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# Development Trends and Possibilities of a Virtual Market

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**ABSTRACT:** The new component of economy of post-industrial development - the virtual market on the basis of information and communicative technologies (Internet) is investigated. Factors of its formation are revealed: network nature and open model, Moore's regularity, Metcalf's law, development of digital technologies. Features of functioning are established: distribution in time and spatial differentiation (on a basis of the theory of diffusion of innovations and the center-peripheral paradigm); the specific complex of factors in the macro marketing environment is revealed; new participants of the market and other model of their behavior, as consumers, in comparison with the real market are characterized; Internet-marketing as the marketing philosophy of business, corresponding to new economic conditions, and tools complex for practical activities in the virtual market is offered.

**Key words:** Search Costs, Measurement Costs, Bargaining Costs, Contract Enforcement Costs.

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## INTRODUCTION

The economy of the post-industrial period is characterized by existence of a new component. The virtual environment, which is formed as a result of Internet functioning, possesses specific opportunities, including for business running: possibility to form new competitive business strategy, reorganize the forms of joint activity and to start the process of transformation of the traditional organizations into more effective network structures; the level of the competition and risks and asymmetry of information decreases; the speed of global continuous exchange of information and adoption of optimum administrative decisions increases. Various subjects of managing solve a problem of mastering the essentially new informational open environment with the global communication opportunities, the specific economic relations and economic communications. And there is also provided the coordination in real time of interests of all participants by means of the general universal infrastructure of the interrelation, based on use of digital information and communication technologies, which is common for all types of production and for all consumers.

Within this specific reality in the last decade the global virtual market was created and now it is dynamically developing. The virtual market is understood as open system of regular, mainly monetary, mutually advantageous, voluntary exchange by the benefits by means of a global information and communication Network in the conditions of the competition. Such exchange subordinates all other elements of activity of the enterprises, organizations and territories — production, distribution and consumption of the benefits. Use of the virtual market opportunities strengthens economic power. Even in conditions of the capital, natural and human resources restrictions, using the new information and communicative technologies and control over the min economic activity allows to accumulate influence in the market and competitiveness.

In recent years functioning of the majority of participants of economic activity is runned in the conditions of interpenetration and "overflowing" of economic activity processes from the real market into the virtual market and vice versa. There is a process of formation of the new *dual real and virtual economic environment*. It means the crossing and coexistence within one economic space of the various economic systems which are mutually influencing at each other, but not changing the structure (Gritsanov, 2003). At the present stage of development of economic science there matured the conditions of transition from empirical separate researches of the virtual market to their synthesis. Creation of theoretical bases of functioning and development of this post-industrial economy phenomenon, possibility of forecasting of its dynamics is now actual. Research objective was to identify the tendencies and features of formation of the virtual market on the basis of a global communication Network and its interrelation with the market in the real environment.

### Background

Since the end of 60 years of 20 century the subject of post-industrial development became one of leading in a scientific economic perspective. The concept of post-industrial society was presented by D. Bell as the main for studying of tendencies of economic system transformation to post-industrial society, where the center of gravity moves to a services sector, and sources of innovation concentrate at intellectual institutes (Bell, 1973).

Actually at the same time in Japan and the USA in works of Hayashi (1969), Masuda (1981), Porat and Rubin (1977) was the term "information society" entered, which initiated the theory of the same name. The rate of information technologies development, according to supporters of this concept, transfer post-industrial society into a new qualitative condition, emphasize the central role of knowledge in society development and state accelerated shift from production of material benefits to production of services and information. Masuda wrote that computer technologies would be a basis of the new society, the intellectual production (that would accumulate) became leading branch of economy and accumulated information would start to extend through synergy production. Together with transfer of mankind existence into global information space the only universal factor — information, which doesn't know the state, national, regional or any other limits, becomes the material carrier of a civilization. Unlike other resources of public progress, it has cumulative property - effect of continuous accumulation and self-reproduction. Differently, in the middle of the 20th century the question of information economy, virtual space and the virtual market formation was actively discussed.

With the development of the information technologies and improvement of the computer equipment in the theory of communications and sociology the discussion about mass global communications' functions, the information's role in society life, tendencies of information society and virtual economy creation, features of the virtual market and new managing objects functioning is more actively carried on.

In this regard Stonier (1983), McLuhan and Powers (1989) and Toffler (1981) works are interesting. Outstanding feature of McLuhan's researches is the circumstance, that technologies of communication are considered as a decisive factor of formation process of this or that social and economic system. Speaking about relative independence of mass media, he emphasizes tendencies of their active role, which constantly amplifies.

The known concepts in line with post-industrialism rely on Drucker (1992) and Castells' researches (Castells, 2001). Castells considers information era as a globalization era. Thus network structures are at the same time both means and result of society globalization. As the main source of labor productivity, according to M. Castells, in modern society processing and competent use of information in production acts. It considerably influences the tendencies of development of the market..

