

## BEWERTEN SIE DIE EFFEKTIVITÄT DES ELEKTRONISCHEN HANDELSYSTEMS EINES HANDELSUNTERNEHMENS

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**Zusammenfassung:** Dieser Artikel beschreibt die Systematisierung bestehender Methoden und Ansätze zur Bewertung der Effektivität von E-Commerce-Systemen (ECS) sowie deren Anpassung an die Bedürfnisse von Handelsunternehmen in Theorie und Praxis. Da das Problem der Effizienzbewertung viel umfassender ist und technische, wirtschaftliche, organisatorische und andere Aspekte umfasst, sollte ein Handelsunternehmen geeignete Indikatoren (Kriterien) auswählen, um die Wirksamkeit der Bildung und des Betriebs eines E-Commerce-Systems zu bewerten. Sie die Ergebnisse aus, die in jeder Phase erzielt wurden. Es bietet die Möglichkeit, die notwendigen Maßnahmen zu ergreifen, um laufende Projekte zu lenken, weiterzuentwickeln und zu verbessern.

**Schlüsselwörter:** E-Commerce, E-Commerce-System, Internetseite, Effizienz des E-Commerce-Systems, wirtschaftliche Indikatoren, organisatorische Indikatoren, kommerzielle Indikatoren, diskontierter Nettogewinn, diskontierte Wiederkehrperiode, interne Gewinnrate, Rentabilitätsindex, modellierte Gewinnrate.

## EVALUATE THE EFFECTIVENESS OF THE ELECTRONIC TRADING SYSTEM OF A COMMERCIAL ENTERPRISE

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**Abstract:** This article describes the systematization of existing methods and approaches to assessing the effectiveness of e-commerce systems (ECS), as well as their adaptation to the needs of commercial enterprises in theoretical and practical

terms. Since the problem of efficiency assessment is much broader and covers technical, economic, organizational and other aspects, a commercial enterprise should select appropriate indicators (criteria) to assess the effectiveness of the formation and operation of e-commerce system, so as to evaluate the results obtained from each stage. It provides an opportunity to take the necessary measures to direct, develop and improve ongoing projects.

**Keywords:** E-commerce, e-commerce system, Internet site, e-commerce system efficiency, economic indicators, organizational indicators, commercial indicators, net discounted profit, discounted return period, internal profit rate, profitability index, modeled profit rate.

### **Introduction**

The amount of financial resources associated with the formation of e-commerce systems and the excess of time required to justify them with mathematical and economic calculations. Through such calculations, the available opportunities to achieve the set goals are analyzed.

According to the analytical analysis of the activities of enterprises in the e-commerce market, to what extent it is important to correctly define its specific development strategy. Then there are the deep disappointments, the mistakes that lead to the loss of large amounts of money and time, and most of the miscalculations. Developers of new e-commerce projects often do not realize that no matter how attractive and logically correct an idea may be, it is not always far from promising. Moreover, the authors of many ideas cannot clearly explain who will be the consumer for their solutions, who will want to pay for their idea. But if company executives don't clearly understand what their customers value and, most importantly, what they are willing to pay, a business will never be successful.

Unfortunately, many entrepreneurs make decisions about developing e-commerce systems without real knowledge of consumer preferences and behaviors. They do not fully study the market situation. Such businesses believe that if they are successful in any field or simply have their own concept, an e-commerce

system based on Internet technology will automatically offer them a new profitable market.

Today, it is clear that such an approach does not justify itself.

Business leaders need to think about why an e-commerce system is being formed. Typically, the main task is to increase business efficiency. The most commonly used methods in assessing the effectiveness of e-commerce systems built on Internet technologies are based solely on the performance of the Internet site, with the help of which it is not always possible to determine the success of ECS.

It is known that such indicators of Internet site formation include the number and timing of visits by site visitors. If the site specializes in news or provides information about goods and services, then the number of visits and the duration of visits indicate its effectiveness.

Visitors to an e-commerce website are not always buyers, so it is not necessary to consider only visitor statistics to evaluate effectiveness.

Evaluating the effectiveness of an e-commerce system should focus primarily on analyzing the potential benefits to setting up a small business. It is also necessary to implement such a project to maximize profits, rather than the number of visits to the Internet site.

The development of methods for assessing the effectiveness of the formation of e-commerce systems is one of the most pressing challenges facing business organizations that introduce modern Internet technologies in their business. To date, there is no comprehensive science-based approach to shaping the e-commerce system of a small enterprise and determining the effectiveness of its activities. The specialized literature contains individual theories on various elements of ECS and some explanatory approaches to assessing its effectiveness.

