

The evolution of the intermediaries in e-commerce environment

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Abstract

With the development of network economy, e-commerce platform has increasingly become a worldwide trading place of various kinds of products and services. This environment makes direct trading between producers and consumers through the Internet possible, which impact the traditional mode of product marketing, put forward severe challenges to the existence and development of middlemen in the traditional marketing channels. Therefore some scholars consider, intermediaries, under the rapid development of information technology, will gradually withdraw from the historical stage. This article carried on the thorough analysis for the reasons of the existence of electronic intermediaries, and discusses the new development space and prospect of new middlemen, from the perspective of information asymmetry of the network environment.

Keywords: intermediaries, e-commerce environment, information asymmetry

1. Introduction

Intermediaries in modern market are various intermediate organizations, mainly exist in the market, regulating trade between producers, consumers and their information, products, services, thus making it become a more convenient and cheaper economic organization. It not only include the middlemen in traditional circulation channels, as well as the latest network intermediaries. According to this definition, the category of intermediaries could be expanded to retailers, wholesalers, insurance companies, Banks, logistics enterprises, certification bodies and the stock exchange.

The emergence and development of intermediaries is the inevitable result of social division of labor and specialization, and bring about the double effect of specialization benefits and transaction costs. Under the e-commerce environment, the traditional functions of intermediaries are weakening, and with the further development of e-commerce, urge for cooperative development of new intermediaries which can save transaction cost. The intermediaries still found its great significance and value for existence under the e-commerce environment, a new type of intermediaries has a broad space for development and prospects.

2. The development of intermediaries under the e-commerce environment

2.1 The current situation of intermediaries under the e-commerce environment

With the rapid development of productivity and the continuous improvement of people's living standards, consumers' buying behavior continuously move toward the direction of individualization and diversification. The emergence of e-commerce makes originally repressed personalized consumer demand possible to realize, direct communications between manufacturers and consumers improve the sensitivity of the opportunity to reflect to the market, consumers personalized need to be further mining, both showed the trend of promote each other and together evolution.

However, in the process of e-commerce development, the traditional intermediaries with the function of connecting consumers and manufacturers seem to be no use or even an obstacle. This is also the main reason a lot of people think the dealer will be of extrusion and even disappear. In fact, the intermediaries under e-commerce environment have its existing necessity and value, but it is inevitable to face with transformation and evolution.

2.2 The necessity of the intermediaries under the e-commerce environment—— information asymmetry analyze

Virtual market, as network economy, transactions of buyers and sellers are two nodes on the network.

Under the network environment, it is difficult to confirm the authenticity of trading information between the seller and the buyer, so the quality of the goods is difficult to secure. At the same time, in the process of e-commerce transactions, the understanding of buyer and seller's identity is usually available only through a limited registration information, once deceived, afterwards responsibility and loss is difficult to make up for. All these phenomena above show the phenomenon of product information asymmetry under the environment of electronic commerce.

This paper uses a simple model to analyze the asymmetric information problems of both parties in the e-commerce. Assume that the network trading environment with multiple manufacturers and consumers, they are risk neutral. Manufacturers know their own product quality level of θ , consumers don't know the manufacturer's quality level, but they can know the quality of the product distribution function $f(\theta)$ according to the experience of trading and information collected, so the manufacturer evaluation of the product is θ , consumers' product evaluation set as $e(\theta)$. When the two sides to clinch a deal price at P , consumer utility of $U_d = e(\theta) - P$, manufacturers' utility is $U_s = P - \theta$. Efficiency of transaction depends on the degree of consistent evaluation of buyers and sellers on the same product, so set up a evaluation consistency coefficient $\lambda = e(\theta) / \theta$, so $e(\theta) = \lambda\theta$. When completed, the net social welfare as follows:

$$U = U_d + U_s = [v(\theta) - P] + (P - \theta) = (\lambda - 1)\theta$$

By type, you can see that the size of the social net welfare depends on the size of the evaluation of consistency coefficient. When $e(\theta) > \theta$, namely the consumer to the product evaluation is higher than the manufacturer to the same product evaluation, $\lambda > 1$, $U > 0$, namely social net welfare has increased. When $e(\theta) = \theta$, consumers and manufacturers for the same product evaluation, $\lambda = 1$, $U = 0$, had not increase social welfare loss. When $e(\theta) < \theta$, namely the consumer to the assessment of products is lower than the manufacturer for the same product, $\lambda < 1$, $U < 0$, the net social welfare loss $(\lambda - 1)\theta$.

