Electronic scientific and practical journal

INTELLECTUALIZATION OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT

#5 (2021)
February '21

WWW.SMART-SCM.ORG
ISSN 2708-3195
DOI.ORG/10.46783/SMART-SCM/2021-5

ISSN 2708-3195

Electronic scientific and practical publication in economic sciences

ISSN 2708-3195
DOI: https://doi.org/10.46783/smart-scm/2021-5

Released 6 times a year

№ 5 (2021)
February 2021

Kyiv - 2021

Founder: Viold Limited Liability Company

The electronic scientific and practical journal is registered in international scientometric data bases, repositories and search engines. The main characteristic of the edition is the index of scientometric data bases, which reflects the importance and effectiveness of scientific publications using indicators such as quotation index, h-index and factor impact (the number of quotations within two years after publishing).

In 2020, the International Center for Periodicals (ISSN International Center, Paris) included the Electronic Scientific and Practical Edition "Intellectualization of Supply Chain Management" in the international register of periodicals and provided it with a numerical code of international identification: ISSN 2708-3195 (Online).

Recommended for dissemination on the Internet by the Academic Council of the Department of Logistics NAU (No. 7 of February 26, 2020). Released 6 times a year. Editions references are required. The view of the editorial board does not always coincide with that of the authors.

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DOI: https://doi.org/10.46783/smart-scm/2021-5
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The electronic scientifically and practical journal
"INTELLECTUALIZATION OF LOGISTICS AND SUPPLY CHAIN MANAGEMENT",
ISSN 2708-3195

53-61
v.5 (2021)
https://smart-scm.org

UDC 657.424
DOI: https://doi.org/10.46783/smart-scm/2021-5-4
JEL Classification: M21, P33, P45.
Received: 24 February 2021

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EVALUATION OF THE INVESTMENTS EFFICIENCY IN THE DEVELOPMENT OF THE KEY COMPONENT OF THE SUPPLY CHAIN

Olexander Sumets "Evaluation of the investments efficiency in the development of the key component of the supply chain". *Supply chains are unique logistics systems. Typically, such systems include a number of components. The key component is considered to be the producer enterprise, around which supply chains are organized. The efficiency and effectiveness of the supply chain largely depends on the level of development of the key component. In turn, the latter depends on effective investment. It is established that the practice of enterprises-producers, which are key components of supply chains, requires a qualitative economic justification of investment measures, which must be forecasted for the long term before their implementation.*

The article substantiates the need to assess the effectiveness of investment in the development of a key component of the supply chain based on a targeted approach. It is indicated that to assess the effectiveness of investment in the development of industrial enterprises should use absolute and relative cash flows, the values of which are used in the calculations of absolute and comparative effects, respectively. With this in mind, a targeted approach should be applied to improve the quality of assessing the effectiveness of investment in the development of manufacturing enterprises. The essence of the criterion indicator of net cash flow is thoroughly described.

It is stated that the economic assessment of the comparative economic effect should be based on the definition of incremental indicators that reflect changes in the activities of the enterprise due to the investment of additional investments in the assets of its logistics system.

The tree of maximizing the efficiency of investments in the main assets of the production logistics system of the enterprise is formalized. An approach to evaluating the effectiveness of investing funds in the production and logistics system of the enterprise is proposed.

Keywords*:* supply chain, key component of supply chain, production enterprise, production logistics system, logistics activity, efficiency, evaluation, investment.

Олександр Сумець. "Оцінка ефективності інвестицій в розвиток ключового компоненту ланцюга постачання". *Ланцюги постачання являють собою унікальні логістичні системи. Як правило, такі системи включають в себе певну кількість компонентів. Ключовим компонентом вважається підприємство-продуцент, навколо якого і організуються ланцюги постачання. Ефективність і результативність ланцюга постачання багато в чому залежить від рівня розвитку ключового компонента. Своєю чергою, останній залежить від ефективних інвестицій. Встановлено, що практика діяльності підприємств-продуцентів, які є ключовими компонентами ланцюгів постачання, потребує якісного економічного обґрунтування інвестиційних заходів, які необхідно прогнозувати на довгостроковий період ще до терміну їхнього впровадження.*

