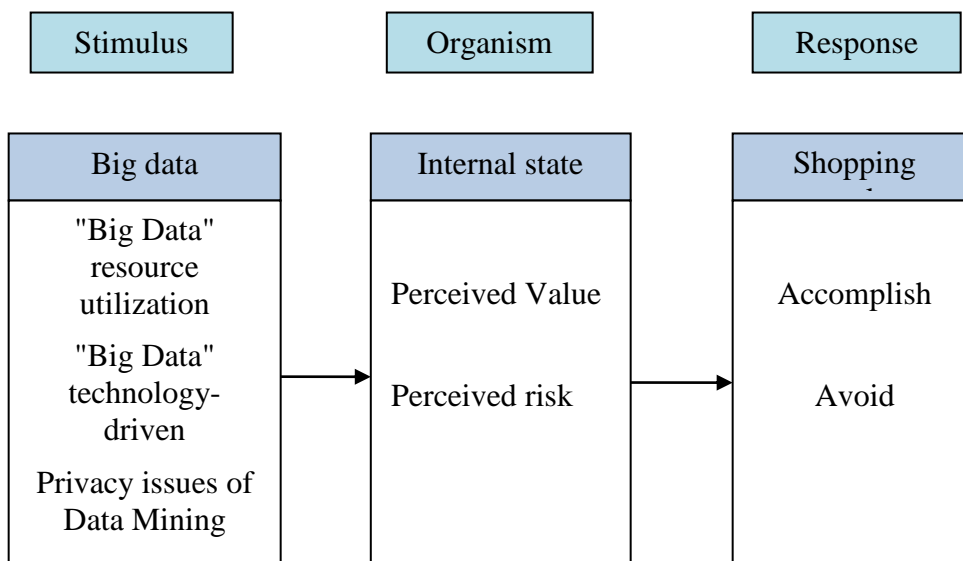
SOR (Stimulus-Organism-Response) model first by Mehrabian and Russell (1974) <sup>[9]</sup> suggested that the model indicates that environmental stimuli can affect an individual's emotional state, and thereby further affect individuals make to reach / escape response (approach and avoidance response). Since then, Eroglu et al. (2001) <sup>[10]</sup> introduced the first model of the SOR online shopping scenario.



**Fig.2-1: Eroglu S-O-R model**

After Eroglu introduce SOR model in the context of online shopping, more and more researchers in this area start this attempt. Zee-Sun Yun & Linda K. Good (2007) <sup>[11]</sup> on the SOR model built by Mehrabian and Russell, established a subsidy affect consumer willingness to shop image / purchase intentions and loyalty further impact model of network behavior. At the same inspiration, Hsuan-Yu Hsu & Hung Tai Tsou (2011) <sup>[12]</sup> also use SOR model to study the effects of site quality on consumer sentiment, and the impact of emotion on repeat purchase intention.

According to previous research, and the above analysis of the mechanism of "big data" on consumer purchase intention to establish a customer purchase intention model based on "big data". As shown, the model is based on the big data and SOR model with customers purchase intention, explaining how big data impact on customer purchase intention.



**Fig.2-2: Customer Purchase Intention Model Based on "Big Data"**

For Figure 2-3, the effect of "big data" to purchase intention of the network mainly two aspects: First, the "big data" positive impact, to meet the real needs of consumers and potential demand, consumers perceive the value of the benefits; Second, "Big data" negative impact consumer privacy leak, the quality of the network to buy consumer interest and trust, consumers perceived risk.

### **3. Suggestions for the Development of Electricity in Big Data Era**

#### **3.1 Establish Perfect Consumer Database Analysis System, Provide Innovative, Personalized Service**

Electricity sales collect consumer's information through the established feedback system, form consumers initial data. In the process of online shopping, consumers consultation, order and requirements provide merchants a lot of reference. Through the analysis of these data, every consumer information can be understand more clear and more comprehensive, only like this can elaborate the target market, make the market more pertinence, realize one-to-one or personalized marketing which based on the analysis database, meet customer demand, improve customer share and satisfaction.

#### **3.2 Provide Suitable Products, Services, and Information, Pay Attention to Quality of Website**

Electrical contractor shall provide suitable products, services and information according to the demand of consumer. It showed that the characteristics of the consumers shopping demand diversification and individualized. Redundant goods or not trusted products, services or false information would affect consumers' mood. Electrical business should improve the reliability of targeted as much as possible when formulate product strategy, keep the quality of information, ensure the product's quality, making the consumer feel it is value to purchase.

#### **3.3 Ensure the Network Information Security**

Consumers considered more about information security, it is a problem. Enterprises should ensure the personal information safety on technology. In the use of consumer behavior data, ensure consumers' information safety can protect the rights and interests of consumers, at the same time improve their own reputation.

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