An Optimal Design of Relationship Model between E-commerce Marketing and Performance based on Cloud Service Technology

Jie Wu
Science and technology development and school enterprise Cooperation Department, Shijiazhuang University of Applied Technology, Shijiazhuang, Hebei 050000, China

Corresponding author (E-mail: zywulaoshi123@163.com)

Abstract
With the continuous improvement of interactive technology, computers and people's lives have been inseparable. In this paper, the author makes an optimal design of relationship model between E-commerce marketing and performance based on cloud service technology. Many advantages of cloud marketing will make marketing more accurate, convenient, low cost and effective. Moreover, cloud marketing can also provide many other new and personalized services and products. Therefore, e-commerce enterprises should meet the individual needs of consumers, at the same time to provide reasonable and complete supporting services.

Keywords: Electronic Commerce, Online shopping, Honesty degree, Consuming behavior

1. INTRODUCTION

Cloud computing has become increasingly mature, and there have been successful cases, such as Amazon and other cloud marketing has attracted attention from all walks of life e-commerce market. Since the middle of the twentieth Century, the continuous improvement of interactive technology has made computers and people's lives have been inseparable. With the rapid development of computer technology and application of network information and in-depth and continuous expansion of the general public to participate in the calculation itself, plus the software as a service that Saas have prompted the calculation begins to develop gradually to the Internet as the core of the cloud computing model evolution. The application is currently the focus of the research is still concentrated in the cloud computing technology, and academic research on cloud computing are summarized on cloud computing, parallel computing and service platform theory, and did not form a unified marketing Cloud Application mode. The concept, in-depth analysis of cloud computing technology, characteristics and the framework of this study; and introduces the basic concept, the current e-commerce marketing characteristics and current mode; hoping to combine e-commerce marketing for cloud computing, cloud based marketing in e-commerce environment and provide a theoretical basis in the present stage; there are various aspects of cloud computing based on the research, particularity and characteristics of e-commerce industry, the typical application case to analyze and model, finally a calculation basis based on cloud's new e-commerce marketing model, namely cloud marketing mode.

Since the birth of e-commerce marketing has gradually received attention from all walks of life, by reference to traditional marketing methods, in the early stages of e-commerce and the present stage can be said to have achieved certain results, but in the e-commerce industry increasingly fierce competitive environment, the traditional network marketing way has gradually not able to to bring the expected benefits for the enterprise, in contrast, the advantages of cloud marketing will make marketing more accurate, convenient, low cost, effective, and on these basis, cloud marketing can also provide other services and products to many novel and personalized. There are many advantages of cloud marketing, but in the following two aspects of cloud marketing has the absolute advantage: one is the user preference is not complete on the one hand, cloud marketing has its unique way to solve this problem; the two is in the cold start problem, cloud marketing can be a good solution to this problem. Cold start means that the enterprise can not analyze consumer preference in the absence of consumer information. Specific conditions for an enterprise portal website as an example, if there is a new consumer into a certain enterprise portal, because it is the first contact with the consumer portal, enterprise will not have any understanding of the consumer, it will largely think business will lose the potential consumers. However, once the introduction of cloud marketing, a business can by the consumers in other portal sites or other enterprises a B C enterprise portal historical information or stray consumer behavior, the analysis of the consumer purchase preference and consumer demand, which can better grasp the consumer. Through similar ways, in the enterprise a attempt to launch a new product, in the absence of consumer history data, through the cloud can help easily collect cyber source from other consumer preferences, so enterprises can determine the target consumers, and even determine the way in which the market will achieve better results.
Thus, cloud marketing can improve the efficiency of information use while increasing the profits of enterprises. From the current popular phone sales practice perspective, cloud marketing also can greatly improve the efficiency of sales telephone sales, sales staff can communicate in position and consumer initiative; improve customer service center system and system, timely and effective handling customer service marketing.

2. E-COMMERCE SERVICE PLATFORM BASED ON CLOUD COMPUTING

2.1. Cloud service platform

Under the cloud computing environment, the transformation of e-commerce service model, promote the improvement and optimization of e-commerce service platform. This paper from the electronic commerce service operation mechanism of cloud computing will be the key technology in the electronic commerce and the service sectors were integrated, construct an abstraction of the underlying infrastructure, e-commerce cloud services platform based on elastic expansion. The platform consists of four parts: the interactive layer, the application layer, the platform layer and the network infrastructure layer.