### **Literature analysis and methods**

The results of scientific research of foreign economists, D.Eymor, I.Goldovsky, D.Koze, I.Uspensky, A.Yurasov, E.Ilayes, D.Schneider<sup>1</sup> and others, who conducted research on the development of e-commerce in the field of writing articles studied.

At the same time, the views of R. Ayupov, JS Jeon, D. Turdiboev, A. Rakhimov, Z. Yusupova and others<sup>2</sup>, who conducted research on the specifics of the development of e-commerce in Uzbekistan, were studied. They mainly studied social and economic efficiency issues related to the types of services.

Our research has shown that in the scientific work of economists have not studied in detail the specifics and features of improving the organizational and economic mechanisms in the field of e-commerce. For this reason, it is necessary to conduct in-depth scientific work to determine the effectiveness of the organization of e-commerce systems.

### Discussion

In assessing the effectiveness of e-commerce systems, the following indicators can be distinguished:

- economic indicators - serves to assess the economic efficiency of the e-commerce system;
- organizational indicators - determine the degree of integration of the new information system with the existing system, as well as allow to assess the quality of the project on the formation of ECS;
- commercial indicators - describes the effectiveness of the implementation and promotion of ECS program and the use of e-commerce tools<sup>3</sup>.

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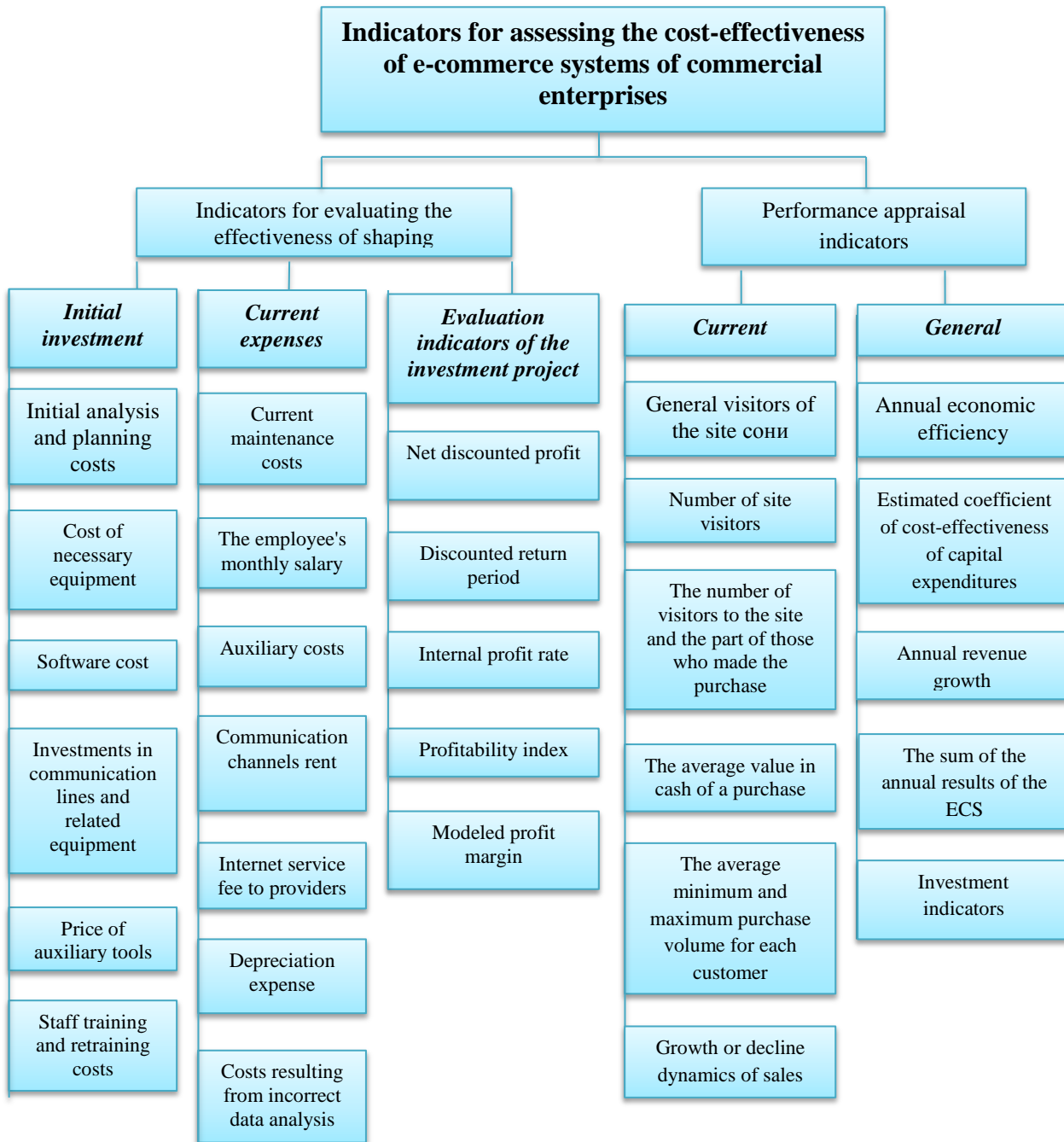
<sup>1</sup> Eymor D., Electronic Business. Evolution i / or revolution, trace. Williams, 2001; Goldovskiy I., Safety of plates in the Internet, Izdatelstvo: Peter, 2001, <https://www.livelib.ru/book/1000219493-bezopasnost-platezhej-v-internete-i-goldovskij>; Koze D., Electronic Commerce, Russian Edition, 1999; Uspenskiy I.V., Internet-marketing Uchebnik.- SPb.: Izd-vo SPGUEiF, 2003; Yurasov A., Basics of electronic commerce, uch.iz Tempus, 2016; Ilayes E. Electronic commerce. Prakticheskoe rukovodstvo, iz. DiaSoftYuP, 2002; Schneider D., Metacapitalism and revolution in electron beznise. Kakami will be a company in the XXI century. Alpina Publisher. 2001 y.

