

NETWORK COMMUNITIES OF ELECTRONIC SPACE: ACTUAL AND FUNDAMENTAL STRUCTURE OF FUNCTIONS IN THE PROCESS OF GLOBAL ECONOMIC DEVELOPMENT

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UDC 339.9:[316.772.3:004.738.5]

Eshchenko E. O. Network Communities of Electronic Space: Actual and Fundamental Structure of Functions in the Process of Global Economic Development

The article is aimed to identify the functions of network communities of electronic space and define stages of their development as a form of economic relations on the base of analysis of formation and development process of these communities. As a result of the study, all the functions of network communities of electronic space have been grouped into three basic ones: informational, organizational and communication and optimization functions. While network communities develop and implement their functions, their role in the functioning of economic ties also changes. According to this three stages of development of network communities of electronic space as a form of economic relations have been allocated: 1) complementary; 2) equivalent; 3) dominant form. The dynamic development of network communities and increasing implementation into business practices necessitate their further studies. Advanced areas of further research include the analysis of the institutionalization of network communities as well as the risks caused by these communities.

Key words: network communities of electronic space, functions, post-industrial stage of development, the form of economic relations.

Pic.: 1. **Bibl.:** 10.

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УДК 339.9:[316.772.3:004.738.5]

Ещенко Є. О. Мережеві спільноти електронного простору: актуальна і фундаментальна структура функцій у процесі розвитку глобальної господарської системи

Метою статті є виявлення функцій мережевих спільнот електронного простору і визначення етапів їх розвитку як форми господарських відносин на основі аналізу процесу формування та розвитку цих спільнот. У результаті дослідження всі функції мережевих спільнот електронного простору були згруповані в три основні: інформаційна, організаційно-комунікаційна та оптимізаційна. По мірі розвитку і реалізації функцій мережевих спільнот змінюється їх роль у функціонуванні господарських зв'язків. На основі цього було виділено три етапи розвитку мережевих спільнот електронного простору як форми господарських зв'язків: 1) доповнююча; 2) рівнозначна; 3) домінуюча форма. Динамічний розвиток мережевих спільнот і все більша імплементація їх у господарську практику зумовлюють необхідність їх подальшого дослідження. Перспективним напрямком є аналіз процесу інституціоналізації мережевих спільнот, а також ризиків, що породжуються такими спільнотами.

Ключові слова: мережеві спільноти електронного простору, функції, постіндустріальна стадія розвитку, форма господарських зв'язків.

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Ещенко Е. О. Сетевые сообщества электронного пространства: актуальная и фундаментальная структура функций в процессе развития глобальной хозяйственной системы

Целью статьи является выявление функций сетевых сообществ электронного пространства и определение этапов их развития как формы хозяйственных отношений на основе анализа процесса формирования и развития этих сообществ. В результате исследования все функции сетевых сообществ электронного пространства были сгруппированы в три основные: информационная, организационно-коммуникационная и оптимизационная. По мере развития и реализации функций сетевых сообществ меняется их роль в функционировании хозяйственных связей. На основе этого были выделены три этапа развития сетевых сообществ электронного пространства как формы хозяйственных связей: 1) дополняющая; 2) равнозначная; 3) доминирующая форма. Динамичное развитие сетевых сообществ и все большая имплементация их в хозяйственную практику обуславливают необходимость их дальнейшего исследования. Перспективным направлением является анализ процесса институционализации сетевых сообществ, а также рисков, порождаемых такими сообществами.

Ключевые слова: сетевые сообщества электронного пространства, функции, постиндустриальная стадия развития, форма хозяйственных связей.

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In recent years network communities of electronic space have become an integral part of life either for real users or for business representatives. They continue to develop intensively and increase rapidly users' mass. According to eMarketer analysts, in 2013 1.61 billion people worldwide visited and used social networking sites with any electronic device at least once a month. This is about 14.2% more than in 2012. It is expected 12.6% growth in 2014. The forecast suggests that in 2017 such sites as Facebook, Twitter, LinkedIn, Google will be visited by 2.33 billion users [8]. This dynamic development of online communities and their application in economic practice is of interest of economic science and requires theoretical understanding of this phenomenon.

