

Theoretical Foundations of the Formation of the Internet Economy

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ABSTRACT

Today, the Internet economics research area is one of the most promising in Russia. The Internet economy is only at the first stage of its development. The history of the Internet economy is only about 35 years old. In the history of mankind in such a short period, no great invention could become so massive and accessible to all.

We conduct an analysis of the structural processes occurring in the modern information (new) economy. We distinguish the e-economy and the internet economy, which is a consequence of the evolutionary development of the e-economy. We consider the definitions of the basic elements of the e-economy and the Internet economy: e-business and i-business, e-commerce and i-commerce, an Internet project and an Internet company website.

Keywords: Internet economy, e-economy, virtual economy, information (new) economy, information society, website, e-commerce, Internet commerce, IT technologies

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Теоретические основы формирования интернет-экономики

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РЕФЕРАТ

На сегодняшний день научное направление «Интернет-экономика» является одним из самых перспективных в России. Интернет-экономика находится только на первом этапе своего развития. История интернет-экономики составляет всего около 35 лет. В истории человечества за такой короткий период ни одно великое изобретение не могло стать таким масштабным и доступным для всех.

Произведен анализ структурных процессов, происходящих в современной информационной (новой) экономике. Авторы выделяют электронную экономику и интернет-экономику, которая является следствием эволюционного развития электронной экономики. Рассмотрены определения основных элементов электронной экономики и интернет-экономики: электронный бизнес и интернет-бизнес, электронная коммерция и интернет-коммерция, интернет-проект и веб-сайт интернет-компании.

Ключевые слова: интернет-экономика, электронная экономика, виртуальная экономика, информационная (новая) экономика, информационное общество, веб-сайт, электронная коммерция, интернет-коммерция, ИТ-технологии

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To date, the question of the place and role of the Internet economy in economic science remains unresolved. Some researchers believe that the basic laws of classical economics directly correspond to the Internet economy, others believe that the Internet economy develops according to its own laws and categories in connection with the peculiarities of the basis of its functioning, the Internet.

For most individual users, the Internet is primarily social networks, forums, blogs and email. The network is also actively used to search for products, compare prices and reviews, make purchases [2, p. 49]. For companies, the Internet is basically a way to communicate with suppliers, partners and customers. Gradually, the Internet becomes an independent sales channel and a way to automate business processes. The government of the country uses the Internet to provide services to the public and companies. The government plays a key role in shaping the legislative framework that has a direct impact on the development of the Internet in Russia.

The concepts of “network economy” and “virtual economy” can be viewed as synonymous, the concept of “e-economy” is not synonymous with “Internet economy”. The concept of “electronic economy” reflects a wider range of issues of the functioning of the economy, rather than just focusing on the Internet.

E-economy is a set of economic relations, covering all parts of commodity production, distribution, distribution of goods and the realization of tangible and intangible benefits that occur through electronic data exchange using telecommunication networks [13, p. 34].

The basis of the electronic economy is information technology-the subject of research systems engineering, computer science, Cybernetics, mathematics, Economics. Information technology is a computerized means of generating, storing, transmitting and using information in the form of scientific knowledge and its applications. Computerization is the replacement of manual or mechanical electronic data processing. The object of computerization is information flows in both production and non-production activities.

Under the term “telecommunication networks”, we believe, it is necessary to understand the definition given in the Federal Law “On Communications¹”, namely “telecommunication networks-technological systems that provide one or more types of transmission: telephone, Telegraph, Fax, data transmission and other types of documentary messages, including information exchange between computers, television, sound and other types of radio and wire broadcasting»

As well as electronic data interchange or EDI (Electronic Data Interchange), the concept of e-business appeared long before the ubiquitous spread of the Internet. We believe that e-business, in its earliest forms of manifestation, was born at the end of the 19th century.

The main events in the development of the e-business concept are presented in Table.

The concept of “e-business” is broader than the concept of “e-commerce” [12, p. 58]. The term “e-commerce” covers only commercial activities. The concept of “e-business” covers the entire system of relationships with partners and customers. E-business is a business mainly carried out with the use of information, network and telecommunication technologies and models. An integral part of e-business can be an internal organization of the company on the basis of a single Intranet information network, which increases the efficiency of interaction between employees and optimizes the planning, management and external interaction with partners, suppliers and customers through the Extranet.

