Innovation Path of Internet Enterprise Business Model Based on E-commerce

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Abstract. In recent years, with the rapid development of China's Internet information industry, in this environment, the e-commerce economy has also obtained a lot of room for development. The active development of e-commerce has promoted the rapid development of my country's national economy to a large extent. Since 2015, China's e-commerce economy has begun a new development path. "With the holding of large shopping festivals such as "Double Eleven" and "Double Twelfth", people began to realize the convenience of e-commerce. With the rapid increase in the transaction volume of electronic platforms such as Tmall, it has brought people to their daily lives. The great convenience has laid the foundation for the economic development of e-commerce. This article studies the innovation of e-commerce through the business model of Internet companies. Through the business model of Internet companies, what are the plans for some electronic trading platforms? According to Alibaba's announcement, according to the data, sales of Tmall's "Double Eleven" this year were 498.2 billion yuan, a record high once again. In contrast, according to official data released by JD.com, from 0:00 on November 1 to 2020. As of 23:59 on November 11, JD’s 11.11 global love season’s cumulative order volume exceeded 271.5 billion yuan, setting a new record again. At 0:00, Suning.com released a full battle report from November 1 to 11. At 23:59, double 11 online orders increased by 75%. It can be seen that the business models of various Internet companies use specific time to launch sales activities, which is the innovative path of e-commerce.

Keywords: E-Commerce, Internet Companies, Business Models, Innovation Paths

1. Introduction
Internet enterprise e-commerce website realizes consumer online shopping, online transaction between buyer and seller, online electronic payment and other related service activities as a new business operation platform [1]. Break the time and space constraints of traditional business operation models (malls, stores), provide new innovative ideas, and enrich the range of consumers' choices and sellers' sales channels. The relationship between the Internet and e-commerce sites is complementary, mutual
promotion and development [2]. Supply-side structural transformation and consumption upgrades have become the continuous development of e-commerce websites (platforms).

With the development of the Internet, Chinese e-commerce companies pay more attention to security, but the security of e-commerce will still be affected and loopholes will continue to appear, which will have a certain impact on the security of users' online shopping information. The user's personal information protection and settlement process and other information will also be threatened, which is also the main problem that needs to be solved urgently [3]. "Double Eleven" is no longer limited to Taobao and Tmall, it is for the carnival of the entire industry, and also for the big event of all products. As representatives of current e-commerce platforms, Tmall, JD.com, and Suning.com also provided their own answers.[4] Although this is already the innovation path of these companies’ business models, a new type of innovation path has recently emerged, namely "Real-time communication through commodities" [5]. In the process of Taobao online shopping, consumers are easily affected by the attitude of actual leaders [6]. It can be seen from the platform that more energy needs to be invested in processing and analyzing the content released by official network leaders [7]. The products they recommend affected the trust of Taobao consumers in official leaders. The Taobao live broadcast platform should seize the opportunity to make the most of the charm of online forum leaders to influence the purchasing power of consumers, increase sales, and increase reputation and popularity.

From 2017 to 2018, e-commerce live broadcast platforms developed rapidly [8]. In 2018, the monthly growth rate of Taobao live broadcast reached 350%. Within one year, GMV exceeded the 100 billion mark, and the store conversion rate exceeded 65%. During the "Double 12" period, Taobao live broadcast helped to sell more than 10 million yuan of agricultural products in poor counties. 2019 is the e-commerce live broadcast period. The live broadcast the night before the double 11 free sale in 2019, Weibo The number of viewers in the Autonomous Live Broadcasting Room has exceeded 30 million, and the sales of Taobao Live on Double 11 are almost 200. The 100 million LIVE broadcast room is the standard composition of Tmall’s “Double Eleven” 11 Awards under a narrow definition, E-commerce live broadcast is to achieve the live broadcast of the e-commerce platform, that is, the purpose of brand exposure and product sales [9]. In order to promote the promotion of the brand and activities, it can be named as the internal live broadcast function of the e-commerce platform. Taobao Tmall, Jingdong, Wei Pinhui, Pinduoduo, and other e-commerce live broadcast platforms [10].