The conceptual approach to the study of network communities is conducted by G. Reinhold, B. Wellman, G. Hodgson, V. N. Danich, S. Konoplitsky, S. O. Kremleva, E. D. Patarakin et al. Relationship of economic entities in the electronic space are considered in proceedings of J. Hou, A. Davydov, Yu. Ratushin et al.

Purpose of the investigation: due to the analysis of the formation and development process of network communities of electronic space define their functions and identify stages of their development as a form of economic relations.

In the second half of the twentieth century the production and dissemination of information has become the main economic activity in different countries [1, p. 4]. At the end

of the 80-s traditional industries began to change actively and new professions (related to the collection and processing of information) began to form, the fundamental theoretical knowledge transformed, having increased their value in the innovation process [1, p. 4].

Information and communication technologies and their dynamic development and wide spreading in all areas of human life allow to implement business practices in cyberspace, transferring certain operations and even entire business processes into the electronic environment. And network communities are actively used for these purposes.

In this research network communities as a category of economic science will be defined as a set of relations between actors united over the formation and use of the rules of interactions for the assignment information in the process of its production, exchange and consumption (according to the author's previous research [4]).

Network communities have a number of functions that can be grouped into three main groups, namely:

- ✦ information function;
- ✦ organizational and communication function;
- ✦ optimization function.

Knowledge (intangible assets) presented in network communities is “stacked” in the form of structured content (information and intellectual thesaurus resource) to the appropriate cell-based intelligent unified format that provides the opportunity for formal mathematical electronic (online) analysis and synthesis of various chains of knowledge, identical economic operations [9].

While electronic network communities are functioning the exchange of information and conduct of a variety operations between market participants are arising. That can be characterized as a movement of content – a variety of intangible assets (information, knowledge, copyright, “digital” assets, liabilities, derivatives, etc.) – between the cells of the network community [9].

Network communities make it possible to find, organize and use information about customers (e.g., watching the communication in such communities the firm can obtain information about consumer attitude to its products, its shortcomings and wishes to eliminate them), suppliers, partners (in online communities business partners can be found), competitors, intermediaries. Also it becomes easier to obtain information about the market, the demand parameters, etc. All the above features can be attributed to the information function of network communities.

Organizational and communication function reflects the following: network communities is an electronic environment where the infrastructure for the deployment and implementation of various operational functions is created. This occurs on the basis of representations of any intangible asset as electronic content, which then moves, converts and transforms as normal resource (product) and can be used both for its own purposes (for consumption) and for the value-added production. From this point of view, for example, electronic document circulation (the actual topic today) looks not just as an automation of office work and business processes, but also as the ability to use knowledge (content), which is contained in electronic documents, for the functionalization (creation, modification and implementation of various functions) of business processes in order to achieve certain economic goals [9].

Network communities provide wide range of opportunities for the implementation of self-organization mechanisms in building economic functions (policies, strategies, etc.), as well as structuring the relationship of market participants on the basis of accounting changes of various factors [9].

Today many companies use network information and communication technologies to work both within the company (corporate communication, creating closed communities, socializing in thematic networks for training), and outside of it (advertising and sales, image formation and loyal users creation).

Optimization function of network communities is expressed in reducing the cost of collecting information, communication etc. Material production by nature should be considered through the prism of rationality, and rationality in economics is always estimated by the size of the profit [9]. Therefore, the creation of electronic community in the multifaceted dynamics of social development should be based on the principles of economics in order to assess, evaluate and manage the development. On the other hand, given the increasing globalization, there is a necessity of constantly minimization of production costs based on the creation and use of a variety of intangible assets to ensure the full development of the social and economic relations within the requirements of the new era.