<sup>2</sup> Ayupov R., Fundamentals of e-commerce, e-book, 2020. <https://kitobxon.com/uz/kitob/elektron-tijorat-asoslari>; Jeon J.S., Electronic Commerce, <http://library.ziyonet.uz/uz/book/40204>, 2007; Turdiboev D., E-commerce systems and their importance, <http://library.ziyonet.uz/en/book/80012>, 2016; Rakhimov A., Electronic payment systems and their importance, <http://library.ziyonet.uz/ru/book/8216>, 2014; Yusupova Z., Automated systems of electronic commerce, <http://library.ziyonet.uz/static/lib/reader-pdf/web/viewer.html?file=http://library.ziyonet.uz/uploads/books/459675/5b165c542353d.pdf>, 2007 y.

<sup>3</sup> Zotovoy E.S., Electronic theory of the XXI century. / Pod red. Yu.M. Osipova, -M.: Lawyer. - 2000

All groups of indicators on the list are interrelated, so a comprehensive approach is required to assess the overall effectiveness of an e-commerce system. To assess the effectiveness of e-commerce systems, we consider a group of economic indicators. These indicators can be divided into two main groups (Figure 1):

- Indicators for evaluating the effectiveness of the formation of ECS;
  - Indicators for evaluating the effectiveness of ECS activities;
  - The main indicators for assessing the cost-effectiveness of the formation of ETT:
- initial investment in the formation of e-commerce system;
  - Operating costs associated with ensuring the continuous and uninterrupted operation of the ECS;
  - ratio of investment and operating costs;
  - Indicators generally adopted in the world and in Uzbekistan to assess the effectiveness of investment projects or business projects (net discounted approach, dictated repayment period, internal rate of return, rate of return, adjusted rate of return, etc.).



**Figure 1. Indicators for assessing the cost-effectiveness of e-commerce systems in commercial enterprises<sup>4</sup>**

Initial investments can be made simultaneously or over a period of time (e.g., over several years), which include:

- initial analysis and planning costs;
- cost of necessary equipment;

<sup>4</sup>Developed by the author.

- software pricing;
- Investments in the organization of communication lines and related equipment;
- cost of additional equipment, such as computer equipment required to update the information on the website or perform functions to ensure the operation of the e-commerce system;
- Staff training and retraining costs. Operating costs include:
- costs associated with the operation of the technical part of the electronic system;
- salaries of service personnel;
- costs for auxiliary materials;
- rent for communication channels;
- payments to various Internet service providers;
- Depreciation allowances;
- additional costs in attracting foreign trade firms to work on the development of e-commerce systems;
- costs for advertising companies, etc .;
- costs associated with misinterpretation of data;
- costs resulting from malfunctions of the technical part of the system.