Among the Russian scientists it should be noted the works of Glaziev (2010). In their works there is the situation locates, that information factor modifies a market mechanism of economy: competition methods change, the local, regional, national and international markets of information and telecommunication goods and services, which function on the basis of new principles, are formed. With development of information and communication technologies possibilities of coordinating of business processes extend, as there is a transition to integration, unification and standardization. The different types of business, integrated the Internet, function in a new quality within new flexible-network market and infrastructure, which expands limits and scales of business.

Questions of formation of the virtual market, electronic commerce, Internet marketing became a subject of scientific researches of such authors as Kotler and Keller (2012), Henson, Hartman, Amor , Lendrevie, Lévy, Lindon, Uspensky etc. They investigated a phenomenon of virtual economy, a tendencies of its development, the micro and macro marketing virtual environment, web opportunities for business, the nature of formation and specifics of functioning of a marketing complex in the virtual market.

The first-ever training lecturing course "The Principles of Internet-Marketing" was given by V. Henson in 1996 in the intellectual center of the Silicon Valley (USA) — Stanford University (Hanson, W., 2000). In it the preconditions of formation of the new marketing direction are theoretically proved, peculiar features and the perspective directions of development of the virtual local markets, which really work, are considered, experience of the leading American companies of rather marketing activity in Internet is systematized and generalized.

Scientific developments of the last years are numerous, but they, according to authors, went on the way of problem specification. Prompt development of technology and its influence on post-industrial economy demands synthesis of practical development and formation of a modern paradigm of extension of virtual economy and the virtual market. Spread of the virtual market over time is described by the theory of "diffusion of innovations".

Study of issues of the virtual space organization and the virtual market based on it, trends of their structuring over time and space are not investigated enough. Relative youth and the enormous speed of spreading, constant improvement of technological and technical characteristics allowed only approaching theoretical comprehension and the development of the scientific differentiation paradigm of the phenomenon in the modern post-industrial reality.

One of the ways to study this problem is to use the modern theory of innovation and technological development of economics and consider digital technologies as a basic innovation that led to the creation of the global information and communication virtual environment based on the Internet.

The term "basic innovation" is defined as a fundamental technological innovation with its industrial implementation. Basic innovations create new industries in the economy, new knowledge is used in the production and when entering the market takes place (Schumpeter, 1939; Kondratiev, 2002). According to J. Schumpeter, when innovations are implemented into the economy, we have the so-called "vortex of creative destruction" that undermines the balance of the former economic system, causing outdated technologies and outmoded organizational structures leaving the market, leading to the emergence of new sustainable industries, and as a result the economy and human welfare rise unprecedentedly.

Innovations of improvement develop or "perfect" already existing areas of activity. In this case processes or products better than their predecessors in terms of quality, reliability, possibilities of usage or efficiency of production/ use of materials appear. Indispensable features of innovation are its novelty, industrial applicability (economic viability), and it must meet the demands of consumers.

Kondratiev proved that the economy development is cyclical. The duration of each cycle is about 50 years, the dynamics over time has sinusoidal nature and consists of four phases: depression, recovery, growth, decline. There is a connection between phases of great Kondratiev cycles and waves of technical inventions and the formation of so-called technological structures and their practical use (Kondratiev, 2002).

The term "diffusion of innovations" is widely used due to E. Rogers' work "Diffusion of Innovations" and means "a process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers,1995). The process of diffusion of innovations is affected by numerous factors. The main ones are: a) innovation itself, b) communication channels, c) time and nature of the social system in which the innovation is introduced.

The process of penetration (diffusion) of innovative products to the market has been thoroughly investigated in detail by E. Mansfield (Mansfield,, 1961). It was found that it is best described by the logistic function - S- shaped non-linear curve, which shows the non-linear nature of the innovation process. E. Rogers, continuing to explore the S-shaped function, found that it contains three phases of development: the first - forming the base of development (slow growth), the second - rapid growth, the third - saturation (slow growth) (Rogers, 1995).

Among the numerous studies on this subject F. Bass' works are marked out, where diffuse model of a new product distribution is reviewed (Bass and Frank, 1969). In this model, the growth of number of innovative product consumers can be explained due to two effects:

1) The effect of advertising and effects of other marketing promotion means;

2) The effect of interpersonal communication.

At the initial stage of the product life cycle the effect of advertising is predominant, since almost no one knows about the product and, therefore, cannot buy it. As the number of consumers rises, advertising effectiveness is reduced, but the effect of interpersonal communication increases.

Intensified scholars' attention to research the phenomenon is caused by the need to predict its dynamics, in this case, the development of the virtual market. According to reviewed developments, spreading of innovation over time is the subject to the following conclusions: first, forces of positive feedback act, so that the diffusion of innovations is at ever-increasing rate. When the diffusion rate reaches a certain critical value, negative feedback is automatically turns on, slowing the rate of diffusion, which leads to the saturation of the innovation process. Non-linear nature of the innovation process means that each trajectory of diffusion reaches the saturation level within a finite period of time, which is the life cycle of innovation.

Mensch (1975) and Hirooka (2006) found that in times of depression economics is most susceptible to innovation. There is, according to the works of G. Mensch, "trigger depression effect", i.e. depression triggers innovation process. It is uneven and cyclical, and each time ends through diffusion with the formation of innovation clusters. Another outstanding feature of the innovation process is self-organization arising from the non-linear nature of the innovations.