2. Method

2.1. Integration Algorithm of E-Commerce Information

Suppose D represents an e-commerce information data set, which is composed of n e-commerce information samples, each e-commerce information sample contains a d-dimensional feature vector \((f_1, f_2, \cdots, f_d)\) e-commerce vector The probability density function of \(P(f_i)\) is expressed as \(P(f_i)\). The information entropy calculation formula is as follows:

\[
H(f_i) = -\sum_{f_i} P(f_i) \log f_i
\]  

According to the above calculation, if the value of the vector \(f_i\) can be known, the uncertainty of its value can be measured by conditional entropy. The expression is:

\[
H(f_i | f_j) = -\sum_{f_i} P(f_i) \sum_{f_j} P(f_i | f_j) \log f_i
\]  

According to the formula, \(P(f_i; f_j)\) represents the conditional probability of the e-commerce vector \(f_i\) when the e-commerce vector \(f_i\) is known. Under normal circumstances, its value is not greater than the initial uncertainty information entropy. When the vector \(f_i\) and the vector \(f_j\) are
independent of each other, there is The following relationships:

\[ H(f_i) = H(f_i | f_j) \]  

(3)

According to the above analysis vector \( f_j \) and vector \( f_i \), the calculation formula is as follows:

\[ I(f_i; f_j) = I(f_j; f_i) = H(f_i) - H(f_i | f_j) = \sum_{f_j} \sum_{f_j} p(f_i | f_j) \log \frac{p(f_i; f_j)}{p(f_i) p(f_j)} \]  

(4)

In the formula, \( p(f_i; f_j) \) represents the e-commerce information feature vector \( f_j \) and the feature vector \( f_i \) combined with the probability density function. The larger the value of the above formula (4), the two feature vectors contain the same amount of e-commerce information. The higher the relationship between the two, the more independent or completely independent of the two feature vectors, the mutual information is 0. That is, the two feature vectors contain the same amount of e-commerce information.

Based on the above analysis and calculation, the correlation degree \( \text{Rel}(f_i) \) of vector \( f_i \) can be obtained, and the calculation formula is:

\[ \text{Rel}(f_i) = \frac{1}{d} \sum_{j=1}^{d} I(f_i; f_j) = \frac{1}{d} H(f_i) + \sum_{j=1, j \neq i}^{d} I(f_i; f_j) \]  

(5)

Where \( \sum_{j=1, j \neq i}^{d} I(f_i; f_j) \) represents the greater the value of the e-commerce information feature vector \( f_i \) and other feature vectors in the data set \( D_\alpha \), the greater the amount of public information, However, other e-commerce information features can provide less “new” information. If you choose the more relevant e-commerce information in \( D \), you can preserve the integrity of the information to the greatest extent.

2.2. Open Platform Live Broadcast

Due to the continuous development of information technology and the gradual popularization of intelligent machines, webcast has entered the field of vision of the masses. In 2016, the live broadcast industry in China was designated as the first year of the live broadcast industry. There are many live webcasting platforms, and the number of live broadcasts has also skyrocketed. Because of this, e-commerce platforms are also seeking innovation and development. Taobao, Tmall, JD, and Pinduoduo have also developed their own live broadcast functions, closely integrating live broadcast with their own e-commerce business, and developed into an e-commerce live broadcast platform.

2.3. Strengthen Various Festival Activities

With the increasing intensity of online platform purchases, some people don’t even go shopping in physical stores, because some physical stores never offer discounts. However, e-commerce platforms such as Taobao, JD.com, and Suning will have some particularly important activities during "Double Eleven" and "Double 12", such as "cross-store full reduction", which means that the total amount of all stores will be subtracted if they are full. How much makes consumers feel very cheap, so they will not go to physical stores. All kinds of festival activities must be increased to attract consumers. This should also be an innovative path under the business model of Internet companies.

3. Experiment

3.1. Subject

This experiment randomly conducted a questionnaire survey on a specific university campus. A total of 500 questionnaire surveys were sent and 450 valid questionnaires were collected, including 220 males and 230 females aged 0-20. The scores of the 21-35 year olds are 300 and 150 respondents are 140 freshmen, 140 second-year students, 100 juniors, 50 seniors, 10 first-year graduate students, and 6 second-year graduate students. There are 4 third-year graduate students specializing in chemical engineering, foreign languages, gardening, industry and information technology, management,
pharmacy, communication, biology, environmental engineering, animal science, civil engineering, German, tourism management, financial management, finance and marketing. Marketing, human resources, physics, tea science, law, food science, logistics management, finance, medicine, materials science, industrial design, control, electrical, medical, mechanical engineering, science, social science, humanities, medicine, agriculture Various fields.

3.2. Experimental Method
The literature analysis method summarizes the domestic and foreign social e-commerce related literature, summarizes the e-commerce, consumer interaction, and the trust issues in e-commerce, and establishes the research direction of this article on this basis. Drawing lessons from the research on the interaction between consumers and consumers, this paper puts forward the characteristic dimensions of consumers in the social e-commerce environment, and refers to the application mechanism of consumer trust in e-commerce websites, which is used as the research basis of this article.