The ECS performance evaluation indicators developed to evaluate the results of the e-commerce system are divided into commercial and economic indicators. Their composition is described in more detail below.

As shown in Figure 1, ECS cost-effectiveness indicators include initial investment and operating costs. A number of methods for determining the effectiveness of a project for the formation of an electronic system are based on a formula that represents the ratio of the result (economic efficiency) to the costs associated with the creation and operation of the ECS.

Based on this approach, the cost-effectiveness of an e-commerce system ( $IS_{ECS}$ ) can be defined as the ratio of the cost of its application to the cost:

$$IS_{ECS} = \frac{YD_{ECS}}{JX_{ECS}}, (3.1)$$

where:  $YD_{ECS}$  - gross income received as a result of ECS activities;  $JX_{ECS}$  is the total cost of ECS activities.

Total costs:

$$JX_{ECS} = KK_{ECS} + FX_{ECS}, (3.2)$$

where:  $KK_{ECS}$  - total capital investment in the design of the system, the purchase of the necessary components and its implementation;  $FX_{ECS}$  - operating costs.

If there is a difference between the capital and annual costs at the time of introduction and the time of use, the costs should be brought to the same year (first or last) using a complex interest formula:

$$K_t = \frac{K}{(1+i)^t}, (3.3)$$

where:  $K_t$  - involved capital expenditures;  $i$  is the discount rate for capital investments;  $t$  - is the period over which capital expenditures are incurred.

The result of the ECS activity calculation ( $N_{ECS}$ ) is determined by the following formula:

$$N_{ECS} = N_{ECS(t)} - K_t, (3.4)$$

where:  $N_{ECS}(t)$  is the result obtained over time  $t$  due to austerity through the use of an electronic trading system.

Thus, this method of cost-effectiveness assessment is based on identifying the main types of costs and reducing costs through the use of an e-commerce system.

The calculation of the cost-effectiveness of ECS can be done using generalized and specific indicators.

The main generalizing indicators of economic efficiency include:

- annual economic efficiency;
- calculated coefficient of efficiency of capital expenditures;
- Maturity of capital invested in ECS.

The calculation of the aggregate indicators in the list includes a preliminary calculation of some of the indicators that characterize the ECS, for example: annual profit growth; costs for system development and implementation; operating expenses, etc.

Annual profit growth ( $F_y$ ) is taken as the difference between the annual calculation of the e-commerce system, which does not take into account the cost of using the system, operating and development costs are the same year:

$$F_y = F^t - X_n, (3.5)$$

where:  $F_t$  is the annual calculation of the results of the use of the ECS, calculated without taking into account the costs of creation and operation;  $X_n$  is the operating and development costs of the ECS for the same year.

The annual result of the use of the ECS is calculated as the difference between the annual profit before and after the introduction of the ECS:

$$F^t = F_1 - F_2, (3.6)$$

where:  $F_1$  is the annual profit of the commercial enterprise prior to the implementation of the ECS;  $F_2$  is the annual profit of the commercial enterprise after the implementation of the ECS.

$$X_n = X_r + X_e, (3.7)$$

where:  $X_r$  is the cost of developing the ECS during the year;  $X_e$  is the cost of operating the ECS during the year;

The difference between the annual growth of annual economic efficiency ( $S_y$ ) and the standard profit from the development and implementation of ECS is defined as:

$$S_y = F_{yu} - K \times E_n, (3.8)$$

where:  $F_{yu}$  - annual growth of profits, mln

$K$  - capital expenditures for the organization of ECS, mln.sums;

$E_n$  is the normative coefficient of efficiency of capital investments.

- in this case should be considered as a normative benefit from the implementation of the system.

The normative coefficient of efficiency of capital investments ( $KS_n$ ) is the minimum criterion of efficiency of capital investments, when it is lower, they are not considered expedient. In this case, the value of the indicator obtained ( $S_y$ ) serves to compare the efficiency of capital investment in the development of economic results of the formation of the ECS and other areas of management improvement.

The cost-effectiveness ratio of capital expenditures ( $E_n$ ) is the ratio of profit to annual growth of capital expenditures for the development and implementation of ECS:

$$E_n = \frac{F}{K}, (3.9)$$

Taking into account the costs of operation and development ( $E_r$ ), the payback period of the ECS ( $M_q$ ) is determined by the ratio of the annual results of the use of the ECS ( $N^t$ ) to the total cost ( $X_u$ ):

$$E_r = \frac{X_u}{(N^t / 12)}, (3.10)$$

In the formation of an e-commerce system, the task of evaluating and selecting alternatives from the most effective options in the multi-criteria class is of particular importance. This is because the scientifically based selection of the best option can be made not on the basis of the use of one criterion (indicator), but on the basis of consideration of several criteria that are economically important. Efficiency can only be comprehensively assessed by selecting the best option for the formation of an ECS that satisfies the achievement of numerical values according to several criteria at the same time.