On the base of big amount of empiric material Hirooka also proved the existence of a close correlation of the diffusion of innovations and great Kondratiev cycles and confirmed that the diffusion of innovations, through the mechanism of self-organization collect selectively a powerful cluster of innovation along the growth trajectory of great Kondratiev cycle. Today the world economy, according to the observed theory, is going through a phase of depression. Phase is likely to be completed by 2018, and then the next sixth Kondratiev cycle will begin, which will last until about 2060 (Akaev&Hirooka, 2006).Thus, the period from 2010 to 2025. (phases of depression and recovery) is the most favorable time for the development and implementation of a new wave of basic technological innovation, which will form the basis of the sixth technological mode. Most likely that computer technologies, including global information networks, and nanotechnology, their symbiosis, will become the dominant techno-economic paradigm of the sixth technological mode. It is assumed that computer communication technologies will play a key role in the design and development of innovative products based on nanotechnology.

It is important to emphasize that some innovations extend beyond one cycle to the next Kondratiev cycle, contributing to the emergence of new infrastructures and networks, creating a longer trajectory of development that Hirooka (2006) called infratrajectory (such as computers, aviation, biotechnology, etc.). Those innovations are called magistral (stem). They first spread creating new markets, then their potential expands and has a dynamic spread trajectory in many areas. After a time, they form a new infrastructure in the economy. Magistral innovation has a pervasive impact on the economy, contributing to the emergence of new infrastructures and networks, in the forms of any type of energy, driving forces, resources, means of transport, means of communication that occur independently. These types of infrastructures and networks provide a powerful boost to the economy growth through their synergistic effects, significantly expanding markets and stimulating a variety of further innovations, leading to the "exaltation" of the entire economy (Akaev, 2012).

Innovation that made it possible to digitalize information, and then create computers and the virtual global information and communication Network, belongs to such a magistral innovation; it generated information products, digital world,

multimedia, etc., which interact, reinforcing and enriching each other. It is a virtual environment and the virtual market today that form a new infrastructure, which has a pervasive impact on the economy and causing other driving forces. A pattern of information and communicative Network spreading in different countries of the world can be a reflection of the processes considered in the context of the article. The most far-reaching is the Internet penetration index.

Saturation by the Internet of the advanced countries indicates the transition on this technological platform to new innovations - improvement innovations. Now significant growth in technologies on development of the virtual market and commerce implementation is observed.

## RESULTS AND DISCUSSION

According to the data, presented by Statistical Bureau of Eurostat, 43% of Europeans aged from 16 till 75 years made purchase online in 2011. Leaders according to this indicator are Sweden and Great Britain (penetration of the Internet-trade is 71%), Germany (64%) and France (53%). Among outsiders, but thus having high potential, there was Italy (15%), Bulgaria (7%) and Romania (6%). According to the GroupM (USA)researches, average expenses of one Internet user in 2012 on online shopping in the USA and Canada exceed $1 thousand, thus growth rate of average expenses made 10,5%. According to forecasts, growth of level of average expenses will proceed up to 2015, but already with a smaller speed, than now ( http://www.emarketer.com ).

**Table 1.** Internet in Europe 30 June-2012.
(http://www.internetworldstats.com/stats4.htm)

| Countries | Internet Users, 30-June-2012 | Penetration (% Population) | Users % in Europe |
|---|---|---|---|
| Denmark | 4,989,108 | 90.0 % | 1.0 % |
| Finland | 4,703,480 | 89.4 % | 0.9 % |
| Netherlands | 15,549,787 | 92.9 % | 3.0 % |
| Norway | 4,560,5 | 96.9 % | 0.9 % |
| Iceland | 3,627,462 | 76.8 % | 0.7 % |
| Russia | 67,982,547 | 47.7 % | 13.1 % |
| Italy | 35,800,000 | 58.4 % | 6.9 % |
| Ukraine | 15,300,000 | 34.1 % | 3.0 % |

Now the considerable part of researches about economy development approves the priority of Internet-technologies as bas, on which other information innovations will quickly develop on a S-shaped logistic curve. So, they will leave two-dimensional space of modern computers and will pass to three-dimensional spheres, will bring to “Internet of Things”, when it will be possible to trace in the real and virtual markets each material object, equipped with built technologies for interaction with each other or with environment (Ashton, 2009).

All this will expand possibilities of the virtual market and will considerably strengthen its influence on economy of 21 century. Thus the theory of diffusion of innovations still will give the chance to predict and operate distribution of progressive technologies and efficiency of functioning in economy in time.