The first e-commerce systems, as a form of e-business, originated in the early 70-ies of XX century and were used in transport companies for booking tickets, as well as for the exchange of data between different services in the preparation of flights. Around the same period, there were other forms of e-business: ACS (automated control systems), aimed at automating the business processes of the enterprise.

¹ Federal Law “On Communications” dated 07.07.2003 N 126-ФЗ (ed. 03.08.2018) [Electronic resource] // ConsultantPlus: [reference and search system]. Access mode: <http://www.consultantplus.ru>. (the date of appeal June 17, 2019).

The main events in the development of the e-business concept until the end of XX century

List	The main events
1	1876 — American inventor Alexander Bell receives a patent for the invention of the telephone
2	May 7, 1895 in the Russian physico-chemical society Alexander Popov demonstrates a system for transmitting electromagnetic signals, a receiver which served as a «device for detection and registration of electric oscillations» — the world’s first practical radio and transmitter — the Hertz dipole. In 1945 was established public holiday — radio Day, celebrated annually on may 7
3	On June 25, 1907, Russian scientist Boris Rozing applied for the «method of electric transmission of images at a distance», thus becoming the founder of electronic television
4	The advent of computers with electron tubes in 1942–1954, specialized on the solution of the formalized tasks of wartime or destination
5	The creation of a computer network called ARPANET in 1969 for the exchange of scientific information between the staff of the Agency for advanced research under the Ministry of defense (Advanced Research Project Agency — ARPA). ARPANET is a prototype of the Internet. In case of defeat of individual sections of the network, the existing nodes will automatically redirect data through an intact communication channels. This reliability was intended to control the military potential of the United States, even in the case of a nuclear strike. In the USSR, six years before the construction of this network, there was a plan to create a State network of computer centers (HSC), however, it was not implemented in practice, which deprived our country of a possible priority in this area
6	Development and implementation in 1972 of «e-mail» — the most popular application of ARPANET. E-mail became the first type of communication that allowed to transmit text information at a great speed at a distance [1, p. 47]
7	Development and implementation in 1972 of «e-mail» — the most popular application of ARPANET. E-mail became the first type of communication that allowed to transmit text information at a great speed at a distance [9, p. 148]
8	The concept of «electronic business» gained particular popularity in the 1970s in financial institutions, in particular in financial computer networks, which used the appropriate hardware and software
9	In October 1977, IBM registered the term «electronic business» as a trademark, meaning the transformation of the main business processes using the network [7, p. 35].

In our opinion, *e-commerce* is a form of e-business implementation for the implementation of commercial transactions with the predominant use of electronic means of data exchange through telecommunication networks. Under the electronic communication refers to the EDI network, Telegraph, telephone, radio, television, the Internet, etc.

The relationship of e-commerce and e-business, as the main elements of the e-economy, is presented in Figure 1.

Each of the sciences considers information technology in relation to its subject. A. Kuritsky [8, p. 26] gives the definition to information technologies: “information

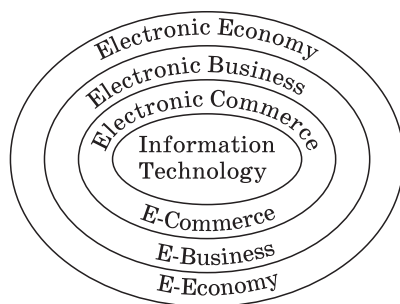


Fig. 1. The relationship of the basic elements of the electronic economy (E-economy) [13, p. 36]

technologies — the computerised ways of development, storage, transfer and use of information in the form of scientific knowledge and ways of their application. Computerization is the replacement of manual or mechanical electronic data processing. The object of computerization is information flows in both production and non-production activities”.

The main disadvantage of the first forms of e-business was the lack of accessibility. The emergence of the Internet has led to the emergence of new forms of e-business and e-commerce due to the low cost of information transmission and global international distribution.

The Internet economy is gradually being formed from the e-economy. *The Internet economy* is an economy in which the strategy and tactics of economic activity, covering all parts of commodity production, distribution, distribution of goods and consumption of material goods are based on the use of Internet technologies [13, p. 12]. The Internet economy is a system-organized layered structure based on online-relationships between commercial agents.

