

Development Problems of Application of Electronic-Commerce Systems in Terms of Information Economy Formation

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Abstract. In this paper we reviewed industrial and post-industrial stages of economic development. Characteristics of the information economy were analyzed. The role and importance of e-commerce systems in the formation of the information economy were indicated and proved. The constituent elements and existing functioning models of e-commerce systems were analyzed. The problems of development and improvement, application of e-commerce technology and systems were investigated.

Keywords: information economy, stages of economic development, e-commerce, e-commerce models, business processes, payment system, delivery system.

1 Introduction to the research relevance

It is considered in the world community, that providing uninterrupted economic growth of each developed and developing countries requires, first and foremost, the development of science, engineering and technology. This is considered a manifestation of information and knowledge economics. Therefore, it is necessary to build an infrastructure compiling the foundation for the future economy. One element of such infrastructure is the system and technology of electronic commerce.

The application of electronic methods of business introduction in an enterprise allows improving the effectiveness of promotion of goods and services, expanding marketing, developing relationships with the clients, facilitating operating costs fall, as well as reducing the total time of customer service and the request processing. All of this means, that in the terms of the formation of information and knowledge, the economy of E-commerce system building is necessary. Therefore, the analysis and study of various problems associated with the formation and use of this system in the terms of information economy are important.

2 Problems of the economy formation of the information society

Stages of formation and development of the economy. It is known that humanity knows the three stages of formation and development of the economy: agrarian, industrial and post-industrial [1]. Each stage has its own peculiarities. Agricultural products were mainly manufactured in the period of the agrarian economy. In the industrial era, the main production goods were material objects. In the post-industrial, there were - information, ideas, rules, in other words, intangible assets. Accordingly, the leading role in the industrial age belonged to the owner of the production means, but in the post-industrial one, this role shifts to the owner of intellectual property rights.

The industrial age primarily ended, when the production infrastructure and movement of physical goods were developed. The emergence and rapid spread of Internet initiated development of an effective infrastructure for production and transfer of intangible assets.

Formation of economy of information and knowledge. In the developed countries, for the generation of economy of information and knowledge it is necessary to create a new economic model that ensures wide dissemination of information and knowledge. Society of knowledge, as a part of the Information Society (IS), is formed with the help of information technology. In the global information society, knowledge becomes a commodity. And knowledge-based society, in its turn, shapes the knowledge economy.

Relevance of the formation of economy of information and knowledge in Azerbaijan. The National Strategy of the Republic of Azerbaijan for 2009-2015 years for the Advancement of Science reflects the task of creating

an economy based on knowledge and related to the information society of globalized period [2,3]. This requires the implementation of the comprehensive measures for the careful preservation and development of intellectual potential of Azerbaijan. As it is obvious from the National Strategy for the Advancement of Science, at the present time, a new world society is being formed, which is based on information and knowledge [4]. In this society information, knowledge, communication, skills and abilities are highly evaluated. Its main potential is a man and his/her intellect.

3 E-commerce as a key direction of economic development

E-commerce has a profound and transformative impact on the economy and society, on the structure of firms, as well as on the whole cycle of supply and consumption, from the product development to the after-sales services. The development of e-commerce will have a positive impact on the structure and functioning of the labor market. E-commerce is useful for producers and consumers due to the fact that it helps to overcome traditional barriers, which consist of territorial remoteness and lack of information about market opportunities [5].

E-commerce system allows even the smallest suppliers and customers to make business on a global scale, the suppliers - to become more competitive by approaching to the customer, significantly reducing the path of goods from supplier to customer. It offers an optimal way, allowing you to reduce both expenditures and time. A special case is - products and services that can be delivered electronically, herewith, the route of delivery is reduced as much as possible. E-commerce technologies offer the possibility of completely new products and services.

4 Constituent elements of e-commerce

The modern model of commerce consists of four elements: subjects, objects, business processes and computer networks. 1) The subjects (participants) of e-commerce include public and private organizations, as well as individuals [6]. Financial institutions, businesses, end-users are also involved in the process of e-commerce. 2) The objects of the e-commerce model are products and services of informational nature, as well, for the realization of which certain actions are directed by the abovementioned entities. 3) Business processes are separate end processes associated with exposure of the subject on the object, as well as the interaction of subjects with one another, forming a commercial activity in common. 4) Computer networks are whereby the members communicate and the processes are ensured.

Undoubtedly, there are several factors, which are not directly involved in e-commerce model; however have an impact on its functioning and development. Economic, political and geographical factors, the state of competition, the government - can influence each element of e-commerce model, as well as on the model as a whole.