Online technologies allow economic relations, as well as the process of creating intangible benefits, take the form of e-existence, a feature of which is the network nature of its structure, low cost and the fact that the events in it occur instantly. These circumstances open up new economic prospects and opportunities. Thus, “business at the speed of thought” becomes possible as well as the production is extremely dispersed on external co-authors, and therefore much more flexible and cheaper than it is now [2].

In supercommunicative modern world network communities are a social capital: an information and communication between people, that can be used to achieve their goals, in particular to build up their financial, information, human capital [6, p. 126 – 129].

Network communities establish new types of relationships – more informal than it was previously; online networking can fill important gaps inherent in traditional relationship building; due to network communities “flattening” of the traditional organizational hierarchy is accelerated (reduce the number of stages in it); a new value for all members of the social graph is formed due to significantly multiplied network effects [10, p. 69]. It allows to consider network communities as a part of social capital, the source of its formation, capacity and maximization.

Network communities provide almost instant access to the buyer. If earlier it was necessary to take into account the numerous geographical and seasonal factors, now their influence is being plummeted down. An entity may refer to a clearly defined target group and to present itself as a competent partner for those who is looking for information and communication platform offering opportunities to share experiences.

As network communities develop and realize their functions their role in the functioning of economic ties is being changed. In the beginning, when the main function is information one, network communities complement the main forms of economic interactions, with the development of the optimization function network communities are increasingly turning into equivalent forms and when they perform either information, or optimization, or organizational and communi-

cation functions, while the latter becomes the basic one, network communities become the dominant form of economic relations.

Correspondingly there can be identified three stages that characterize the impact of network communities on the post-industrial stage of economic development, where the nature of technological linkages is changing (Fig. 1) [3, p. 4].

1. Network communities as a complementary form of economic relations.
2. An equivalent form of economic relations.
3. A dominant form of economic relations.

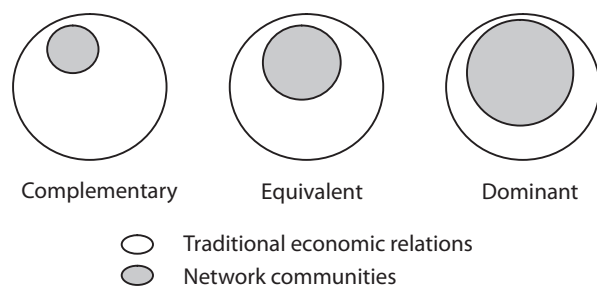


Fig. 1 Stages of network communities' development as a form of economic ties

Source: compiled by the author.

These three stages are directly related to the technological basis of the network communities' development.

The first stage begins with the appearance of the first decentralized network (1969) ARPANET (created for military purposes, but used for personal communication), formation in the 80s ARPANET (which later became the Internet) – a net of networks, and spreading in 1983 of operating system UNIX, that allowed computers not only to transmit but also encode and decode the data packets, traveling at high speed over the Internet [7].

In 1973, the network had 25 computers; in the mid-70s – only 256; in the early 80s, after a period of significant growth, it was limited to about 25 networks with several hundred base of computers and several thousand users. In the 90-s the Internet became the “backbone” of a global computer communications, gradually uniting most of the networks with each other. In the mid-90s it linked 44,000 computer networks and about 3.2 million host computers worldwide with approximately 25 million users and expanded rapidly. Then there was an avalanche development [7]. In 1999, there were about 93 thousand users, in 2002 – 58 million and in 2004 – about 1 billion users. Today there are 2.7 trillion Internet users, or about 2/5 of the world population [8].

In 1979 there was created a modified version of UNIX, which linked computers through ordinary telephone lines. It was used as a forum for computer discussion on-line-Usenet (one of the first major systems of electronic conferences) [7].

Thus, the first stage is characterized by the fact that the link (but not the relationship) was in the foreground, and network communities were a kind of a tool for implementing business practices and performed a complementary role [3, p. 5].