The beginning of the development of the Internet economy can be considered January 1, 1983. This year, the process of integration of individual local networks has ended and a single unified data transmission network “Internet” has been formed. The name of the network “Internet” received on behalf of the data transfer protocol (Internet Protocol). In 1989, at the European Laboratory for Elementary Particle Physics (CERN) in Geneva, Englishman Tim Berners-Lee created the technology of hypertext documents — the World Wide Web (WWW) pages. World Wide Web — has become a global hypertext system. Pages are multimedia documents that include text, graphics, sound, video or animation, hyperlinks to other documents.

Internet business arises simultaneously with the advent of the Internet. *Internet business* is a form of electronic business realized by means of internet technologies. Internet business began to develop in 1993, when individuals and companies were allowed access to the Internet [12, p. 56]. In the same year, the first browser was created. Internet browser was a software that allows you to contact the server to access documents on the Internet, follow the chain from document to document or from page to page. Thus, consumers were able to quickly access information and communicate with each other, regardless of their geographic location.

This activity began to make a profit. In 1993, more than 100 countries were represented in the network, the number of commercial consumers surpassed the number of academic consumers.

In 1994, banks and sales offices were included on the Internet. Since that time, the development of *Internet commerce* began. Initially, Internet commerce was not perceived as a separate and specific phenomenon, there was a simple transfer to the Internet of traditional commercial mechanisms.

In Russian literature, the term “commerce” is often replaced by the term “trade”. We agree with the opinion of the rector of the Chelyabinsk State University of Commerce, Sergey Tkachev, that commerce and trade are synonymous¹. In any dictionary of the word “commerce” is identified with the term “trade”. In the 1990s, free trade was proclaimed in the country. Amid the crisis in the industry, non-payments in budget organizations, millions of people, mostly non-professionals, went into commerce. Trade has acquired a criminal nature, has become close to adventurism. This affected the education system in the field of trade, in particular, the teaching of commodity science was canceled, the corresponding laboratories were closed, equipment was written off. As a result, both the country and the sphere of trade themselves experienced a serious shortage of commodity researchers. The concept of “commerce” was associated with the word “speculation”. The word “speculation” itself was affirmed in Soviet society during the period of the policy of war communism, when the equalizing distribution of industrial and agricultural products was introduced. “Commercial goods” and “speculation” at that time became synonymous. Therefore, it can be assumed that a cautious attitude to the concept of “commerce” in Russia, even at present, has fundamentally historical roots and is associated with the mentality of Russian (Soviet) citizens. When drafting and adopting the Civil Code of the Russian Federation in October 1994, the legislator fundamentally refused to define activities aimed at making profit by the term “commerce”. To denote the basic concept in the field of property and related personal non-property relations in Russian civil law, in contrast to the civil and commercial legislation of most foreign countries of the continental law system, the concept of “entrepreneurial activity” and legal constructions derived from it are used (entrepreneurial activities of a citizen without legal entities, illegal entrepreneurship, business risks etc.).

Internet commerce is a form of implementation of Internet business for the implementation of commercial transactions with the predominant use of the Internet. The relationship of Internet commerce and Internet business as the main directions of the Internet economy is presented in Figure 2.

Thus, the Internet economy is a consequence of the development of e-economy. Elements of the Internet economy continue and complement the entire E-economy system, forming a coherent whole. The innovation-information economy (new economy, IT-economy) is formed as the next stage of development in the concept of post-industrialism.

The relationship of the main elements of innovation-information economy (new economy, IT-economy) is presented in Figure 3.

The term “information economy” was introduced into scientific circulation in the mid-1970s by the American scientist E. Porat, in whose opinion the term “informational” reflects the main substantive aspect of the new society — a change in the main productive resource wealth, which are not physical goods, but information, new knowledge. Information (“new”) economy or IT — Economy can be defined as an economy based on the widespread use of information technology. The addition of “informational” is related to the fact that the productivity and competitiveness of factors and agents in this economy (firms, regions or nations) depend, first of all, on their ability to generate, process and effectively use information based on knowledge.

The Internet economy has emerged from e-economy and is part of it. Accordingly, elements of the Internet economy continue and complement the development of the entire e-economy system, forming a single whole, a single system.

¹ Sidorenko I. The country needs competent businessmen. Ural courier 50 (144).17.03.2001.