![Cloud service platform](image)

Figure 1. Cloud service platform

- Network infrastructure layer: Network infrastructure layer is the carrier of e-commerce service platform. It provides the virtual host, operating system and related hardware facilities for the enterprise in the form of service. The implementation of network infrastructure is usually based on Linux tools and Web technology to reduce the complexity of system installation and maintenance.

- Platform layer: The platform layer mainly includes three parts: one is the e-commerce service resource storage platform; the other is the resource scheduling platform; the three is the service function platform. Based on the high reliability and economy, the resource distribution and storage platform is deployed, combined and utilized by the loosely coupled coarse-grained resource application components through the network.

- Service application layer: Application layer is the window of e-commerce enterprises to carry out various services. The cloud service provider to measure the form of services to provide various services for enterprise applications, such as customer relationship management software, project management software, ERP system, network advertisement management system, display system, products and services. According to the conditions of enterprise customer service demand and its service function, service form and customization in their service platform using the software module of the cloud service provider, flexible service organization. At the same time, it is necessary to realize the seamless connection with the original logistics system and payment system of the enterprise, and form an integrated e-commerce service application system.

- Service interaction layer: The interaction layer is the direct communication between the electronic commerce enterprise and the user directly affects the user experience. For enterprises, it is necessary to achieve effective interaction with individual users, but also to achieve good interaction with business partners. Therefore, need to use instant communication and information sharing methods, improve services and transactions in the process of real-time response speed and efficiency of
collaboration, mining and forecast of customer service needs and preferences, to provide personalized information service for users of diversification. In addition, according to the enterprise strategy adjustment and demand change, the service function expansion, to achieve the sustainable operation of the service platform.

2.2. Operation mechanism of e-commerce cloud service platform

In many of the traditional marketing concepts, business products for the majority of consumers are not specific or specific in the majority of consumers, in the circumstances, whether products or services are only need to cater to the consumer market in most cases the common needs can be. However, the continuous development of e-commerce and the improvement of consumer living standards and its personalized needs are constantly mentioned, a company that knows to cater to the market also needs to meet the consumer's personalized consumption needs. E-commerce marketing model is fully highlighted the individual needs of consumers, whether individual or collective consumer characteristics are available through the network investigation way to know, or through the network investigation may predict consumer preferences, then the enterprise according to the information provided by the clients to provide consumers with personalized services or products.

Based on resource access interface to provide diversified resource access channels to Web Services for business users; service directory provides service for the user can access the resource list; system management module is responsible for the management and distribution of all available resources, to ensure the system load balancing configuration tool; responsible for the distribution of node configuration task environment; running state monitoring and statistics module is responsible for monitoring nodes, and complete the statistics using node users. Each module works as follows: enterprise users through the resource access interface is selected from the service directory and call a service resource, then the request is passed to the system management module, the system will allocate the appropriate resources for the user, and then call the configuration tool for users to build service platform running environment.

The collaborative operation of e-commerce service subject, is to market and customer demand, to the quality of service as the core, in order to improve the competitiveness of enterprises, customer satisfaction and maximize profits as the goal, through the cloud computing technology, collaborative technology and management technology of organic integration, effective planning and control of the entire supply chain. Information flow, logistics, capital flow, service flow, and promote the collaborative operation between suppliers and manufacturers, e-commerce enterprises, network service providers, cloud service providers. Synchronization technology, cloud computing in cooperative control technology, application sharing technology for collaborative operation of e-commerce service subject provides infrastructure and strong technical support, provides a collaborative platform with timing and integrated work environment and services for the construction of service alliance. Specifically, under the cloud computing environment, the main body of e-commerce service collaboration includes the following three aspects.

![Figure 2. Web3.0 cloud computing platform](image-url)
3. E-COMMERCE MARKETING

3.1. Electronic Commerce

E-commerce refers to the realization of the entire trade activities of the electronic. From the coverage area can be defined as the parties to electronic transactions rather than through face-to-face interviews or direct way to exchange any form of commercial transactions; from the technical aspects can be defined as: e-commerce is a combination of multiple technologies, including the exchange of data (such as electronic data interchange, e-mail), data (e.g. sharing data, electronic bulletin board) and automatic data capture (such as barcode). In the broad sense, e-commerce is a modern business method. This method can improve the quality of products and services, improve service delivery speed, meet the needs of government organizations, manufacturers and consumers at low cost.