The solution to the problem of forming an e-commerce system is to choose the most effective project from the alternatives.

As mentioned above, a project is a meaningful description of an entrepreneurial idea proposed to achieve a certain economic result once it is implemented. An

entrepreneurial project involves the formation and realization of clear commercial goals.

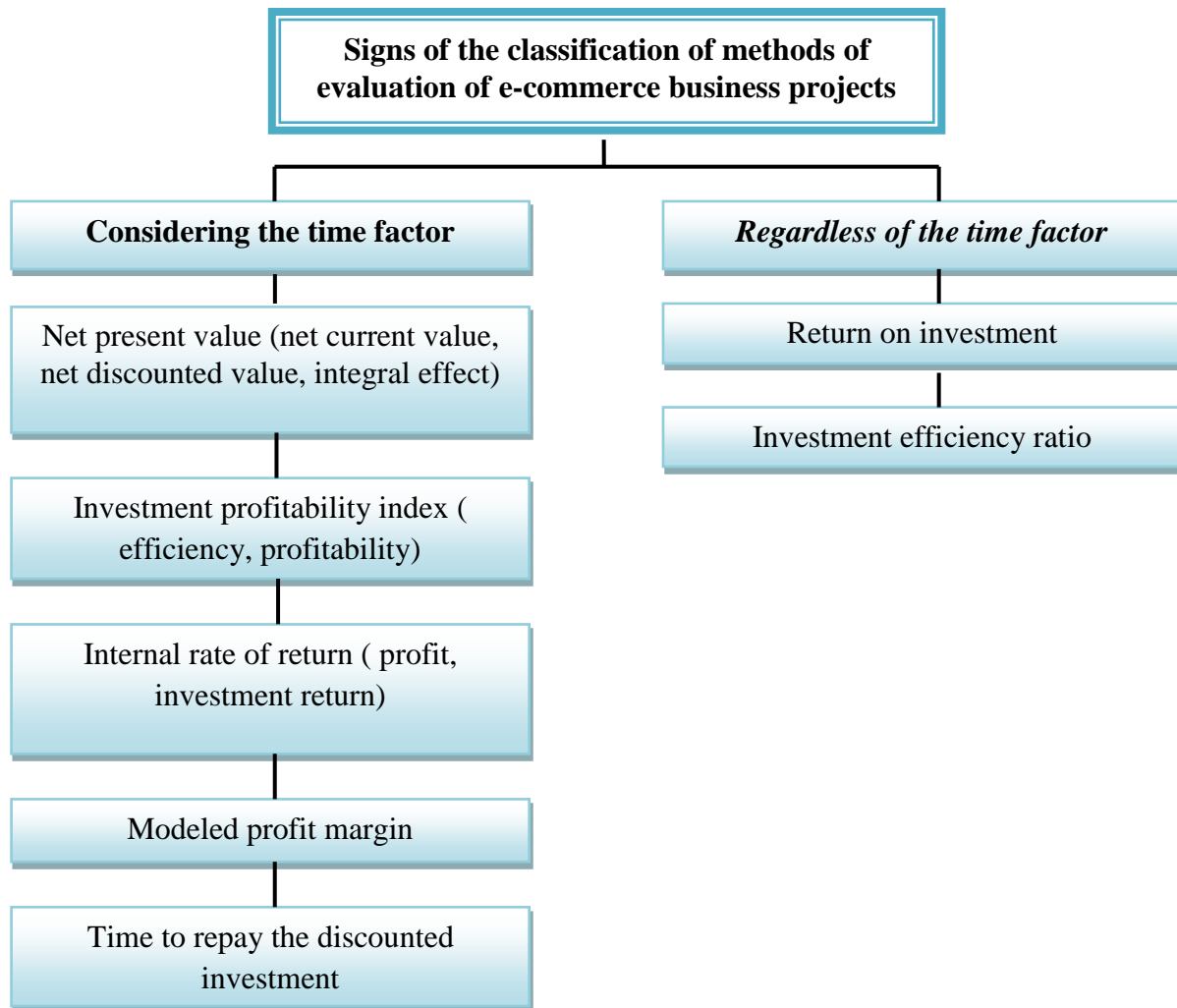
Goal indicators are the forecast of the final results of the activity of a small enterprise (economic and financial), which should always be quantified.

