

Classification of Electronic Commerce - Tools for Macro Analysis

Keiichi Yamada
(2000年11月24日受理)

Abstract

Utilizing the Internet for business trading is now getting more popular, as the Internet can enable fast, efficient and reusable transactions. In this reason, trading through the Internet - Electronic Commerce is now widely spreading and being expected to be the major business media in the very near future.

Although major theme of my research is 'Marketing Strategies', especially for sustainable competitive advantage¹⁾ in the market, I realized the market itself has been changing to electronic one and thus I have to handle such transformation of the market.

In this paper, I try to classify the Electronic Commerce in the light of 5 points of view as the tools for macro analysis of the EC; types of sellers and buyers - business firms or consumers; types of trade - open or closed; types of offerings; types of functions in the distribution channel - makers, whole sellers, retailers, and consumers; and types per functions of transactions in commodities/services offering business.

1. Preface

Electronic Commerce (herein after I call 'EC') is widely spreading through since mid-1990s and now expected to have an big breakthrough in next 2-3 years²⁾. At the early stage, EC developed in the area of so-called "B-to-C" or Business-to-Consumer^{3,4)}. Then gradually it has been getting into the area of "B-to-B" or Business-to-Business^{3,4)}.

Even in the area of B-to-C, stage of business is changing from just selling their products/services to customers to organize customers for repeat sales.

In considering such situations, I would like to classify the type of EC for the purpose of giving tools for macro analysis of the Electronic Commerce, in the light of; types of sellers and buyers - business firms or consumers; types of trade - open or closed; types of offerings; and types of functions in the distribution channel - makers, whole sellers, retailers, and consumers; and types of transactions in commodities/services offering business.

2. Classification per Sellers and Buyers

At first, I have to classify types of EC as per kinds of buyers and sellers (See Figure-1). As per this

figure, I can classify types of EC as, Business to Business (B-to-B), Business to Consumer (B-to-C), Consumer to Business (C-to-B), and Consumer to Consumer (C-to-C), accordingly.

And a present trend is that EC is expanding from B-to-C to B-to-B^{3,4)}.

3. Classification per kind of trade - open or closed

Second classification is made in accordance with the type of trade, open or closed (See Figure-2). I can classify B-to-B and B-to-C into open and closed respectively. Namely, I can have Open B-to-B, Closed B-to-B, Open B-to-C, and Closed B-to-C.

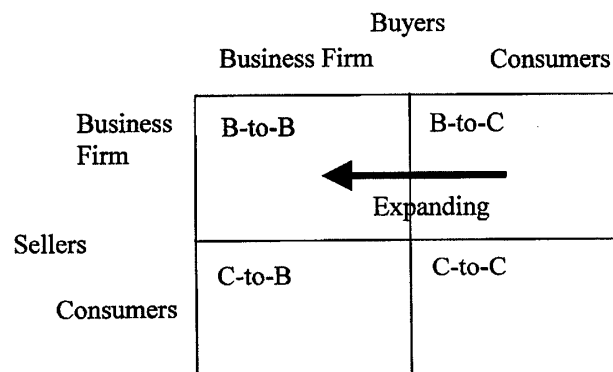


Figure-1 Classification per Player

4. Classification per kind of offerings

EC can be classified into following four types as per types of commodities/services offered in the business, infrastructure, commodities/services, brokering, and communities shown in Table-1.

5. Classification per elements in the distribution channel

Basic elements in the distribution channel are manufactures, wholesalers, retailers, and consumers. At first, I choose two axis, buyers and sellers, and further break them down into four parts as per elements in the distribution channel.

Namely, I break down buyers into manufacturers (M), wholesalers (W), retailers (R), and consumers (C), and sellers into manufactures (m), wholesalers (w), retailers (r), and consumers (c), and make matrix shown in Figure-3. I call it as MWRC model here.

By using this model, following 5 types of pattern of trades can be obtained. Among those types, types

		Type of trade	
		B-to-B	B-to-C
Customers	Unlimited	Open B-to-B	Open B-to-C
	Limited	Closed B-to-B	Closed B-to-C

Figure-2 Classification per trade-Open or closed

of lower-stream to upper-stream have 2 meanings. One is the information on buyer's needs and wants. The other is products/services sellers offer to buyers.