With the development of electronic commerce, public network information makes the market competition more fair, industry boundaries will become more and more fuzzy, large enterprises not only face the competition of small and medium-sized enterprises peer, peer enterprises are also faced with other enterprises in the competition, therefore, how to adapt to the tide and take corresponding strategies to create competitive advantage, has is a major challenge facing business. E-commerce provides a huge market potential and new sales mode for the enterprise, the enterprise production is primarily for the information network, then the network products and customer interaction. Under the impact of the
network, if the enterprises do not have the sense of innovation, not timely update products and services it is difficult to survive in the Internet era.

- Commercial character: E-commerce is the most basic characteristics of the business, that is to provide trading services, means and opportunities. Online shopping provides a convenient way for customers. As a result, e-commerce is an opportunity for any enterprise of any size. Business, e-commerce can expand the market, increase the number of customers; through the Internet information to the database, the enterprise can record every visit, sales, purchase forms and dynamic purchases and customer preference, what is that enterprise can through these statistics to know customers want to buy the most products.

- Service nature: In the e-commerce environment, the customer is no longer subject to geographical constraints, nor is it only focused on the lowest price, therefore, the quality of service in a sense the key to business activities. Technological innovation brings new results, Internet applications enable companies to automatically deal with the business process, and no longer as before to emphasize the division of labor within the company. Now many companies on the Internet can provide a complete service for customers, and the Internet in this service as a catalyst to improve the role of. The enterprise through the customer service process to the Internet, so that customers can in a simple manner than in the past to get past them more trouble in service. It is obvious that the customer service provided by E-commerce has an obvious characteristic.

- Integration: E-commerce is a new product, which uses a lot of new technology, but it does not mean that the emergence of new technologies must lead to the death of the old equipment. The real value of the Internet is to coordinate the old and new technology, so that users can more effectively use their existing resources and technology, more effective to complete their tasks. The integration of electronic commerce, but also in transaction integrity and uniformity, it can regulate business workflow, manual and electronic information processing integrated into an inseparable whole, can not only raise the exploitation of manpower and material resources, but also improve the tightness of the system is running.

- Coordination: Business activity is a coordinated process, it needs employees and customers, production coordinator, suppliers and business partners. In order to improve the efficiency, many organizations provide interactive protocols, which can be carried out on the basis of these agreements. Traditional e-commerce solutions can strengthen the company's internal interaction, e-mail is one of. But that is only a small part of the coordination of employee cooperation. The use of the Internet will be connected to the management system, and then connect to the customer order processing, and processed by a delivery channels, such companies save time and eliminate the paper the trouble and improve efficiency.

3.2. The influence of e-commerce on enterprise marketing

The electronic commerce enterprise's marketing activities, mostly through the network, but under normal circumstances, enterprises and consumers are not in direct contact, which requires companies to uphold the integrity of the marketing concept. On the one hand, from the perspective of consumers' online shopping business, certain products or services on the web businesses there are numerous, but consumers in e-commerce enterprises of different choice of feeling is not the same, and lay a foundation for the potential consumption behavior of consumers to take the actual, only when consumers can feel and feel when the enterprise is trustworthy, will have the possibility of consumer behavior. From the consumer's perspective, to choose from a large number of network information, then the consumer behavior in repeated choices, will not deduce the more preference to those enterprises who trusted the. On the other hand, facing many consumers, how to distinguish the true and false shopping needs is also the problem that enterprises need to solve. Generally speaking, the higher the integrity of the enterprise, the higher the degree of integrity of consumers. Therefore, no matter from which point of view, enterprises in the e-commerce environment should always detect the integrity of the first marketing, only in this way, it is possible to continue to win customers, and expand customer base.

Under the condition of e-commerce, the cost of people's consumption behavior will gradually reduce, indicating that more and more opportunities for consumption choice. At present, the massive increase in the number of enterprises on the network market, so that consumers demand more detailed, more and more picky, is not too much performance. With the requirement of personalized consumer demand increasingly high, consumers continue to improve the quality of life of enterprises, service requirements, the service level of enterprises has already become the important factor of enterprise marketing competition under the condition of electronic commerce. The electronic commerce environment of increasingly fierce competition, the enterprise's quality, specifications, performance and price differences will be more and more small, only quality can win in the competition can not rely on, which requires enterprises to provide the service to impress consumers, to get the trust of consumers. The same product and price, perhaps
because of the speed of logistics or customer attitude is slightly different, it will leave different consumer experience for consumers. In the environment of e-commerce marketing activities, requests the enterprise wholeheartedly to provide products and services for customers, which rely on soft power and not just simple tangible products to win consumers, occupy the market share of the way, has become one of the modern enterprise e-commerce marketing essential requirements.