Evaluation consistency coefficient represents the buyer and the seller in the transaction actually differences in understanding of product utility, which stands for the transaction of information asymmetry.

The key to solve the problem of information asymmetry in the transaction is to improve consumer perception of product quality. In traditional transaction market, intermediaries can make the quality choice for consumer on long time established credibility, so as to improve the efficiency of the transaction, thus effectively avoid information asymmetry in the market. In the e-commerce market, we can also draw lessons from the traditional market, using the method of network intermediaries, avoid the occurrence of such problems.

A third party can be added in the above model, namely the network intermediaries, to make further clarification. Intermediaries, as a trading intermediary between the seller and the buyer, charge some cost from buyers and sellers respectively m_1 and m_2 , the costs of achieving the quality of the products and contribute to exchange is C . Successful deal still to be P , the utility of the intermediaries is $U_m = m_1 + m_2 - C$. The consumer utility is $U_d = v(\theta) - P - m_1$, and the manufacturer's utility to $U_s = P - \theta - m_2$, the net social welfare is:

$$U = U_d + U_s + U_m = [v(\theta) - P - m_1] + (P - \theta - m_2) + m_1 + m_2 - C = (\lambda - 1)\theta - C$$

On the type, when $\lambda > (C / \theta) + 1$, $U > 0$. So, although the intermediaries intervention can increase the transaction costs of $m_1 + m_2$, but, if the presence of a dealer can weaken the information asymmetry in trading, so that the evaluation of conformance raise to a certain level, the net social welfare will increase. That is to say, the increase of transaction cost will also improve the operation efficiency of the market. This is the long term condition of intermediaries' existence under the condition of network market.

To sum up, the network intermediaries gain maximize profit depending on selling consumers the information of the product quality as a product. In addition, intermediaries, in the long-term market practice, have built a complete sales network, accumulated a large number of manufacturers lack of advantage, successfully attracted more high quality products and more consumers, setting up efficient trading platform for buyers and sellers. At the same time, the network intermediaries can take advantage of its good business credit, ensure buyers and sellers get reliable information, ensure the safe transaction of both sides' funds. Both parties can, save search information, trade negotiation cost, improve the efficiency of deals through the platform provided by intermediaries.

So, while technological progress has certain influence on the intermediaries, but the intermediaries still can update technology fit the market demand to ensure their own market position. Under the network environment, the role of the intermediaries is still indispensable.

3. The function change of the intermediaries in e-commerce environment

Electronic commerce not only leads to the emergence of direct online marketing channels, but also has the subtle influence on function of intermediaries in the middlemen canal. This aspect in the electronic commerce to the influence of traditional intermediaries in the channel function, on the other hand also shows the innovation of the intermediary function in the electronic commerce environment, some do not exist in a traditional environment function due to the development of information technology.

3.1 Traditional functions of intermediaries

Isaac (1995) argued that intermediaries have ten main functions, search and evaluation, demands and products matching, consumers risk management, product sales, product information release, purchase influence, provide consumers information, producer risk management, scale economy, coordinating the needs of both sides, and so on. Backus (1998) is the function of the market mainly divided into three categories: matching the seller and the buyer; facilitating the transaction; system structure. Each category contains several sub-functions. Among them, the former two types function is exercised by intermediaries, and the third is usually exercised by intermediaries, or government regulation department respectively. On the basis of research of predecessors, we can divide the function of traditional function in the trading into four parts:

(1) information management

Intermediaries, by providing buyers and sellers a centralized trading places, collecting and processing information, make the demand information needed for producers and consumers needed information about the ability of producers to supply more trade both parties informed. The information management ability of intermediaries comes from their central position in the channel, because between buyers and sellers, intermediaries directly connect both sides, and with the long-term contact established between producers and consumers, they can get some personal information. In fact, the intermediaries are not only benefit from learning efficiency, but also can benefit from scale economies, scope economy and specialized economy in the process of information management.