(1) Type I - Supply Chain (M-w, W-r, R-c)

This type is based on a usual distribution channel, manufacturers, wholesalers, retailers, and consumers. It is just like so-called "supply chain." The Internet can beef up the communication among such parties, enable to share the necessary information and even knowledge among them, and make operations more efficient.

(2) Type II - Demand Chain (C-r, R-w, W-m)

On the contrary, type II is a chain of lower-stream-to-upper-stream activities, which can be called as "demand chain" of consumers, retailers, wholesalers and manufacturers.

		Buyers Supply Chain			
		m	w	r	c
Sellers	M	M-m	M-w	M-r	M-c
	W	W-m	W-w	W-r	W-c
	R	R-m	R-w	R-r	R-c
	C	C-m	C-w	C-r	C-c

Figure-3 Classification per elements

Table 1 Kinds of services

	Services	Account	Examples
Type I	Infrastructure	Offers fundamental service such as Portal Site or Internet Service Providers.	—Yahoo (portal) —AT&T Jense (ISP) —America On Line (ISP)
Type II	Commodities/ services (Online Shop/ Store)	Offers usual commodities/ services like retailers, including delivery services.	—Amazon. com (book store) —Food. com (food delivery) —NetGrocer (grocery store)
Type III	Brokering	Offers brokering between sellers and buyers, including travel agents, online auction. etc.	—Icongo. com (apparel) —E-Loan (home loan) —Ins Web (insurance)
Type IV	Communities	Offers the place where people meet and exchange various information, each other.	—iVillage (for women) —Third Age (for third agers) —Free Zone (for children)

This area is getting more important for effective trades in the “market driven⁵⁾” market. In the “production driven⁵⁾” market, sellers can get a fairly good result just by make-and-sell activities through type I trade.

But in the market-driven market, so-called “one-to-one marketing⁶⁾” and “mass customization⁷⁾” are getting more important concepts for effective sales. Because sellers have to find out products/services which their customers really need or want, and the information from their customers are very important signals they have to catch. Sellers can catch such signals through the Internet. So it may be the key to success how to sellers utilize the Internet.

**(3) Type III - Trades between the same elements
(M-m, W-w, R-r, C-c)**

Under the changeable, uncertain, and risky environment like today, business firm have to reconsider the way of their business from the “full-set” type to “share-functions” type. Through the strategic alliance among the virtual corporation⁸⁾, members of the business networks share their functions as per the core competence⁹⁾ with each other.

In this reason, even among the same elements in the distribution channel, their trades may be still important. By utilizing the Internet, they can make their communications more efficient and effective and share necessary information and even knowledge. And by strategically being allied with each other and taking their part in accordance with their core-competence, they can share their business and make their performance more efficient and effective.

Manufactures can share their part-one takes part of making some parts, and one takes part of assembling products, and one takes part of finishing products. Wholesalers also can share their part-one takes part of distribution in some area, and one takes part of other area, and one takes part of physical distribution, etc. Retailers can share their part in accordance with the district/area or in accordance with their functions such as, sales promotion, ordering, distribution, and payment.

(4) Type IV - Direct Trades I - from upper-stream to lower-stream down-stream (M-r, M-c, W-c)

This type is a kind of direct trade between the

elements in the distribution channel from upper-stream to lower-stream. The Internet can realize the direct communication and trade between such elements, and shorten the distribution channel.

Manufactures can sell their products directly to retailers and even directly to consumers through the Internet. And wholesalers can also sell their commodities directly to consumers through the Internet.

(5) Type V - Direct Trades II - from lower-stream to upper-stream upstream (C-w, C-m, R-m)

This type seems to be a shorten type of demand chain. What can consumers offer to wholesalers and even manufactures? What can retailers offer to manufactures? By utilizing the Internet, I think information or services from lower-stream to upper-stream can furnish new kinds of businesses.

Purchase agents for consumers or retailers, consumers' purchase lists in consumer's home pages or e-mail, Though I can not draw the exact pictures, there may be a possible business chances in this area.

6. Classification of functions of transactions in commodities/services offering business

(1) Five Major Steps of Transactions in EC

Although minute procedures of the transactions in EC might be different in each business models, I can classify major steps of transactions in EC into five phases, catalogue, ordering, delivery, payment, and after care (or following up).