In our opinion, any project that manifests itself as an ECS formation project needs to attract a certain amount of investment. Their effective use determines the appropriateness of choosing a project in one or another option.

Calculating the effectiveness of an ECS formation project, often taking into account the time factor required to realize the investment, often involves a procedure for discounting income (cash flows) using a complex interest formula.

There are various ways to evaluate the effectiveness of investments associated with the implementation of business projects. The issue is to choose the most economically viable of them and take into account the specifics of the ECS.

To calculate the cost-effectiveness of the project, the most optimal option for small businesses in the implementation of the main type of e-commerce system is the use of common economic methods. The project to form an integrated ECS requires a significant level of investment, so in this case it is necessary to carry out extended economic calculations. The most common methods of evaluating the effectiveness of project design and implementation can be divided into two groups depending on whether the time factor is taken into account or not (Figure 2).



**Figure 2. Classification of the main methods of evaluating business projects in e-commerce systems<sup>5</sup>**

## Results

We propose to evaluate the integrated projects of e-commerce system in terms of net present value ( $Q_{sj}$ ), profitability index (RI) and discounted payback period ( $K_{qm}$ ), taking into account the characteristics of the formation of e-commerce systems in commercial enterprises. It is difficult to pay high attention to each of them, because each indicator has its advantages and disadvantages.

A comparative analysis shows that each of the above three methods is distinguished by a number of advantages and significant disadvantages. It is not

<sup>5</sup>Developed by the author.

possible to give on unconditional preference to any method. If there is a multi-purpose approach, there is no need to solve this problem. It implies the simultaneous application of these indicators in justifying the selection of the most efficient project of integrated ECS formation. This approach can be divided into two stages, in the first stage a multi-purpose model of the problem is built and in the second stage a method of its implementation is developed. The main forms of multi-purpose approach to solving the problems of investment optimization are:

- obtaining a set of alternative solutions to a given problem as a result of successive use of single-target models with different criteria and selecting the most appropriate solution in terms of the quantitative value of the generalized indicator obtained by applying a number of indicators;
- building a multi-target model of the problem, then using single-target optimization methods to find a solution after substantiating the choice of the main criterion;
- Use the vector optimization method to create a multi-purpose model of the problem and select the desired type of plan.

### **Sources used**

- [1]. Eymor D., Electronic Business. Evolution i / or revolution, trace. Williams, 2001;
- [2]. Goldovskiy I., Safety of plates in the Internet, Izdatelstvo: Peter, 2001, <https://www.livelib.ru/book/1000219493-bezopasnost-platezhej-v-internete-i-goldovskij>;
- [3]. Koze D., Electronic Commerce, Russian Edition, 1999;
- [4]. Uspenskiy I.V., Internet-marketing Uchebnik.- SPb .: Izd-vo SPGUEiF, 2003;
- [5]. Yurasov A., Basics of electronic commerce, uch.iz Tempus, 2016;
- [6]. Ilayes E. Electronic commerce. Prakticheskoe rukovodstvo, iz. DiaSoftYuP, 2002;
- [7]. Schneider D., Metacapitalism and revolution in electron beznise. Kakami will be a company in the XXI century. Alpina Pabliher. 2001 y.

- [8]. Ayupov R., Fundamentals of e-commerce, e-book, 2020.  
<https://kitobxon.com/uz/kitob/elektron-tijorat-asoslari>;
- [9]. Jeon J.S., Electronic Commerce, <http://library.ziyonet.uz/uz/book/40204>, 2007;
- [10]. Turdiboev D., Electronic trading systems and their importance, <http://library.ziyonet.uz/en/book/80012>, 2016;
- [11]. Rakhimov A., Electronic payment systems and their importance, <http://library.ziyonet.uz/ru/book/8216>, 2014;
- [12]. Yusupova Z., Automated systems of e-commerce, <http://library.ziyonet.uz/static/lib/reader-pdf/web/viewer.html?file=http://library.ziyonet.uz/uploads/books/459675/5b165c542353d.pdf>, 2007 y.
- [13]. Zotovoy E., Electronic theory of the XXI century. / Pod red. Yu.M. Osipova. - M.: Lawyer. – 2000.