(2) Guarantee the safety of trading

Intermediaries guarantee payment to the manufacturers by controlling the quality of the product for the consumers, making both trading sides overcome the adverse selection and moral hazard problems, actually playing the function of ensuring the deal, buyers and sellers of risk under control. The realization of the function depends on the specialized knowledge of intermediaries, credibility, and a long-established good contact with both parties, the degree of information asymmetry in the trade is greatly reduced.

(3) To ensure market liquidity

Before consumers expressed their purchasing intentions, and ensured that the final consumers will have the required products, even if the manufacturers have the supply problems, intermediaries provide a kind of insurance, the inventory management of intermediaries ironed the imbalance of market supply and demand, greatly reduce the risk of the buyer and the seller, fully understanding of both parties and stable contact established with both parties enable them to provide the service effectively. At the same time, because the intermediaries offer a wider range of products and services, so even if consumers are not satisfied with the products purchased, can also be found substitutes in other similar products, may even stimulate consumer demand for related products, greatly increases the possibility of trading, and ensure the market liquidity.

(4) Logistics management

As the dealer specialized in the classification, packaging, transportation and storage of products, therefore it has advantages of scale economy, scope economy and specialized economy in the delivery of products, making the producers and consumers benefit from it.

3.2 The influence of division of labor and specialization on the intermediaries function in e-commerce environment

Under the traditional environment, intermediaries play an important role for the completion of the transaction and the reduction of the risk.

Electronic commerce as a new technology is bound to affect the function of the intermediaries, but this effect is not hinder the role of intermediaries, doesn't mean the role of intermediaries have become redundant. Instead, the ability of intermediaries play a role of get promoted by e-commerce, the functions of the intermediaries are not disappear because of the emergence of e-commerce is in electronic commerce further. Under the e-commerce environment, the development of division of labor requires further specialization of trading activities, which will create conditions for the emergence of new intermediaries, the intermediaries not only are able to provide both parties with online all service, but also appears a new specialized intermediaries providing the function of one or more, using of e-commerce, these intermediaries are more professional and more effectively provide services to buyers and sellers.

First, under the environment of e-commerce, the information management function of intermediaries has not disappeared, the intermediaries greatly enhance their information management capacity. Electronic commerce technology created the opportunities for buyers and sellers to the exchange across information intermediaries. Because of its universality of information transmission, the Internet can reduce the search costs with the help of the automatic search tools, but this is only for real information. For some hidden information (such as consumers' willingness to pay) will not appear on the net, and as the media between producers and consumers, intermediaries through the contact between the two sides obtain this information. In fact, in the information management, the possibility to transcend intermediaries depends on the characteristics of market and product, if the features of products and services are easy to describe, then both parties can use the automatic search tool to search and communicate of information, at this time, competition and the rules of market will force both sides to disclose information. For most products, therefore, the intermediaries will continue to function as information manager, at the same time, the dealer also uses electronic commerce for its own purpose, network intermediary links with the producers and consumers more closely, information communication more quickly, provide more timely information, cost of cultivated land. The ability of information management of intermediaries has been enhanced.

Second, the electronic commerce has only not eliminate opportunism behavior, on the contrary makes the opportunism behavior more serious, therefore, under the electronic commerce environment, we need intermediaries to play the role of guarantee transaction security. Despite it can promote the exchange of information, the electronic commerce technology can not eliminate opportunism behavior, this is because the e-commerce alone cannot make a fair and effective evaluation of the credit on both sides, consumers cannot effectively guarantee product quality, producers can't exactly know whether consumers really have the ability to pay. In particular, the Internet provides the opportunism behavior barriers, such as online transactions without intermediaries intervention, even if the producers actually provide commitment to product quality is lower than the standard the Internet can't stop this kind of behavior, so opportunism behavior of online trading is more serious than in the traditional environment, intermediaries under the e-commerce environment will continue to play a key role in guarantee transaction complete. Large amount of information and rapidly information flows allow intermediaries greatly increased the trading volume. As the intermediary using its professional knowledge, credibility, and contact established with both parties to eliminate the information asymmetry, the dealer will make customization investment for this, and with the electronic commerce environment, the intermediaries deal with the increased trading volume and higher efficiency, these specialty investment reclaim cycle will be shorter, small investment pot is more obvious. Thus, the intermediary' ability to supervise trade has strengthened by e-commerce.