(2) Catalogue Phase

Catalogue phase is the one that sellers introduce themselves and their commodities/services - functions, designs, qualities, and services, etc., with conditions of transactions - prices, deliveries, and others they offer.

(3) Ordering Phase

Ordering phase is the one that customers order commodities/services they prefer to suppliers. Its includes inquiry activity. Minute steps in order-made commodities/services are inquiry from customers to suppliers, quotations from suppliers to customers, negotiations, and ordering. On the other hand, those of ready-made commodities/services are just choosing and ordering them.

In EC, it is an important matter to reconfirm the

contents of the ordering - name, number, price, delivery, payment and other conditions of the commodities/services buyers ordered.

(4) Delivery Phase

Delivery phase is the one that ordered commodities/services are furnished and delivered to receivers. Delivery of commodities/services is made through the Internet or parcel services in accordance with the characters of commodities/services sellers offer.

(5) Payment Phase

Payment phase is making payment for products/services. It is important for sellers to secure and confirm buyers' payment. Payment through the Internet has security problems. Payment by the credit card is most convenient and common at present.

But there are risks of being stolen credit card information and of malicious use of credit card by others.

(6) After care Phase

After care phase is taking care of commodities/services sellers sold. Claim handling, maintenance services, and other services are included in this phase. It is an important matter to handle refund or cancel the purchased commodities/services.

(7) Classification by steps of transactions

Theoretically, combinations of transactions stated the above which can be made in the Internets are calculated as the following formula.

$$({}_4C_4 + {}_4C_3 + {}_4C_2 + {}_4C_1 + {}_4C_0) + ({}_3C_3 + {}_3C_2 + {}_3C_1 + {}_3C_0) + ({}_2C_2 + {}_2C_1 + {}_2C_0) + ({}_1C_1 + {}_1C_0) = 31$$

Namely, if I make each major activity - Catalogue, Ordering, Delivery, Payment and After care - as C, O, D, P and A, combinations of these activities are ;

C-O-D-P-A
C-O-D-P
C-O-P-A
C-D-P-A
C-O-D-A
C-O-D
C-O-P
C-O-A
C-D-P
C-D-A
C-P-A
C-O
C-D

C-P
C-A
C
O-D-P-A
O-D-P
O-D-A
O-P-A
O-D
O-P
O-A
O
D-P-A
D-P
D-A
D
P-A
P
A

In accordance with these combinations, we can classify the pattern of business (business models) in the Internet (See Table-2).

a. Type I - catalogue through the Internet

In type I, sellers have their own home pages listed their commodities/services or distribute catalogue through e-mail. The pattern falls into this type are C-O-D-P-A, C-O-D-P, C-O-P-A, C-D-P-A, C-O-D-A, C-O-D, C-O-P, C-O-A, C-D-P, C-D-A, C-P-A, C-O, C-P, C-A, C.

b. Type II - catalogue not through the Internet

In type II, sellers distribute catalogues in other media such as newspapers, magazines, TV or radio, catalogue book, CD-ROM, video, etc.. The patterns fall into this type are O-D-P-A, O-D-P, O-D-A, O-P-A, O-D, O-P, O-A, O, D-P-A, D-P, D-A, D, P-A, P, A.

c. Type III - ordering through the Internet

In type III, buyers order commodities/services through the Internet - usually through home pages (using FORM) or through e-mail. The pattern falls into this type are C-O-D-P-A, C-O-D-P, C-O-P-A, C-O-D-A, C-O-D, C-O-P, C-O, O-D-P-A, O-D-P, O-D-A, O-P-A, O-D, O-P, O-A, O.

d. Type IV - ordering not through the Internet

In type IV, buyers order commodities/services through other methods - mail, fax, phone, etc. The patterns fall into this type are C-D-P-A, C-D-P, C-D-A, C-P-A, C-D, C-P, C-A, C, D-P-A, D-P, D-A, D, P-A, P, A.