Figure 5. Global e-commerce transaction volume

4. EMPIRICAL ANALYSIS

4.1. Model design

Some activity performance is the company's ongoing or completed certain activities. Enterprise e-commerce performance evaluation is the basis for the unified evaluation criteria, in accordance with certain procedures, through a set of quantitative and qualitative indicators, to develop e-commerce enterprises in all aspects (including the survival ability and development ability as well as learning and innovation ability etc.) for scientific evaluation, can reflect the status quo of enterprise e-commerce. Overall, the enterprise performance evaluation index has gone from a single financial index to include comprehensive index, non-financial indicators of the single index to the development process of multi-dimensional index.

Factor analysis is the study of the correlation matrix of the internal dependency relation, its basic idea is based on the grouping variable correlation between the size of the same group of variables have high correlation with low correlation of different groups. Each variable represents a basic structure, factor analysis method is called public factor. Analysis is the study of how to minimize the loss of information, many original variables concentrated into a few variables, as well as how to make the variables with a multivariate statistical analysis method. According to the strong explanatory factor analysis method, comprehensive scientific development of enterprise e-commerce performance evaluation system, based on the literature at home and abroad the enterprise performance evaluation index system of a large number of literature, the research on the opportunity, through the different e-commerce enterprise level leadership consulting. And to seek the views of relevant experts, after selection, set 15 indicators to evaluate the e-commerce performance of enterprises (specific indicators are shown in Table 1). The changes of each index in the enterprise after the implementation of e-commerce, is divided into 5 grades: 1= was significantly worse, 2= has deteriorated, 3= basically unchanged, 4= has improved, 5= significantly improved.

4.2. factor analysis

In this paper, SPSS software is used to analyze the data obtained from the survey:

1). Using the SPSS software to carry on the KMO statistics and the Bartlett's spherical test to the sample data, the data show that the KMO value is 0.918 (> 0.9), the significant probability is 0.012 (< 0.05), which indicates that the sample data is suitable for the factor analysis

2) to solve the initial factor, according to the initial value of the 15 indicators, using SPSS software to do descriptive statistical analysis, according to the characteristics of the standard value is greater than 1 and the maximum variance rotation factor extraction, can be extracted from the 3 factors. The eigenvalues
of these three factors were 9.425, 3.152 and 2.493, respectively, the contribution rate was 46.512%, 19.641% and 12.097%, the cumulative contribution rate was 78.240%.

**Table 1. The output value**

<table>
<thead>
<tr>
<th>Index variable</th>
<th>Main factor</th>
<th>F1</th>
<th>F2</th>
<th>F3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchasing cost</td>
<td>0.714</td>
<td>0.265</td>
<td>0.202</td>
<td></td>
</tr>
<tr>
<td>Market response capability</td>
<td>0.705</td>
<td>0.217</td>
<td>0.135</td>
<td></td>
</tr>
<tr>
<td>production cycle</td>
<td>0.751</td>
<td>0.198</td>
<td>0.246</td>
<td></td>
</tr>
<tr>
<td>Inventory capacity</td>
<td>0.735</td>
<td>0.243</td>
<td>0.278</td>
<td></td>
</tr>
<tr>
<td>Operating costs</td>
<td>0.694</td>
<td>0.305</td>
<td>0.338</td>
<td></td>
</tr>
<tr>
<td>Staff recommendations</td>
<td>0.392</td>
<td>0.702</td>
<td>0.168</td>
<td></td>
</tr>
<tr>
<td>Internal coordination</td>
<td>0.201</td>
<td>0.798</td>
<td>0.293</td>
<td></td>
</tr>
<tr>
<td>Quality Assurance</td>
<td>0.278</td>
<td>0.779</td>
<td>0.264</td>
<td></td>
</tr>
<tr>
<td>Customer interaction ability</td>
<td>0.153</td>
<td>0.103</td>
<td>0.757</td>
<td></td>
</tr>
<tr>
<td>External coordination ability</td>
<td>0.229</td>
<td>0.195</td>
<td>0.802</td>
<td></td>
</tr>
<tr>
<td>customer satisfaction</td>
<td>0.169</td>
<td>0.207</td>
<td>0.832</td>
<td></td>
</tr>
</tbody>
</table>