Again, the function of middlemen to ensure market liquidity also won't become insignificant because of the development of e-commerce. Intermediaries have endogenous comparative advantage compared with manufacturers in the understanding of consumer demand and inventory management, this is because intermediaries have specialized level higher than manufacturer, processing volume is greater than economies of scale owned by producers. Therefore, intermediaries' intervention can not only reduce the cost of producer, but also can reduce the risk of the manufacturer. Under electronic commerce environment, intermediaries can through the contact with manufacturer and network, the inventory can be greatly reduced, therefore the costs and reduce the risk, such as wal-mart, use of network with suppliers, electronic data interchange system, rapid response and the attachment system to realize automatic order, provide consumers with more products in a timely manner, satisfy their needs, so that it can reduce the cost and improve the efficiency, thus, e-commerce provides the intermediaries more effective guarantee of liquidity in the market, but also make the cost of intermediaries reduced greatly.

Finally, the ability of logistics management of intermediaries be enhanced along with the development of the intermediary. Logistics service function of intermediaries depends on the logistics assets (such as transportation, warehouse, etc.) and the management ability of material assets, and the latter mainly control by effective information network, e-commerce make dealer greatly enhance the ability of logistics assets management, the efficiency of logistics improved, this have shown very clearly in the past three decades. In addition to the digital products can be transferred from the seller to the buyer on the Internet, other products also need logistics support. And logistics in the field of economy of scale and scope economy effect is very obvious, so the intermediaries play the role of logistics management in e-commerce environment is obviously important. E-commerce greatly enhances the efficiency of logistics management, online trading also creates opportunities for intermediaries specialized in logistics management.

To sum up, in addition to the digital products due to its product features can do without intermediaries to provide inventory and logistics management, e-commerce is not weakening the function of the intermediaries, on information management, even need more participation of intermediaries than traditional marketing terms of information management, guarantee the transaction, at the same time, intermediaries have improved its transaction efficiency and reduced the cost by using the electronic commerce.

4. New intermediaries under the e-commerce environment

According to the above analysis, we put the intermediaries under the network environment into two categories, namely actual intermediaries and electronic intermediaries. In order to distinguish it from the intermediaries in traditional environment, the two parts are collectively known as the new intermediaries (cyber-mediary).

This new intermediaries refers to a system set up under the network environment connecting of producers and consumers as the role of a bridge, it realizes all functions of traditional intermediaries through the Internet sites, but also have new features that some of the traditional intermediaries do not have. It has network servers, workstations and various network equipments as its technical support. Existence and development of new intermediaries is inevitable in the development of electronic commerce. The realization form of the new intermediaries have two types, one is a new intermediaries build through the Internet, another is traditional intermediaries use electronic information network to realize the function, further reduce the transaction costs, improve the efficiency of transactions, whereby to transfer from traditional intermediaries to new intermediaries.

(see table 1)

way to reduce pay cost for new intermediaries	
Purchase cost	New intermediaries can reduce the error rate, simplify the ordering process, improve employee productivity, shorten the delivery cycle, reduce the material purchasing cost.
Stock control	Better coordination between new intermediaries, producers and consumers can reduce the inventory level of intermediaries, improve profit margins.
Production Cycle	Better coordination between new intermediaries, producers and consumers can shorten the production cycle of the company, improve profits and increase competitiveness.
Customer service	Automated online customer service of new intermediaries can reduce the expenses of intermediaries on customer service telephone, and reduce the number of service personnel. Producers and consumers get better service and faster response from the new intermediaries.
Marketing and sales cost	The online sales channels of new intermediaries, with high scalability, can improve sales with smaller expense.
new market opportunity	New intermediaries can help small and medium-sized enterprise to enter the e-commerce market. New intermediaries use electronic information network and online sales channels open up new market, can expand the target market without restricted by geography factors.

Table 1: new intermediaries to reduce the cost of trading

4.1 The characteristics of the new intermediaries

The same as traditional intermediary, new intermediary is also a bridge that connect the producers and consumers. We examine the characteristics of new intermediaries under the conditions of e-commerce from the perspective of how new intermediaries implement the electronic trading activities of the "four circulations" (information flow, cash flow, business flow and logistics) to. As shown in figure 1.