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У статті обґрунтовано необхідність оцінки ефективності інвестицій в розвиток ключового компоненту ланцюга постачання на основі цільового підходу. Вказано, що для оцінювання ефективності інвестицій в розвиток виробничих підприємств варто використовувати абсолютні й відносні грошові потоки, значення яких застосовують відповідно у розрахунках абсолютного й порівняльного ефектів. З огляду на це для підвищення якості оцінювання ефективності інвестицій в розвиток виробничих підприємств слід застосувати цільовий підхід. Ґрунтовно описана сутність критеріального показника чистого грошового потоку.

Констатовано, що економічна оцінка порівняльного економічного ефекту повинна ґрунтуватися на визначенні приростних показників, які відображають зміни у діяльності підприємства, що зумовлені вкладенням додаткових інвестицій в активи його логістичної системи.

Формалізовано дерево максимізації ефективності інвестицій в основні активи виробничої логістичної системи підприємства. Запропоновано підхід до оцінки результативності інвестування коштів у виробничу логістичну систему підприємства.

Ключові слова: ланцюг постачання, ключовий компонент ланцюга постачання, виробниче підприємство, виробнича логістична система, логістична діяльність, ефективність, оцінка, інвестиції.

Александр Сумец. "Оценка эффективности инвестиций в развитие ключевого компонента цепи поставок". *Цепи поставок представляют собой уникальные логистические системы. Как правило, такие системы включают в себя определенное количество компонентов. Ключевым компонентом считается предприятие-продуцент, вокруг которого и организуются цепи поставок. Эффективность и результативность цепи поставок во многом зависит от уровня развития ключевого компонента. В свою очередь, последний зависит от эффективных инвестиций. Установлено, что практика деятельности предприятий-продуцентов, которые являются ключевыми компонентами цепей поставок, требует качественного экономического обоснования инвестиционных мероприятий, которые необходимо прогнозировать на долгосрочный период еще до срока их применения.*

В статье обоснована необходимость оценки эффективности инвестиций в развитие ключевого компонента цепи поставок на основе целевого подхода. Указано, что для оценки эффективности инвестиций в развитие производственных предприятий следует использовать абсолютные и относительные денежные потоки, значение которых применяют соответственно в расчетах абсолютного и сравнительного эффектов. Учитывая это, для повышения качества оценки эффективности инвестиций в развитие производственных предприятий следует применить целевой подход. Основательно описана сущность критериального показателя чистого денежного потока.

Констатировано, что экономическая оценка сравнительного экономического эффекта должна основываться на определении приростных показателей, отражающих изменения в деятельности предприятия, обусловленные вложением дополнительных инвестиций в активы его логистической системы.

Формализовано дерево максимизации эффективности инвестиций в основные активы производственной логистической системы предприятия. Предложен подход к оценке результативности инвестирования средств в производственную логистическую систему предприятия.

Ключевые слова: цепь поставок, ключевой компонент цепи поставок, производственное предприятие, производственная логистическая система, логистическая деятельность, эффективность, оценка, инвестиции.

Introduction. Supply chains combine a large number of components in their structure. The number of the latter depends on the characteristics of the chain, namely the width and length. A production enterprise is considered to be the core-forming or key component of a full-fledged supply chain. The same hypothetically it can be argued that this key component (manufacturing enterprise) is the master generator of capacity, efficiency and effectiveness of the supply chain (SC) within a defined logistics site. Therefore, the

development of the enterprise is important for the formation of the appropriate level of competitiveness of the enterprise, which requires timely and effective investments. As a result, it will provide an opportunity to significantly increase the economic efficiency of logistics activities of a key component of the supply chain.

In order to increase the economic efficiency of logistics activities (LA) of enterprises, which is to increase the level of use of assets of their production logistics systems (PLS), it is necessary to scientifically substantiate the type of efficiency assessment indicators used. Therefore, the theory and practice of LA management at industrial enterprises, which are a core-forming component of SC, requires a qualitative economic justification of investment measures, which must be forecasted for the long term before their implementation. This problem can be solved by using a targeted approach in the process of such assessment.