Spatial differentiation of the virtual market from the point of view of the Center-peripheral paradigm. The virtual market functions in close integration with the real market and, also as well as it, is spatially differentiated. Social and economic and technological features of the territory have a great impact on distribution of the virtual market in space. For research of this aspect of the virtual market the model of the relations “the center - the periphery” is most often used. Its development connects with names of Perroux (1963), Hannan and Friedman (1977), Hägerstrand (1985). In the simplest representation of modeling of the relations “the center - the periphery” thestratification and space polarization into two parts are allowed. One of them is identified as a kernel, the center or heartland. Another - the periphery or hinterland. Definition of the centers or kernels is the traditional operation, which provides a space centrography - a picture (pattern) of the centers. The center and the periphery at any spatial level are connected among themselves by the flows of information. Distribution of innovations and information happens at three levels: 1) from the leading economic region of national heartlandto periphery areas - hinterland; 2) from the centers of the highest level into the centers of the second order; 3) from the large cities to adjacent areas.

As a result of these interactions, despite of continuous pulling up of the periphery, a gap between it and the center remains. Contrasts “center-periphery” stimulate impulses of an emergence and a reconstruction of a territorial disbalance, which amplifies due to the unevenness of the economic growth.

Innovative approach considers as the centers the places of origin of certain innovations. Continuous domination of the center over the periphery is provided with continuous innovative activity: in the center the most intensive are contacts and

access to information. Economic domination of the center is provided at the expense of resources'removal from peripheral areas, that strengthens and fixes differences between them.

Research of Hägerstrand, in which he tried to build system of measurement of distances between the center and the periphery, was a considerable step forward. Basic provisions of Hägerstrand's works can be brought to the following (Hägerstrand, 1985):

1. Spatial diffusion of innovations has certain laws of distribution and can be simulated. Diffusion of the territorial distribution results from direct contacts — an innovation extend externally from the region of a source. The area of their distribution gradually extends, but is localized within the area of the appearance, becoming there numerous and pronounced. Diffusion of movement is connected with migration of the phenomena and subjects from an area of their appearance onto other territories.

2. Diffusion of innovations is the decisive factor in definition of social effect (first of all, migratory) for the center-periphery relations.

3. Speed of the diffusion depends not on geometrical distance, but on the transmitting ability of the certain cities, through which it is carried out; on how intensive and effective there are the contacts between people. Speed of distribution of innovations, which depends on an environment susceptibility to innovations, is important. There are diffusion barriers (ethno cultural, political borders), which don't pass an innovation.

A number of authors in a framework the "center-periphery paradigm" allocate the following types of territories and a stage of their interaction: creative territories (centers), which are engaged in development of innovations and their introduction into the activity of the industrial enterprises; adaptive territories – i.e. the near periphery, which accepts innovations and are near the center; conservative territories, which are, in fact, the far periphery, relying upon traditions and yet not accepting innovations. As well as the real market, virtual one passes the following stages of interaction of structural elements: formation of the center (clot) of commercial activity in the virtual market, activity outflow from the center to the periphery, inflow of intensity of interaction to the center, formation of the new centers on the periphery and adaptive territories .

In recent years the characteristics of a non-uniform surface of distribution, namely settlements of different hierarchical level, are investigated. Yuill's researches emphasize on typifications of barriers in territorial diffusion, and studying of their characteristics (Yuill et al., 1999). The understanding of the nature of barriers of different types allows using purposefully the channels of distribution of innovations with a low resistance for acceleration of diffusion or high-resistant buffer zones, for its delay.

Authors of this article studied spatial differentiation of distribution of the Internet in Ukraine and Russia (Litovchenko, 2011, Botushan, 2011). The hypothesis that territorial diffusion of the virtual environment and the virtual market is in close connection with processes of the territorial organization of real economy was made and confirmed.

On statistical materials of the Ukrainian news portal bigmir.net (on a portal in open access the month regional statistics of objects of Ukrainian administrative-territorial device is presented, since October, 2004) and the annual statistical collection of the country "A statistical year-book for 2009" two cards were made:

1. Economic capacity of the country (according to 7 economic indicators, including direct investments to the region, export and import, etc.);

2. Distributions of the virtual environment (an indicator is hosts) [graph 1].

Graph 1 is a map of distribution of the Internet is in Ukraine

Cards gave the possibility to see an overall picture of distribution of the virtual environment in Ukraine and intensity of its use, interrelation with the market in real economy. By the level of indicators Kiev and Kiev region are sharply distinguished. As well as in real economy, it is caused by "a capital phenomenon". Centralization within the country of political and economic life, the activity, connected with international relations, led to formation of powerful concentration of users (kernel) and high intensity of use of an Internet-environment in Kiev. Rates of a gain of new users here are also the highest.

At the same time researches showed discrete existence of second "kernel" in the territory of the country, which is connected with the concentrated industrial potential ("clot" of the industrial enterprises of metallurgical, mining, machine-building, chemical and etc. branches in the east of the country).

The similar picture is observed in Russia (graph. 2).

Information are received in open access from the http://runet.fom.ru/Proniknovenie-interneta/ 10598 website. Results of regular polls of Public Opinion Fund, carried out during the season (summer 2012) are spread out. Totally 39 thousand respondents elder than 18 years have been interrogated.

Graph. 2. A diagram of distribution of the Internet in Russia

As well as in Ukraine, in Russia large clots of the virtual market are observed:

1) The Northwest federal district - capital cities – Moscow and St. Petersburg

2) Central federal district;

3) Privolzskyfederaldistrict.