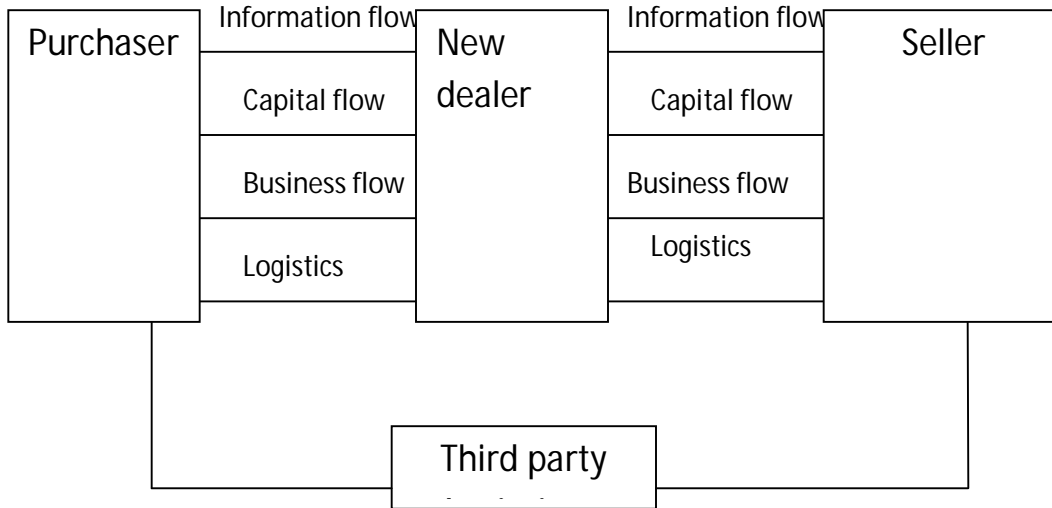


Figure 1: new intermediary and the business activities of the "four circulations"

E-commerce improves the efficiency of intermediaries, reduces the cost, also lead to the further development of division of labor, further refine the function of intermediaries, approach has made a major change, even invent some new features never had in the traditional market and then make an innovation to the pattern of intermediaries, leading to the appearance of new intermediaries.

(1) Achieve higher efficiency of information flow.

Thanks to the fast speed of information transmission on the Internet, the information that consumer faced with is also increasing, also lead to increasingly difficulty to identify information, because of the uncertainty of the trade in virtual environment are much higher than the traditional environment. Under the e-commerce environment, we need more credit information on both sides of the intermediaries, provide credit guarantee to reduce the opportunism behavior. Intermediaries specialized to provide information service by middlemen arises at the historic moment, they specially provide information and the related evaluation about the seller or the buyer and through the personalized service, or other forms of content to add value, to become the link between producers and consumers, information intermediaries actually don't buy and sell goods, only through the information processing to provide service to make the transaction more smoothly. These services include: first, price negotiation, namely provide trading platform for buyers and sellers; second, intelligent recommendation, that is, recommend relevant product information to consumers according to the demands of consumers: third, combine existing services into a new service, provided to the relevant consumer; fourth, provide manufacturers with the demand of consumer information and dig the potential demand.

Provide business information to producers and consumers is an important method of new intermediary services. New intermediaries can take advantage of the electronic information net-work, collect information of producers and consumers, pass the information between producers and consumers on a regular basis, producers and consumers can easily get information, so that the market formed a Benign circulation.

(2) Achieve higher efficiency through electronic payment system.

Along with the development of information technology network, consumers, businesses and financial institutions can realize electronic payment using safe electronic means, so as to realize online cash flow.

Customers and merchants can use a variety of ways, such as credit card, electronic cash, smart cards and so on, to implement the online electronic payment, thus saving the transaction cost for sellers and buyers, and accelerate the turnover efficiency of funds. At the same time, to ensure the security and reliability of information transmission, to prevent the illegal acts of tamper, leakage, and illegal use of information, electronic account management is the indispensable e-commerce function of e-commerce .

(3) Achieve higher efficiency of business flow and logistics.