e. Type V - delivery commodities/services not through

Table 2 Pattern of transactions through the Internet

Pattern	Remarks
C-O-D-P-A	whole steps are made through the Internet
C-O-D-P	after care is made not through the Internet
C-O-P-A	delivery is made through delivery service
C-D-P-A	ordering is made not through the Internet
C-O-D-A	payment is not through the Internet
C-O-D	payment and after care are made not through the Internet
C-O-P	delivery and after care are made not through the Internet
C-O-A	delivery and payment are made not through the Internet
C-D-P	ordering and after care are made not through the Internet
C-D-A	ordering and payment are made not through the Internet
C-P-A	ordering and delivery are made not through the Internet
C-O	catalogue and ordering are through the Internet
C-D	catalogue and delivery are through the Internet-not practical
C-P	catalogue and payment are through the Internet-not practical
C-A	catalogue and after care are through the Internet-remote service
C	only catalogue through the Internet
O-D-P-A	catalogue is made through other media
O-D-P	catalogue and aftercare are not through the Internet
O-D-A	catalogue and payment are not through the Internet
O-P-A	catalogue and delivery are not through the Internet
O-D	catalogue, payment and after care are through the Internet
O-P	only ordering and payment are through the Internet
O-A	only ordering and after care are through the Internet
O	only ordering is through the Internet-order via e-mail?
D-P-A	delivery, payment, after care are through the Internet-not practical
D-P	delivery and payment are through the Internet-not practical
D-A	delivery and after care are through the Internet-not practical
D	delivery only-not practical
P-A	payment and after care-not practical
P	payment only-not practical, credit information via e-mail?
A	after care-download service

the Internet

In type V, commodities/services are delivered through other ways -through parcel service, mail, fax, and other delivery services. The patterns fall into this type are C-O-P-A, C-O-P, C-O-A, C-O, C-P, C-A, C, O-P-A, O-P, O-A, O, P-A, P, A.

f. Type VI-delivery commodities/services through the Internet

In type VI, commodities/services are delivered through the Internet- software, information, data, etc.

The patterns fall into this type are C-O-D-P-A, C-O-D-P, C-D-P-A, C-O-D-A, C-O-D, C-D-P, C-D-A, C-D, O-D-P-A, O-D-O, O-D-A, O-D, D-P-A, D-P, D-A.

g. Type VII-payment through the Internet

In type VII, payment is made through the Internet- usually through credit card. Electronic money can be possible method for payment in the Internet, but presently it is not yet practical method. The patterns fall into this type are C-O-D-P-A, C-O-D-P, C-O-P-A, C-D-P-A, C-O-P, C-D-P, C-P-A, C-P, O-D-P-A, O-D-P,

O-P-A, O-P, D-P-A, D-P, P-A, P.

h. Type VIII - payment not through the Internet

In type VIII, payment is made through other method than the Internet - check, cash, collect services, remittance, and so on. In considering security for payment, this type seems to be more safety than through the Internet. The patterns fall into this type are C-O-D-A, C-O-D, C-O-A, C-D-A, C-O, C-D, D-A, C, O-D-A, O-D, O-A, O, D-A, D, A.

i. Type IX - after care through the Internet

In type IX, after care is made through the Internet - through home pages or through e-mail, etc. Download service for version up of software and instruction or Q&A in the home page are examples. The patterns fall into this type are C-O-D-P-A, C-O-P-A, C-D-P-A, C-O-D-A, C-O-A, C-D-A, C-P-A, C-A, O-D-P-A, O-D-A, O-P-A, O-A, D-P-A, D-A, P-A, A.

j. Type X - after care not through the Internet

In type X, after care is made not through the Internet - through phone, fax, mail, booklet, or human services, etc. The pattern falls into this type are C-O-D-P, C-O-D, C-O-P, C-D-P, C-O-, C-D, C-P, C, O-D-P, O-D, O-P, O, D-P, D, P.

7. Conclusion

In this paper, I tried to classify the EC in several stand points in order to give tools for macro analysis of EC, types of sellers and buyers - business firms or consumers, types of trade - open or closed, types of offerings - kind of commodities/services that business offers, and types of functions in the distribution channel - makers, whole sellers, retailers, and consumers, and classification per functions of transactions in commodities/services offering business as the tools of macro analysis

of the EC.

These ideas are only induced through logical thinking and to some point may not be practical. Therefore, I have to make macro analysis with these tools and proof the effectiveness. But to my regret, I could not do that, as I have not enough time to do so. My next study shall be in that point, namely I shall do macro analysis of EC with these tools and proof the validity of them. I would like to do such study in the very near future and introduce the result.

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