Thus, it is obvious that the virtual market reflexes the market in reality, is with it in close connection, and develops in reply to a great demand in information and innovative services and the goods, competitive fight in new conditions. At the same time, research of dynamics of weight of each district in Russia and area in Ukraine according to indicator"penetration of the Internet" showed the movement first from the center to the periphery, but in last years – from the periphery to the center, when because of economic and political factors in the center innovations continue to be increased, and on the periphery there is a stagnation.

During studying of spatial differentiation of the virtual market authors also determined the following consistent pattern: demand in the virtual market is closely connected with the demand in the real market. It is also subject to fluctuations, is characterized by seasonality, etc.

3. The Macromarketing virtual environment of activity of market subjects is different from a macromarketing environment in the real world.

Complex of factors, influencing on forming of Macromarketing virtual environment and her specific properties differs from the Macromarketing environment of the real market. Some of them are absent, other - strongly transformed and continue dynamically to develop, acquiring new specific features. In addition, factors prior ambiguous nits impact on the activity of the subjects on the market. Comparison of factors operating in the makromarketing environment in real and virtual economies are presented in the table

**Table 2.** Factors macromarketing environment in the real and the virtual economies

| Factor | Real economy | Virtual economy |
|---|---|---|
| Technicaland Technological | Special for each region, country. Depends on the national economic development level. | Ensures the existence of the Internet-environment. Unified technological, information standards, which provide equal opportunities to all users of the world. Impact due to the high level of development of branches of high-tech goods and services. Impacts by enhancing the role of information technology in the manufacture, distribution and sale. |
| Natural-climatic | Determines the modalities for the functioning of the enterprise. Affects the characteristics of raw materials and product, delivery and logistics. | Factor is absent |
| Socio-demographic | Covers the entire population | Covers only the users of the Internet. Is characterized by a high share of active educated, financially secure audience. |
| Political | Reflects the political structure of the country, the current political situation and legislation. | Democracy, there are practically no particularities of national law. The absence of borders. Information interaction with the authorities happens only at the request of users. Usual functions of the government are realized as "electronic government" – the concept, that provides connection between government, enterprises and population in Internet-environment. |
| Economic | Action is defined by the level of economic development of the country. | The action happens according to Moore's law. Considerable decline of expenses. Level of material sufficiency of population. Legislative basis of taxation sales of products and services are absent in some countries. |
| Cultural and national | The significant national and cultural differences between the countries and regions | There are tendencies to form the global cultural environment and language. |

A. Technical and Technological factor.

The greatest influence gains technical and technology factor (including a factor of innovative knowledge as a production factor). Without it is impossible both the virtual environment, and activity in it. It actively promotes rationing and standardization of productions, goods and services, processes of granting to their consumers in the globalized dual real and virtual economy. Besides, the following properties of knowledge as categories of our world are significant: it exists out of space (it can be consumed at the same time in different places by various subjects), doesn't possess a rarity (the volume of knowledge increases, but their value because of it doesn't decrease) and it depends on time (effect of obsolescence) (Katalevsky, 2011).

Because of the specifics of knowledge as factor of production, in post-industrial economy market rules and nature of the competition significantly change: development of information technologies facilitates an entry into the new markets, the

number of the multinational companies promptly grows, processes of globalization accelerates continuously and, due to features of the global information and communication environment, dependence of the companies on the events, occurring in remote regions and not related directly (so-called "Butterfly Effect"), increases etc. Speed of changes increases so much, that reliable forecasting of the future becomes almost impossible.

On the forefront there is an ability of the organizations to adapt flexibly for changing conditions of activity. Besides that there is a considerable aggravation of the competition, rules of competitive fight in the modern real and virtual market also change. As numerous researches in the field of strategic management showed, the winner in competitive fight often is the company, which the first entered the market ("effect of the pioneer") and established the technological standards of activity, or the company, which was managed to get the insignificant advantage in comparison with the competitors at the initial stage of development and over time considerably increased a separation (the principle "the winner takes it all"). There more and more often happens an effect of short circuit of the market on standards and production, which doesn't possess the greatest limit usefulness for users.

Despite a considerable aggravation of the competition recently, in a number of high-tech industries of modern economy the paradox of folding of monopolistically type of the competition is observed. The actual monopoly of the company Microsoft in the market of production of the software can be a bright example. Similar paradoxes are a consequence of that in post-industrial economy instead of the traditional law of decreasing return, the law of increasing return works: according to B. Arthur's researches, mechanisms of increasing and decreasing return exist in parallel in all branches. Decreasing return is valid in traditional sector of the economy, increasing return is typical for innovative sectors of economy (Arthur and Kim, 2005). Especially brightly this law is shown in the knowledge-intensive branches of high technologies.

Besides, the network effect is necessary –a lot of hi-tech products have to be compatible with a network of users. It is also important to create attachment of consumers and to create a circle of constant clients-adherents of firm: hi-tech products are usually difficult in use, demanding specific user skills. As a rule the user, spending the efforts for training, further doesn't wish to switch over to competing brands.

