THE ELECTRONIC MARKET LIBERALIZATION IN A KNOWLEDGE BASED ECONOMY

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Abstract

In the current context of economic globalization and the advent of the virtual business environment, organizations have registered profound transformations that force companies to reconsider their strategic objectives, especially taking into consideration the opportunities created by the new information and communication technologies.

Regardless of their reactive or proactive strategies when facing the changes in the competition, most companies in the developed countries and more and more of the Romanian enterprises are interested in developing technologies and information systems at a intra, inter and extra organizational level, with integrated traits, which are capable to sustain both the managerial process and the traditional functions of the organization.

That being said, we herald now the expansion of the electronic commerce or eCommerce, which represents the automatization of the commercial transaction by using information systems and communication technologies.

Developing an eCommerce system based on a business-to-business application consists of de-structuring the chain of value in managerial processes and then re-structuring it in order to identify the areas that can be made efficient through electronic means.

This study is meant to aid the development of existing models by developing the services in certain less accessible to electronic commerce areas of a knowledge-based economy.

As it stands, electronic commerce offers the opportunity of selling products world wide and this increasing the number of potential clients by eliminating the geographical barriers between buyers and seller.

Opting for electronic commerce is a solution when the company wants to diversify its services and when it wants to reduce market related costs.

Key words: organization, Specific activities, models, electronic

JEL Classification: A10, B23, C61

1. Introduction

Regardless of their reactive or proactive strategies when facing the changes in the competition, most companies in the developed countries and more and more of the Romanian enterprises are interested in developing technologies and information systems at a intra, inter and extra organizational level, with integrated traits, which are capable to sustain both the managerial process and the traditional functions of the organization.

In the current context of economic globalization and the advent of the virtual business environment, organizations have registered profound transformations that force companies to reconsider their strategic objectives, especially taking into consideration the opportunities created by the new information and communication technologies.

Commercial transactions are the activities through which money, goods, services or obligations are transferred between individuals or organizations. The dynamic structure of the new economy based on eCommerce dictates that company managers develop policies and strategies that can stimulate a raise in demand and consumption.

With the advent of electronic commerce, the companies have identified new opportunities of expanding the business. The worldwide roll-out of digital markets, which allow for any type of product to be sold through electronic means, has generated the emergence of business-to-business commercial networks, as a main source of profit for the organization.

2. The development of the eCommerce model

The activities specific to this type of commerce have been divided by specialists in two categories: those that facilitate the transfer of products and services and those that endure the infrastructure of the online activity of commercial transactions.

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The business-to-business models are the most common and their rules are replicated with slight modifications in other methods, and therefore in a large company this model of electronic commerce is representative.

As an example, we have c – unit deposit expenses, and k – expenses for the prime merchandise. Then total annual expenses:

$$D = \frac{5}{2} \cdot c + \frac{Q}{S} \cdot k \ , \tag{1}$$

where S - the size of an acquisition unit.

From $\dfrac{\partial D}{\partial S} = 0$ we determine $S^* = \sqrt{\dfrac{2kQ}{c}}$,

$$D^* = \frac{5^*}{2} \cdot c + \frac{Q}{5^*} \cdot k = \sqrt{2ckQ} \tag{2}$$

Online transactions reduce depositing costs from c to $c_1 < c$.

Without online commerce total costs constitute:

$$D^* = \sqrt{2ckQ} \tag{3}$$

Traditional commerce, sustained also by online commerce, has the following costs

$$D_1 = \sqrt{2c_1kQ} < D^* = \sqrt{2ckQ} \ , \tag{4}$$

or

$$\frac{D_1}{D} = \sqrt{\frac{c_1}{c_2}} \tag{5}$$

From which $D_1 = D^* \cdot \sqrt{\dfrac{c_1}{c_2}}$ \hfill (6)

Moreover, online commerce also contributes to the increase in demand, to reducing costs for extending the traditional commerce networks. The increase in demand stimulates the increase in offers and therefore the GDP will also increase.

The material expenses within the informational ones are in reverse dependence, meaning:

$$Y = \frac{a}{X^{\alpha}} \tag{7}$$

where Y – material expenses, X – informational expenses (intellectual products, ideas).

3. Benefits of the eCommerce model

Intellectual products, breakthroughs in science allow highly developed countries to successfully sustain electronic commerce.

Electronic commerce technology is vast and includes elements from various areas – hardware, software, legislation, artificial intelligence, telecoms – elements which influence its development.

Such a development - t can be represented through the following intervals: $[0;T]$ or $[0;\infty)$; if this analysis is subjected to retrospective, then the intervals can be $(-\infty;0]$; $(-\infty;T]$; $[-T_1;0]$; $[-T_1;T_2]$; $[-T_1;\infty)$. The values of the Y indicator can be continued or discreet. According to the time interval criteria, the values of the indicator can be given at a given moment (e.g. the number of economic agents in the year t) or in given interval (e.g. development in year t)

The indicators that define the development of electronic commerce are the absolute rhythm and the rhythm of growth, the security protocols, the search and indexing mechanisms, the intelligent software agents for electronic commerce on the Web, the electronic commerce software products, the electronic payment systems.

The difference between the Y indicator in the year $t=1$ and the basic year $t=0$, meaning $\delta_{10} = Y_1 - Y_0$, represents the absolute rhythm, and the economic index or growth coefficient that determines how many times did the Y_1 indicator in year $t=1$ exceeded the Y_0 indicator, meaning $\eta_{10} = \dfrac{Y_1}{Y_0}$, is called the rhythm of growth.