Business flow refers to the transfer of ownership. New intermediaries provide platform of information, media and trading, for the transaction, effectively contribute to trading activities between producers and consumers. In the process of traditional transaction, business flows are usually accompanied by the corresponding logistics activities. In e-commerce, full trading process of some digital goods (such as computer software, films, music, games, books, newspapers, etc.) and services (e.g., information consulting services, legal services and accounting services, etc.) of delivery, settlement and receiving can finish completely on the electronic information network.

Logistics function of intermediaries is specialized logistics services provided by the third party logistics enterprise. More specialized interests made the original division of potential not feasible due to transaction cost limit, now become feasible. The third party logistics separate enterprises from traditional intermediaries. This is the result of division of labor refinement, who share part of the trade mission, with higher specialization degree and enjoy economic scale.

To sum up, new intermediaries can not only achieve the traditional intermediaries' functions, and also shows the new development on the trade efficiency, extend the function and efficacy of traditional middlemen in new areas.

4.2 The development trend of new intermediaries

In the era of network economy, the change of science and technology has eventually led to the change economic operation is the progress of history. Change of commodity circulation methods alters commodity circulation means is the progress of the business. We can only actively adapt to it, advancing with times. Intermediaries will reduce in number and form change with the application and popularization of network technology, it is indisputable fact. So how will the form of the intermediaries develop? Give out several kinds:

(1) service-oriented intermediaries of circulation end

Since most commodities trading can transparently realize online, intermediaries directly involve in the trade is less likely. But because the network is virtual, trading space span is longer, therefore, in addition to a small number of intangible products, most products services become the difficulty of online trading. Such as the debug, transposition and repair of household appliances, furniture, apparel products, and the assurance of product quality, etc. Electronic commerce, therefore, in addition to the cooperation of logistics distribution network, we also need the cooperation of various service network. This provides the existing form for new intermediaries. But the source of profit is not obtained from trading, but provided by the manufacturer from the service.

(2) Engine indexing service intermediaries.

This is known as electronic intermediaries. Mainly provide intermediary services of electronic information. This is a new industry caused by the new network economy. Mainly include:

1. Directory service. Make use of the Web site on the Internet directory to provide a menu to search. At present there are three types of directory services. One is the general directory (such as Yahoo), can retrieve the same below site, the contained site classification combined together according to the hierarchical organization; the other is indexes Provided all kinds of business directory, business web site (such as Internet store catalog); another type is a professional directory, establish a Web site on a particular field or topic. The revenue of directory services mainly comes from advertising service provided by the Internet for the customer.

2. Search service. Search site (such as Lycos, Linfoseek) provides search service for user based on keyword, site using a large database classifies storage various site introduction and page content.

(3) Virtual market intermediary services.

Virtual market provides a virtual exchange place, any product with adhesion conditions can be display and sale within the virtual site, consumers can select and purchase at their will in the site, site presiders charge a certain amount of management fee.

As online market site hosted by ministry of foreign trade and economic cooperation——China commodity trading market, belong to this type. Virtual mall refers to connection of two or more than two sites in a commercial site. Virtual mall positioned at a geographical location or a type of producers and retailers. Selling commodities and providing different services in the virtual business street. The main source of income of site relies on the rent of other commercial sites. Such as Sina opened in our country's e-commerce is to provide online stores the rent.

(4) Intelligent agent intermediary

Intelligent agent is a kind of software. It provides automatically search for the user in advance according to the requirements of the consumer preferences and requirements. You can also automatically learn to optimize searching criteria according to the user's own favor and others' search experience. Users can choose suitable intelligent agent site to provide services for themselves according to their own needs, at the same time pay certain fee.

5. Conclusion

The advent of the era of e-commerce has a double effect on intermediaries. The development of information technology, especially network technology, brings both challenges and opportunity for intermediaries. So to speak, the development of electronic commerce need intermediaries' development, rather than exclude and squeezed the development of the intermediary. Faced with the new era, intermediaries may have various adjustment and evolution of form and function, but no matter how to change, the role of intermediary to function as a bridge connecting producers and consumers is always the same. Through active delivery message, establish their own image, clear-cut advantage, active play the role of services, there will be more broad prospects for development in the network era.

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