In the hi-tech markets as the virtual market is, such mechanisms create peculiar "effect of short circuit", which allows the products, which received even insignificant advantage on the market, successfully to increase it further. In the virtual market there are many examples, when the small, beginning companies successfully overtook the larger competitors: Microsoft and Apple, Google and Yahoo, prompt development of such Internet-projects as eBay, YouTube, Skype.

Thus, technical and technology factor in structure of the virtual macromarketing environment is transformed, becomes the predominating and defines new rules of competitive fight.

B. Economic factor.

First of all it is shown in decrease of a number of costs, which participants of economic activity incur, that is especially attractive during the crisis periods.

For users – individuals - it is a reduction of expenses while searching the necessary information to accept a decision about purchase, lower prices for goods and services, home delivery of goods, etc.

For the enterprises, firms and the organizations features of the virtual market allow to receive the following benefits at the expense of decrease in expenses in comparison with the real market (fig. 3).

Graf.1 Ways to decline of the costs of the enterprises when using the Internet technologies

We will consider them briefly.

The questions, connected with transactional expenses today are actively discussed in the scientific environment. Key to understanding of transactional expenses is the cost intensity of information. The theory and economic practice say, that part of the resources and time subjects of the market should spend on searching of the necessary information and its analysis, negotiations and assuring of the partner, an explanation of the position and achievement of a compromise, safety and settling of the conflicts. This category is one of the most difficult in the economic theory.

Generally the following types of transactional expenses are allocated:
Search costs;
Measurement costs;
Bargaining costs;
Contract enforcement costs;
Costs of protection against third party encroachment.

It is obvious, that costs for information search and negotiating considerably decrease with active use of new communication technologies of the Network. The volume of possible information, speed of its transfer, and adoption of optimum administrative decisions increases, that also increases efficiency of functioning of firm and its competitiveness.

Problems of asymmetry of information negatively affect the interaction "the seller-buyer". The works of the Nobel winners – Vickrey (1993) and Sir Mirrlees (1997), Spence (1974) and Akerlof (2002) theoretically proved, that tendencies to

strengthening of asymmetry of information, including about quality of goods, lead to continuous decrease in demand in the market. The Internet practically cleans this problem. The truth, arises another problem - large volume of information "frightens off". The subject of economy is rational restrictedly, it can't instantly analyse all data and make the optimum decision according to its interests. Even if exhaustive information is specially picked up by someone and providedat the right time, it needs to be realized.

Nevertheless decrease in costs for obtaining necessary data and decrease in asymmetry of information positively influences development of the market and attracts in a cyberspace the increasing number of participants.

C. Market researches received a new technological platform and opportunities and became much cheaper in virtual space. It is possible to note their following advantages: 1) in the virtual environment they are much cheaper, than in the real market; 2) marketing specialists have opportunity to study users at any time in the market of any scale – from local to global; 3) modern software products allowed to conduct so-called passive researches, i.e. to watch users without their permission. In this case obtain more authentic data on behavior of the consumer. The quantity of indicators can reach 600 (Uspensky, 2003); 4) specially developed software products allow to process quickly a big array of information on consumers and theirs preferences, features of perception of a information, etc. Now the whole section of market researches in the virtual environment – web analytics which offered the tools, the techniques of collecting and data processing - appeared and roughly develops.

D. Decrease in expenses for additional services. Modern technologies promoted "movement" of part of additional services at goods sale onto the virtual market. So, registration of the order for purchase and its payment, receiving consultations at an aftersales service is carried out today by modern firms in the conditions of the Network. It cuts cash and temporary expenditures as seller, and the consumer. The range of services extends and already today structural changes in some services sectors are observed. So, in Germany practically there are no tour agencies, as the consumer themselves can create and order a trip.

E. Decrease in expenses for sale. Transition tendencies from mass production to individual, especially in the B2B market are formed. Production of goods by individual inquiry exempts the enterprises from charges of warehouses, the personnel etc.

G. In recent years special value the communicative activity in the virtual market gained. Practice showed its high efficiency in new conditions at the expense of sharp decrease in expenses, possibility of targeting of messages depending on the purposes and problems of marketing communicative policy of subject of managing, control and measurement of efficiency of invested funds. Besides, especially attractive to marketing specialists are steel rather cheap in comparison with the real market new instruments of communication, such as SEO, blogs and forums, virtual communities, virtual games and the worlds.

As a whole, it is possible to state, that other economic factors in the macromarketing environment also influence on activity of subjects of the market. The offered by authors classification of expenses, which decrease due to properties of the Network, demands further judgment and specification. However tendencies now are attractive and obvious, and dynamics of development of process – is predictable.

**The heterogeneity of the virtual market**

Virtual market is non-uniform, different segments are formed: B2C market (business to consumer), B2B (business to business), B2G (business-to-Government), G2G (State structure-the structure of the State), G2C (State structure-the consumer). The centers of the virtual market B2Clocalizedspatiallyin the capitals and regions of large agglomerations, the market B2Bformed in the industrial centers of the real economy.