5 System models and technologies of e-commerce

In general, a definition of *system of e-commerce* is understood as a definite Internet-technology, which provides the members the following options (pic. 1):

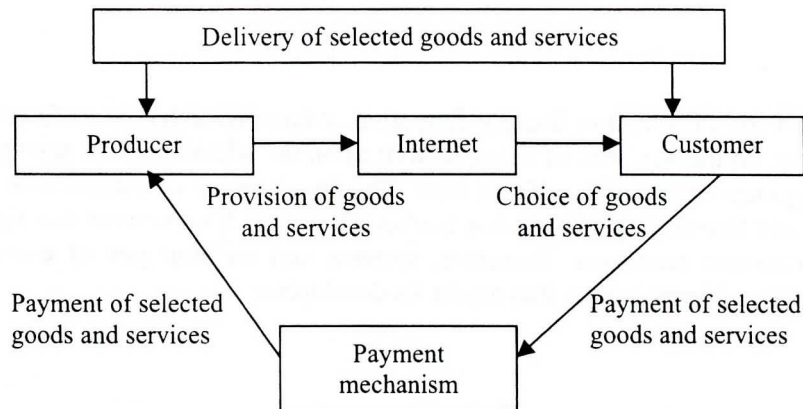
- *manufacturers and suppliers* of goods and services of various categories – to display products and services online, as well as to receive and process customer orders;
- *customers (clients)* – to view information about the products and services by the standard browsers (catalogs, price lists, etc.), to register the orders (application for, requests) and to receive the ordered goods (services);
- *manufacturers and suppliers* - to accept payment, and the consumers - to make payments using a payment system; in this case, one of the system participants is a bank [8].

E-commerce system - a system that has a modular structure and which enables sales procedures for certain variety of goods with the help of electronic means of payment (credit cards, smart cards, digital cash, micropayments and electronic checks).

Note that in many scientific sources [6-9] the classification of e-commerce systems is given according to the main realized business models: 1) business to business (B2B), 2) business-to-consumer (B2C), 3) consumer-

to-consumer (C2C) 4) business-to-government (B2G), 5) government-to-business (G2B), 6) consumer-to-administration (C2A), 7) administration-to-consumer (A2C), etc. Basing on the foreign and domestic experience of implementing e-commerce systems, e-commerce systems can be classified as well as according to the organizational and economic models and attracted consumers. Generally, there are many options for model classifications in the electronic commerce system.

The rapid development of ICT involves the emergence of new models in the electronic commerce system. Various system models of e-commerce focus on the availability of the following major functional elements: 1) involvement system; 2) ordering system; 3) payment system; 4) delivery system; 5) system of information services.



Pic. 1. The overall scheme of e-commerce functioning

6 Problems of development and improvement of e-commerce

The problems associated with the development and further improvement of e-commerce systems are paid enough attention in Azerbaijan. However, the local electronic stores face with a number of problems, which need urgent solutions [10]. The reasons that substantially restrict the scope of public usage of e-commerce systems for purchasing goods and services should be as following:

- the presence of limited number of customers in the electronic marketplace;
- the lack of trained professionals, capable to work effectively in the electronic commerce system;
- the lack of sufficiently developed infrastructure, including shortcomings in the legislation, which do not provide adequate assurance of all obligations in accordance with electronic transactions;
- inadequacy of the systems of on-time delivery of goods to the customer;
- high cost of creating conditions for online shopping;
- low use of calculations by using electronic payment systems;
- limited number of people who have electronic credit cards;
- failure to resolve the problem of ensuring effective protection of intellectual property rights, etc.

The problems should be examined for the development of e-commerce, and to formulate general objectives basing on their analysis: 1) solutions for the Internet - commerce, 2) payment system, 3) system of delivery to the customer, 4) legal and organizational support.

The main problems of development and implementation in the field of solutions for e-commerce are:

- low level of computerization of the population and commercial structures;
- underdevelopment of information infrastructure, telecommunication systems;
- low bandwidth of communication channels;
- unwillingness of the population, business and government in the implementation of interaction through electronic information technology.

Nowadays, the problem of digital cash and payment via the Internet are the most critical problems. Digital cash technology has attracted the attention as a means of micropayment realizations.

The following concern of trade via the Internet - is *logistics*, its development level is the restrictive factor for the development of electronic commerce. Logistics organization - is not only the choice of delivery methods, but also information-accounting systems, planning tools and decision-making support, evaluation of suppliers and partners, creation of warehouses and distribution centers.

Another significant problem is the legal support, because E-commerce requires a particular legal strategy that would facilitate the development of global and open market. It is necessary to harmonize legislation and simplify the rules and procedures applied in different countries.

Another problem – the return of goods, since the Internet - shops are a local phenomenon yet. Management of affiliated retailers has the policy as follows: the store provides refund in case of the client's product failure, including and without explanation.

7 Conclusion

At the present stage of the Information Society formation, e-commerce has a profound and transforming influence on the economy, on the structure of firms, as well as on the whole cycle of supply and consumption, from the product development to the after-sales services. The development of e-commerce also has a positive impact on the structure and functioning of the labor market. However, E-commerce can significantly increase the efficiency of all economic processes. Therefore, systems and technologies of e-commerce should be applied fully and solve the problems in time that hinder its development.

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