Analysis of recent research. Review of the numerical amount of professional literature devoted to the issues of economic efficiency of investments [1-9; 13; 16], and its thorough analysis provided an opportunity to reach such a conclusion. At this time in terms of attitudes to investment methods and performance indicators of all researchers can be divided into three groups:

1) apologists for the indicator of the so-called reduced costs and its use as a criterion for choosing effective investment decisions [1-3; 5; 8];

2) supporters of the concept of cash flow, taking into account the time factor [10];

3) supporters of the simultaneous use of both the first and second approaches to comparing investment options [7; 13].

The principles of determining the economic effect as a useful result, the division of effects into two types – absolute and comparative, and methods for calculating these effects are considered in modern publications, for example, in [2; 3; 8; 10]. It is known that the economic efficiency of investments, including in the PLS of enterprises, is assessed using a certain set of efficiency indicators, which are divided into static and dynamic. The static indicators that do not take into account the time factor include: net profit (Prn), return on equity (R), payback period (Tbp). Dynamic indicators that take into account the time factor include: net cash flow (NCF), profitability index (PI), internal rate of return (IRR), payback period taking into account the time factor (discounted) (Tpb.d). At the same time, the need to create such a system of evaluation indicators of the investments effectiveness in the development of PLS of enterprises is urgent, which will necessarily have to be combined with causal links.

The analysis of modern literature provided an opportunity to identify the existence of different approaches to assessing the effectiveness of investment in economic activities of manufacturing enterprises, which are key components of supply chains. It is established that scientists mainly focus on performing calculations of the economic effect of investment, which is to compare results and costs. In this case, regardless of the type of evaluation indicators used in the process of comparing results and costs, operations can be used to deduct costs from the results obtained or divide the result by costs. Thus, from the author's point of view, to assess the effectiveness of investment in the development of industrial enterprises should use absolute and relative cash flows, the values of which are used in the calculations of absolute and comparative effects, respectively. With this in mind, a targeted approach should be applied to improve the quality of assessing the effectiveness of investments in the development of manufacturing enterprises.

The purpose and objectives of the research. The purpose of the article is to substantiate the evaluation of the effectiveness of investment in the development of manufacturing enterprises, which are key components of supply chains, using a targeted approach.

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The main material and results of the research. The essence of the criterion of net cash flow (NCF) is to compare the current value of future cash flow from the project with the investment costs necessary for its implementation. The value of NCF is determined by formula (1):

$$NCF = \sum_{t=1}^{T} CF_t k_{\partial t} - I_0 \quad , \quad (1)$$

where CF_t – is the cash flow of the t-th year; k_{dt} – is the discount rate of cash flow of the t-th year; I_0 – is one-time investment (so-called zero year); T – is the duration of the settlement period (investment cycle).

Researchers point to the following advantages of the NCF indicator compared to other evaluation indicators:

a) it is an absolute indicator and measures the additional return on invested capital, taking into account the time factor;

b) it has the property of additivity;

c) it can be used to rank (streamline) investment decisions. Therefore, investment management experts recommend using the NCF (also called the present effect) and the internal rate of return to assess the effectiveness of investment. Moreover, in case of discrepancies between these indicators, researchers recommend to prefer the criterion of NCF [2, p. 351].

The cash flow of the t-th year is calculated as the sum:

$$CF_t = \mathrm{Pr}_{nt} + A_t - K_t + K_{liqT}, \quad (2)$$

where Pr_{nt} – net profit of the t-th year; A_t – depreciation in the t-th year; K_t – capital investment of the t-th year; K_{liqT} – liquidation value of fixed assets in the last (t-th) year of the settlement period.

A similar method of calculation is to determine the increase in cash flow (ΔCF_t) as the sum of the increments of its components, the most important of which are the increase in net profit (ΔPr_{nt}) and depreciation (ΔA_t).

In turn, the increase in net profit from investing in certain logistics activities will be:

$$\Delta \mathrm{Pr}_n = \Delta C + \Delta \mathrm{Pr}_q + \Delta \mathrm{Pr}_s - P_{tax}, \quad (3)$$

where ΔC – savings of current costs (cost of products or services); ΔPr_q – growth of profit from sales due to improving product quality; ΔPr_s – growth of profit from sales due to growth in sales; P_{tax} – tax on taxable profit.