Empirical research method This research obtains research data through questionnaires, and then conducts empirical analysis on the sample data obtained. First of all, on the basis of previous studies and discussions, referring to the more mature scales of existing scholars, the questionnaire was designed using the universal Likert 5-point scoring method. When designing the questionnaire, first give out some initial questionnaires in a small area for testing, and then modify and improve the questionnaire based on the feedback results of the questionnaire objects to ensure the rigor and scientific nature of the questionnaire. The final questionnaire is distributed simultaneously through the online idea questionnaire and the offline field paper questionnaire. Design electronic questionnaires online through the questionnaire star, and distribute them widely through social platforms to form a large-scale survey.

For the questionnaire data collected by the statistical analysis method, using SPSS1 9.0 and AMOOS1 7.0 data analysis software, first perform an illustrative statistical analysis on the sample data, and then analyze the reliability and feasibility of the questionnaire. Construct a structural equation model and analyze its path to verify the relationship between variables in the theoretical model.

4. Results

4.1. Distribution of Monthly Disposable Income of Respondents
As can be seen in Figure 1, among them, 50 people have a monthly disposable income of 1,000 yuan or less, 200 people have a monthly disposable income of 1,000-2,000 yuan, and 150 people have a monthly disposable income of 2,000-3,000 yuan, 50 people with monthly disposable income of 3000 yuan or more. From the above basic statistics, it can be seen that this questionnaire survey basically covers the demographic characteristics of all grades, majors, different hometowns and provinces, different genders, and different economic levels among the college students. The questionnaire survey is representative and typical.
4.2. Online Shopping Review Rate Survey
As shown in Figure 2, in the survey on the online shopping situation of the respondents, 37.6% of respondents answered “frequently shop online”, 54.6% of respondents “sometimes shop online”, and 7.8% answered “hardly shop online”. It can also be seen that modern people are more accepting of online shopping. Most people will contact online shopping more or less.

4.3. Reasons for Participating in "Double Eleven"
As shown in Table 1, in the survey on the main factors of participating in the "Double Eleven" event shopping, 41.7% of the respondents said: "Because merchants have discounts and promotions, shopping costs are efficient." Among the respondents, 41.7 % Said: “Just buy it. The marketing message of the franchise store reminds the expenditure. 9.8% of the respondents said: “Everyone around is buying”. 6.7% of the people answered “I also participated in the fun”, "The atmosphere created by the merchant makes people shopping." As long as there are discounts, promotions, cost-efficient shopping and purchased items in the franchise store. Franchise store marketing information is two important factors that remind consumption.
Table 1. Reasons for participating in "Double Eleven"

| The reason                                      | Proportion |
|------------------------------------------------|------------|
| Merchant discounts and promotions               | 43.7%      |
| Marketing information of franchise stores       | 39.7%      |
| People around are buying                        | 10.8%      |
| The atmosphere created by the merchant makes people shop | 5.7%      |

5. Conclusion
With the deepening of the Internet economy and the improvement of workers' living standards, online shopping has become a trend in the new era. "Double Eleven" shopping activities use the Tmall Taobao platform to provide appropriate time for online shopping. Based on this, double-breasted sales hit the highest value this year, showing an explosive growth momentum. Thailand Central Department Store Group The president said that the "Singles Day Event" shopping celebration starting from November 7th, including offline store shopping and online shopping, attracted many customers. Robinson's online shopping users increased by 4 times, and SUPERRSPORTS online users increased by 2 times.

Merchants make the most of the Tmall Taobao platform, issue coupons, face price wars, and induce traffic through brand wars. On November 11, 2014, Alibaba Group's "Double Eleven" transaction volume was 57.1 billion yuan. On November 11, 2015, the daily trading volume of Double Eleven on Tmall platform was 9.1 billion 21.7 billion yuan. At 24:00 in November 2016, the "Singles' Day" day trading volume of Tmall platform exceeded 120.7 billion. In 2017, the total sales of Tmall platform "Double Eleven" and Taobao platform were 168.2 billion yuan. In 2018, the “Singles Day Event” on Tmall’s platform had a daily transaction volume of 213.5 billion. From 0:00 on November 1st to 23:59 on November 11th, JD. com's 11.11 global love season's cumulative orders exceeded 271.5 billion yuan, the highest growth rate in recent years. This year, 271.5 billion yuan has increased by more than 32% from last year's double 11 double 11 total orders of 204.4 billion yuan. The business model innovation path of online enterprise e-commerce platforms will continue to increase "online shopping" and "live streaming."

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