The first online communities, experimenting with computer communications, appeared in the 70s in the Bay Area of San Francisco. In 1985 one of the most advanced conference systems WELL was launched, its members were the pioneers of social interaction on the Internet: Stewart Brand, Larry Diamond and Howard Rheingold [3, p. 4]. Such communities as Usenet

News, FIDONET and BBS spread new forms of interaction and network usage: messaging, mailing lists, chat, multiplayer games, newsgroups and other. Initially, in the United States and then around the world there was developed Bulletin Board System (BBS) – electronic bulletin boards, and the so-called virtual communities appeared. In today's world there are thousands of such “micro grids”. By the mid-90s most of them had also been linked to the Internet, but they retained their identity. One of the basic rules – the elimination of the invasion of BBS hidden commercial interests. Although the creation of commercial BBS or business-oriented networks was recognized as legal, but invasion of community created for other purposes was illegal [7].

Decentralized networks are characterized by “communicative self-organization”: the information content is determined by the users themselves (user-generated content). This marks the second stage: the network communities are spread everywhere, starting to play an increasingly important role in the socio-economic ties. They become the equivalent forms of economic relations [3, p. 5].

At this stage the Internet development was on the base of the so-called Web 1.0 (web-technology, that enables each user to receive information and interact with other users). Program WEB-browser (developed in 1992) allowed to group the various interests and projects into networks. There was a “network economy” built on the principle of “open source”: each user is involved in the production of information products and at the same time he is a consumer. Following examples demonstrate the use of Web 1.0 capabilities: initial information sites of establishments, news agencies, placement of traditional (print and audiovisual) media in the Internet, personal “home pages” – a set of texts and images [5].

The third stage: in 2001 there was a technology Web 2.0, which marked a new stage in the development of network communities (it gave the opportunity for users to organize their interaction, exchange and carry out further processing of information). Terry Flew in the third edition of his book “New Media” described the difference between Web 1.0 and Web 2.0, as “move from personal websites to blogs and blog site aggregation, from publishing to participation, from web content as the outcome of large up-front investment to an ongoing and interactive process, and from content management systems to links based on tagging (folksonomy)” [5]. With Web 2.0 “informational content” becomes a derivative of the participation of many users in the process of adding and editing information. Everyday users create new variable network communities that offer new or otherwise arranged information. By analogy with the “network economy”, this process is called “Peer Production”: cooperation of equals, like-minded people in the free networks with the aim of co-production of information products and services. It is characterized by the presence of three essential components: the equal participation (democratization of the information environment); information “chain” (any innovation changes the content and quality of all information supply for all users); transparency (the process of creating information in the network is completely transparent – everything can be discussed, confirmed or questioned) [5].

Thus, the process of formation of network communities as the dominant form of economic activity (from a complementary form to the equal and dominant) is closely associated with the development of information technology [3, p. 6].

CONCLUSIONS

Therefore, network communities of electronic space have three main functions: information (collection and systematization of information about customers, competitors, intermediaries and other economic agents, market monitoring, information about the parameters of supply and demand, etc.), organizational and communication (organization of online interaction, coordination, management and regulation of economic processes) and optimization (reduction of transaction costs, leveling parameters of time and space, the acceleration of business processes and their automation).

With the development of network communities and complete implementation of their functions their role in the economic relations changes from complementary, to equivalent and to the prevailing forms of economic relations, which is the basis of post-industrial stage periodization:

Stage I – network communities of electronic space are a complementary form of economic relations, acting as a tool of economic activities with a focus on the connections rather than on relationships.

Stage II – network communities of electronic space function as equivalent form of economic relations (with the growth of self-organization the content of information, circulated in network communities, is defined by users; there is a spreading of network communities and implementation of various operational functions, which ensure the commercialization of various intangible assets).

Stage III – network communities of electronic space become the dominant form of economic relations (network community is a cooperation of equal agents and supporters of free networks for joint production of information products and services. Most of the business operations are transferred to the electronic space where interaction takes place in real time).

As we could see network communities develop rapidly and implement into business practices. Accordingly there is a necessity for their further studying. Advanced areas of further research include the analysis of the institutionalization of network communities as well as the risks caused by these communities. ■

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