Therefore, the rhythm of growth is equal to the percentage of the Y_1 indicator in comparison with Y_0,

$$\eta_{10} = \frac{Y_1}{Y_0} \cdot 100\% .$$

The basic year is an arbitrary year and that is why it can change or not. For each year, the previous year can be a comparison year for the evolution analysis. Because the basic is variable, we are dealing with "chain" comparisons.

Therefore, the characteristics: absolute rhythm and growth rhythm can be calculated in relation with the basic year $(t = 0)$, and with the previous year $(t - 1)$.

The absolute rhythm and the growth rhythm of the Y indicator in the year t, expressed with the prices of the basic year $(t = 0)$, constitute:

$$\delta_{t0} = (Y_t - Y_0); \ \eta_{t0} = \frac{Y_t}{Y_0} \tag{8}$$

Expressed in the prices of the previous year –

$$\delta_{t,t-1} = Y_t - Y_{t-1}; \ \eta_{t,t-1} = \frac{Y_t}{Y_{t-1}} \tag{9}$$

Between the following indicators δ_{t0}, η_{t0}, and $\delta_{t,t-1}$, $\eta_{t,t-1}$ certain relations can be set:

Growth sum: $(Y_1 - Y_0) + (Y_2 - Y_1) + (Y_3 - Y_2) + (Y_4 - Y_3) = Y_4 - Y_0$ or

$(Y_1 - Y_0) + (Y_2 - Y_1) + ... + (Y_t - Y_{t-1}) + ... + (Y_T - Y_{T-1}) = \delta_{10} + \delta_{21} + ... + \delta_{t,t-1} +$

$+ ... + \delta_{T,T-1} = \sum_{t=1}^{T} (Y_t - Y_{t-1}) = \sum_{t=1}^{T} \delta_{t,t-1} = Y_T - Y_0$;

The spreads: $(Y_2 - Y_0) - (Y_1 - Y_0) = Y_2 - Y_1$ or $\delta_{20} - \delta_{10} = \delta_{21}$

$(Y_3 - Y_0) - (Y_2 - Y_0) = Y_3 - Y_2$ or $\delta_{30} - \delta_{20} = \delta_{32}$

The product: $\frac{Y_1}{Y_0} \cdot \frac{Y_2}{Y_1} \cdot \frac{Y_3}{Y_2} \cdot ... \cdot \frac{Y_t}{Y_{t-1}} \cdot ... \cdot \frac{Y_T}{Y_{T-1}} = \frac{Y_T}{Y_0}$ or

$\eta_{10} \cdot \eta_{21} \cdot \eta_{32} \cdot ... \cdot \eta_{t,t-1} \cdot ... \cdot \eta_{T,T-1} = \eta_{T,0}$;

or $\eta_{10} \cdot \eta_{21} \cdot \eta_{32} \cdot ... \cdot \eta_{t,t-1} = \frac{Y_t}{Y_0}$ from which

$Y_t = Y_0 \cdot \eta_{10} \cdot \eta_{21} \cdot \eta_{32} \cdot ... \cdot \eta_{t,t-1}$;

The division:

$$\frac{Y_2}{Y_0} : \frac{Y_1}{Y_0} = \frac{Y_2}{Y_1} \qquad \text{or} \qquad \frac{\eta_{20}}{\eta_{10}} = \eta_{21}$$

$$\frac{Y_3}{Y_0} : \frac{Y_2}{Y_0} = \frac{Y_3}{Y_2} \qquad \text{or} \qquad \frac{\eta_{30}}{\eta_{20}} = \eta_{32}$$

....

$$\frac{Y_t}{Y_0} : \frac{Y_{t-1}}{Y_0} = \frac{Y_t}{Y_{t-1}} \qquad \text{or} \qquad \frac{\eta_{t0}}{\eta_{t-1,0}} = \eta_{t,t-1}$$

....

$$\frac{Y_T}{Y_0} : \frac{Y_{T-1}}{Y_0} = \frac{Y_T}{Y_{T-1}} \qquad \text{or} \qquad \frac{\eta_{T0}}{\eta_{T-1,0}} = \eta_{T,T-1}$$

The above mentioned indicators can be examined in the case of the continuous values in order to extend the methods applied in economic analysis, allowing for the use of differential calculus.

The absolute rhythm in the case of the discreet values

$\delta_{t,t-1} = Y_t - Y_{t-1}$ or $\delta_{t,t-\Delta t} = Y_t - Y_{t-\Delta t}$, calculate for a time unit, meaning

$\frac{\delta_{t,t-\Delta t}}{\Delta t} = \frac{Y_t - Y_{t-\Delta t}}{\Delta t}$, from the hypotheses that the Y_t variable is continuous we can reach the limit:

$$\lim_{\Delta t \to 0} \frac{\delta_{t,t-\Delta t}}{\Delta t} = \bar{\delta}(t) = \lim_{\Delta t \to 0} \frac{Y_t - Y_{t-\Delta t}}{\Delta t} = \frac{dY(t)}{dt}$$

As established $\delta_{t+1,t}$, $\delta_{t,t-1}$ represents the increase or decrease of the Y indicator in a time unit, which correlates with the speed of change.

4. Conclusions

The electronic commerce can take a variety of shapes and it profoundly influences businesses, whether on a ascending or descending slope. The main domains affected by this influence are the exchange of information related to products and services, catalogues, user guides and financial briefings, product and service offers and conducting services between economic agents.

Opting for electronic commerce is a solution when the company wants to diversify its services and when it wants to reduce market related costs.

In conclusion, as it stands, electronic commerce offers the opportunity of selling products world wide and this increasing the number of potential clients by eliminating the geographical barriers between buyers and seller.

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