There's extensive literature on the study of each of the segments. But often, the researchers did not take into account the fact that these markets are closely connected. The entry and effective activities of any company in the supply chainletforthe B2B market requires a good knowledge of the market and the demand for eventual final products in the chainlet.

**There are other, compared to market in real environment, economic actors.**

There are many specific participants of virtual market: individuals - web users, customers – businesses (the so-called hybrid companies; they implement integrated business activity in the real and in the virtual markets) and virtual companies (carry out economic activity only in the virtual environment), specific distributors, there is the specific infrastructure for business, and unique places for commerce (such as online Internet- shops).

**The model of consumer's behavior changes.**

Modern information technologies have strong impact on a model of consumer's behavior in the virtual market. Studying of consumer'sbehavior (both physical and legal persons) - is a research of all economic, social and psychological influences, which influence the process of preparation and implementation of purchase, using the acquired production, including transfer of the got experience to other persons. In the conditions of the rigid competition in the modern globalized economy there is a problem of understanding of what occurs in consciousness of the consumer from the moment of receipt of external marketing incentives, completing acceptance of a final decision.

In the conditions of post-industrial society the knowledge becomes the main resource, and the economic activity, based on limitation of resources, gives way to the economic activity, based on abundance of information and ways of its transfer. The priority of knowledge acquisition and emergence of the increasing number of non-material requirements leads to formation of new model of consumer's behavior. Other opportunities of the virtual market in comparison with real transformed behavior of the consumer gave him new qualities and caused changes in relationship "seller-buyer". For the virtual organizations, providing exclusively informational goods and services in the virtual environment, research of this problem get the special relevance.

Actions of the modern buyer-individual are the result of a difficult multi alternative choice that was proved by (Heckman and Burton, 1985) and McFadden et al. (1974). Broad access to information due to a global information Network today gives the consumer much more opportunities in maximizing usefulness, and it reduces to a higher level of his satisfaction. The treatment of usefulness extends and alternative opportunities at implementation of a consumer choice increase. And simplification of an interaction of the consumer with the producer creates preconditions for the consumer interests' shift from the long-term period to the short-term. In the conditions of the increase of consumer's degree of knowledge, decrease in asymmetry of information the possibility of adoption of flexible and adequate decisions grows, that is necessary to consider at development of forecasts of consumer's behavior.

Besides, there is an increase of the consumer influence on the process of a product formation, when modern information and communicative technologies allow to combine satisfaction of individual requirements with effective production in the conditions of the global market. All this leads to formation in economy of an era of the consumer.

Now the attention to research of consumers' behavior in the virtual market and to the formation of behavioral models conceptions increased. The last development in this direction and attempts to systematize them should be noted. Models describe behavior of the consumer in the virtual environment from the various points of view because of what they differ by degree of the accounting of separate effects and the relations, which are taking place while acquisitioning the goods in the conditions of the virtual market.

The researches (Begalli, 2009) by means of the adapted 7Cs model Rayport and Jaworski (2001) are perspective. The characteristics of the website, influencing decision-making, are considered. In the 7Csmodel the following seven parameters are considered: contents, choice, context, comfort, convenience, support of clients and communications. It is important, that market researches were conducted in the B2B market by questioning; selection made 272 known wineries of Italy. Results of research were used for development of strategic solutions of behavior of plants in the virtual market.

The model of communication influence, offered by DeValck (2005) is interesting. In a model the influence of social and information networks on the process of purchase decision-making is considered. The results, received within research of model, show seven main stages of decision-making. It is proved, that virtual communities serve as reference groups, which differ from traditional by theirs non-uniform character, and communications within have the essential impact on consumers' behavior.

In our opinion, the tripartite model of online decision-making, offered by (Stenger, 2007), is perspective. In the model Stenger supposes that the triangle of relationship on the Internet, which will form the buyer, the seller and the legislator is perspective. As the legislator the intermediary, who encourages an exchange between the buyer and the seller, can act. Consumers perceive purchase from a position of risk of the wrong choice of goods. For this reason they are looking for information and recommendations from various sources. Proceeding from it, within the model six main scenarios to descript the consumers' decision-making process in Internet are developed. Much attention in works of this researcher is paid to interactivity in providing information in the virtual market.

Authors conducted research of behavior of Ukrainian enterprises-consumers at an information search stage and decision-making stage in the B2B market in virtual economy. In Ukraine the industrial complex plays the leading role in ensuring its major strategic interests and is one of the basic backbone elements of other vital spheres of the state. Thus, studying of competitiveness and activity prospects of such enterprises gains special valuein modern economy. In this regard authors offered and investigated the system of indicators, which influence the enterprises-consumers'behavior and display efficiency of functioning of the enterprises-sellers in the virtual market (table 3).