From table 1 can be found, the main factor of F1 mainly reflects the index system of operating costs and sales etc., can put the main factor F1 is defined as the enterprise survival ability; the main factor F2 mainly reflects the index system of internal management, the main factor is defined as F2 management capabilities within the enterprise; the main factor F3 the index system reflects the external coordination, this paper defines it as external coordination. Then, can be normalized to the three factor contribution rate, the specific method is: make Fi in the total weight of the target layer is Ai, the contribution rate is αi.

\[
A_i = \alpha_i / \sum_{i=1}^{n} \alpha_i
\]

In this paper, n = 3 can therefore be used to obtain the weight of the 3 principal factors at the target level and the meaning of the representation, as shown in Table 2

**Table 2. Extracting main factor and its contents**

<table>
<thead>
<tr>
<th>Main factor</th>
<th>content</th>
<th>weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Enterprise survival ability</td>
<td>0.720</td>
</tr>
<tr>
<td>F2</td>
<td>Enterprise internal management ability</td>
<td>0.516</td>
</tr>
<tr>
<td>F3</td>
<td>External coordination ability</td>
<td>0.329</td>
</tr>
</tbody>
</table>

**Table 3. Index weight**

<table>
<thead>
<tr>
<th>Main factor</th>
<th>Index variable</th>
<th>weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>F1</td>
<td>Purchasing cost</td>
<td>0.2426</td>
</tr>
<tr>
<td></td>
<td>Market response capability</td>
<td>0.1850</td>
</tr>
<tr>
<td></td>
<td>production cycle</td>
<td>0.2312</td>
</tr>
<tr>
<td></td>
<td>Inventory capacity</td>
<td>0.1908</td>
</tr>
<tr>
<td></td>
<td>Operating costs</td>
<td>0.2409</td>
</tr>
<tr>
<td>F2</td>
<td>Staff recommendations</td>
<td>0.2163</td>
</tr>
<tr>
<td></td>
<td>Internal coordination</td>
<td>0.2305</td>
</tr>
<tr>
<td></td>
<td>Quality Assurance</td>
<td>0.2207</td>
</tr>
<tr>
<td>F3</td>
<td>Customer interaction ability</td>
<td>0.2154</td>
</tr>
<tr>
<td></td>
<td>External coordination ability</td>
<td>0.2680</td>
</tr>
<tr>
<td></td>
<td>customer satisfaction</td>
<td>0.3027</td>
</tr>
</tbody>
</table>

Provides a detailed index system of quantitative evaluation method for enterprise e-business performance evaluation. The evaluation process for the analysis, not only considers the influence of all the main indicators of e-commerce performance of enterprises, but also the scientific assessment of the
performance of the business performance of the degree of influence, intuitive description of the source of the enterprise by electronic commerce to obtain the competitive advantage and the main factors, at the same time, but also through the comprehensive evaluation formula, provides scientific basis for the leading enterprises in the investment of e-commerce.

5. CONCLUSION

Cloud computing as a new network technology is gradually penetrated into all aspects of e-commerce, e-commerce service platform for the construction of a new way and means. There are many problems in traditional e-commerce enterprises, such as low efficiency, poor management and unreasonable allocation of service resources. Make full use of cloud computing resource sharing and dynamic allocation technology, through the smooth expansion and distributed storage, so that enterprises can quickly acquire, organize and manage all kinds of service resources, and the corresponding hardware and software by the cloud server management and maintenance, so as to make e-commerce enterprises concentrate more on core business development. With the development of the Internet and the practice of e-commerce in various countries, all countries have reached a consensus in the electronic commerce conference. In business, e-commerce not only change the original management mode and order, but also greatly changed the original marketing strategy, marketing model and marketing activities. To sum up, has the important influence of electronic commerce and the development and change of e-commerce of enterprise, has the important practical significance and theoretical value to study the environmental impact of electronic commerce enterprises to the enterprise marketing strategy.

References