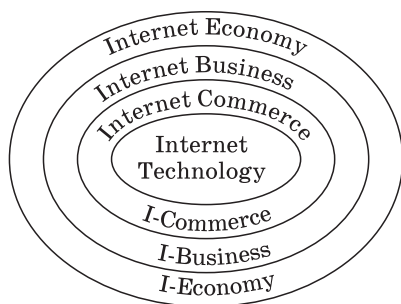


Fig. 2. The relationship of Internet commerce and Internet business as the main directions of the Internet economy [13, p. 39]

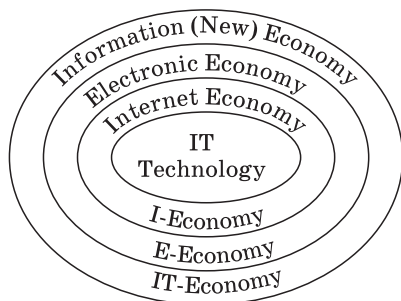


Fig. 3. The relationship of the main elements of innovation-information economy (new economy, IT-economy) [13, p. 40]

The system of the main processes of the information (new) economy is presented in Figure 4.

Internet technologies are a consequence of the development of information technologies. Internet technologies cover all elements of the Internet economy system, presented in Figure 4. The Internet economy system has the main elements: Internet business, Internet commerce, Internet project and website. *Internet business* is one of the forms of evolutionary development of e-business, which is a subsystem of e-economy based on information technology. Internet commerce is a separate area of e-commerce, which emerged from it as an independent element in the early 1990s of the 20th century [10; 11, p. 178].

E-commerce is built on electronic information management systems (EMA), one of the elements of which is an Internet project, which is one of the elements of the Internet economy. An *Internet project* can be presented as a design, technological and analytical documentation, which describes the solutions for creating, operating and supporting the operation of a project carried out on the Internet. The fundamental difference between the Internet economy and E-economy, in our opinion, is the basis for its formation, which is the website, while e-economy is based on programming languages, on the basis of which the website is created. A website is a set of interrelated

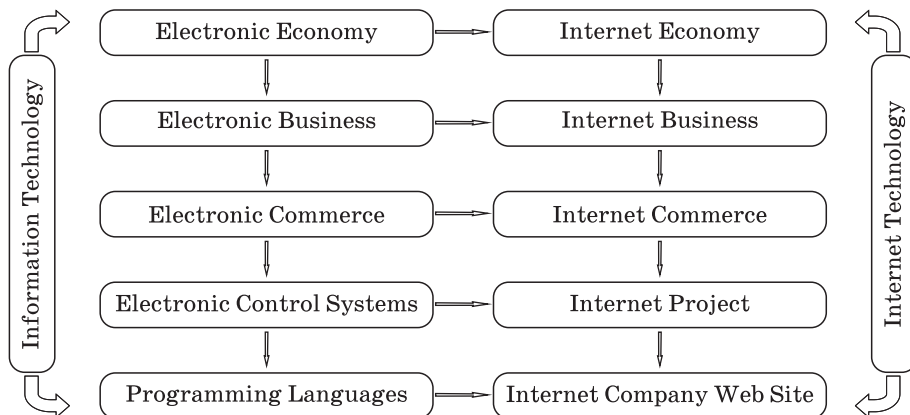


Fig. 4. The system of the main processes of the information (new) economy [13, p. 41]

pages, conceptually combined in content and navigation and physically located on one server, i.e. computer connected to the Internet. The *website*, being the core of the Internet economy, accumulates in itself all the information that needs to be conveyed to the potential buyer.

Thus, the Internet economy is a consequence of the evolutionary development of the Electronic Economy, which originated in the earliest forms around the first third of the XIX century. The basis of the e-economy is new information technologies in various fields of activity. The form of implementation of e-economy at the end of the XIX century becomes e-business. The first e-commerce systems, as a form of e-business, emerged in the early 70s of the XX century and were used in transport companies for booking tickets.

The emergence of the Internet has led to the emergence of new forms of business activity due to the low cost of information transmission and the global international distribution of the network. The Internet economy stands out as an independent direction from the e-economy, along with the advent of the Internet [13, p. 43].

Along with the Internet economy is formed the Internet business. Internet business is a form of e-business with the use of modern Internet technologies. The main focus of Internet business is gradually becoming Internet commerce. E-commerce is a form of Internet business for conducting commercial transactions with the predominant use of the Internet. The principal difference between online commerce is the availability of a website on the Internet, which is the core of the entire Internet economy [3]. The Internet economy is only at the first stage of its development. The history of the Internet economy is only 35 years old, Internet business is 25 years old, and Internet commerce is 24 years old. In the history of mankind in such a short period, no great invention could become so massive and accessible to all.

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