**Table 3.** Indicators, which characterize the effectiveness of performance on a virtual market

| Indicators which characterize external activity behind a website framework | Indicators which characterize internal activity of own website for users |
|---|---|

| | |
|---|---|
| Time of functioning in Net, month | Presence of price-list |
| Rating in category “Industry” (top.bigmir) | Possibility to order production on application |
| Visitors, host/ month. | Possibility to pay for production |
| Views, hit/ month. | Region (number according to list) |
| Visitors from Ukraine, % | Interactive conversation, including skype, forum |
| Visitors fromCIS, % | Quantity of language versions |
| Visitors from Europe, % | Presence of questionnaire |
| Average depth of view, pages | Addresses of dialers |
| Average quantity of sessions, days | Quantity of counters, participation in TOP |
| Average time of view, days | Delivery |

**CONCLUSION**

On these indicators the research of the Ukrainian industrial enterprises’behavior, namely their activity in website visiting during the period January-March, 2011is conducted. Selection was created on the basis of information of the most known searchers - Google, Rambler, Yandex, Meta and statistical information of the Ukrainian portal “big.mir” and made up 100 enterprises. Selection included the industrial enterprises, which websites in a rating of attendance took the first 150 places.

Research was conducted by the cluster analysis. By the means of a method of k-averages, the structure of each cluster first was determined by indicators of the 1st group (external activity behind a framework of own website), and then by indicators of the 2nd group (internal opportunities of the website for users).

Results of calculating according to features of 1st group showed 2 clusters (structure: 29 and 71 enterprises). Researches of industrial enterprises, which belong to 1stcluster, gave the possibility to mark out the next peculiarities:

Production of enterprises, that appertain to cluster, has a demand in international market;

Quantity of requests makes up more than 1 000 hits/month;

Into place in a rating the ‘age’ of site (period of being) in Internet-environment don't influence;

Scale of cluster’s indicators depends on demand factor in real economy. As the research had been performed during the winter and before spring, in the selection the machine building industrial enterprises, which specialize on the agriculture, machinery construction and occupy high positions in rating of attending had been occurred.

Territorial structure of cluster according to 1st group of indicators is shown in illustration graph 3.

Graf.3 Territorial structure of cluster according to 1st group of indicators

Very concentrated dispersion of distribution of the industrial enterprises, which production has demand in the international market and which are characterized by intensive international economic relations is visible. Such enterprises are concentrated in capital and its neighborhoods and in developed Ukrainian regions in the West (Dnepropetrovsk, Donetsk, Kharkov and other areas), they are characterized by the most intensity of demand among internet-users. Some regions haven’t been got into the random sample as they have no industrial enterprises, which perform intense activity on a virtual market.

Second cluster amounts to 71 industrial enterprises, which have such special features:

Quantity of requests makes up less than 1 000 hits/month;

Activity of enterprises concerns internal market.

Multidimensional data bucketing of the researched enterprises according to the indicators of the 2nd group permitted to allocate 4 groups of objects. The belonging to one or another cluster was determined by the interactivity of web-site and by the presence of economic character (price-list, addresses of dialers, possibility to order and pay etc).

Also authors conducted the research of behavior of industrial consumers concerning their interest in information which is submitted on a site. On a web-site of the producer of hardware production (JSC“Stalkanat plant”) the questionnaire from 9 questions was placed. These questionsfor convenience can be divided into the following blocks:

1. Structure of sources of information for making decision on purchase;
2. Specifics of using the virtual space in the course of information search about production;
3. Perception of a site by consumers of hardware.

Online poll was carried during to the period from 1.04.09 to 1.05.09. From 127 respondents, who entered into selection, 32 answered the questions of the questionnaire (the response made up 20%). Results of questioning are processed by the cluster analysis. On the basis of researches the portrait of the typical consumer of hardware which looks for information in a network to make the purchasing decision is made. Characteristics of the typical consumer are based on intrinsic features of the most numerous clusters.

Consumer of hardware:

- perceives the Internet as the integral component of process of information search about hardware for making the purchase decision;

- uses such sources of information of the Internet, as search engines, branch portals, sites of the large industrial enterprises. It confirms the need of using the information intermediaries' sites for communicative activity implementation;

- uses Google for information search (as a rule). It defines the expediency of application of such element of Internet communications, as search engine optimization - to adapt the site content under the requirements of this search engine;

- gives advantage to an independent search in a network, without being satisfied with the offers, received by e-mail. It confirms the need of a complex application of Internet-communications;

- defines need of existence of a corporate site of the enterprise seller, and applies the data, stated on a site, as information source;

- as the most significant data, stated on a site of the hardware enterprise, notes the price-list, detailed information about production, a forum, news of branch and analytics.

Thereby, the research showed the complexity, multifactor and variability of processes, connected with the enterprises-consumers' behavior on the B2B-market. Besides, the interconnection in behavior on a real and virtual market, which is determined by duality of a considered open economic system, is revealed.

Necessity of application of new marketing conception - Internet marketing.

Author proposes, for successful marketing activities enterprise in a virtual market, to use a new marketing concept — Internet – marketing or informative marketing. It offers to use a new tools in global communication network to meet the needs of the customer and obtain additional capacity for the effective functioning of all participants in the virtual market.

It is desirable to underline that maintenance of term «conception» means general intention, strategy of actions during realization of projects, plans, programs. Informative conception consists of the following 4 - x blocks.

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