The economic efficiency of logistics solutions for the development of key components of SC consists in the possible reduction of costs for transportation and storage of raw materials, which leads to lower costs of products, manufactured by the enterprise or its services, reduced inventories, increased contractual discipline. All these factors affect the operating and balance sheet profits of the enterprise, and therefore the impact of logistics decisions on the economy of the enterprise should be assessed through known factors (sources) of profit growth.

The cost of production, its reduction – the most important factors in the formation of enterprise profits, quantitative assessment of the impact of which on the results of its activities should be performed taking into account the provisions of current regulations on accounting and calculation of products. At the same time, it should be taken into account that logistics costs are components of the cost of production.

Absolute cash flows occur when cash flows are compared with zero, and relative (comparative) cash flows – when comparing options for financing certain activities [2, p. 132–133].

To determine the impact of changes in economic conditions on the economic effect as the end result of the enterprise determines the so-called comparative effect (ΔNCF), this is equal to the difference of absolute economic effects for the two comparing options – evaluation (2) and base (1):

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$$\Delta NCF = NCF_2 - NCF_1 = (\sum CF_2 \cdot k_{dt} - I_2) - (\sum CF_1 \cdot k_{dt} - I_1), \quad (4)$$

where ΔCF_t – increase in cash flow in the t-th year; $k_{\partial t}$ – cash flow discount rate of the t-th year; ΔI – increase in investment (or investment) by comparing options (basic and new).

If the increase in cash flows is an annuity, the formula for calculating the comparative economic effect is simplified to the form:

$$\Delta NCF = \Delta CF \cdot k_{d.an} - \Delta K, \quad (5)$$

where ΔCF – cash flow increase (constant in each year of the settlement period); $k_{d.an}$ – annuity discount rate; ΔK – increase in one-time investments in the option that is evaluated and compared with the baseline.

Economic assessment of the comparative economic effect is to determine the incremental indicators that reflect changes in the activities of the enterprise due to the investment of additional investments in the assets of its PLS. Such indicators, as mentioned above, can also be static or dynamic.

A significant part of economic indicators that measure the costs and results of production and logistics activities of the enterprise is characterized by the property of additivity (the possibility of summation). For example, such indicators include: logistics costs, operating costs, cost of goods or services, investments, net cash flow, and so on. This means that these indicators can be summarized by the production and economic process as a whole, operations, products, divisions of the enterprise, planned or implemented measures, investment decisions, and so on. At the same time, these economic indicators can be detailed by distribution by certain levels and measures.

At such detailing it is offered to use methods of the target approach to acceptance of logistic decisions [10; 11; 14; 15].

It should be noted that almost all decisions that are made in the process of managing the enterprise, the content is economic or technical and economic. As a rule, such decisions can be classified as situational by reason, strategic in duration, rational in the way of substantiation, single- or multi-criteria in the number of evaluation criteria under consideration.

To make logistics decisions it is needed:

1) to substantiate the choice of methods and indicators for assessing the economic efficiency of investments in the PLS of the enterprise and apply in practice the criteria for selection of investment decisions;

2) to pre-build a tree of goals and solutions in the process of managing real investment.

To reveal the content of the target approach to solving the management problem, consider the essence of goals, their types and rules for building goal trees.

Currently, the following two definitions of purpose are known, which reveal the essence of economic management methods in the process of managing the enterprise:

1) the purpose is a qualitative description of the desired result of activity of the production and economic organization or its divisions;

2) the goal is a specific end position or the desired result of the object of management, which is obtained after the implementation of the management decision.

The main thing when building goal trees is the ability to identify (and then reflect) causal relationships in the process of detailing targets at each subsequent level. In this case, the purpose of each upper level is a consequence in relation to the purpose of each lower level.

To avoid confusion in establishing such relationships, it should be accepted as a rule that each new level is a cause that leads to a consequence, i.e. consequence-cause relationships should be implemented in the process of detailing goals from top to bottom (the sequence is as follows: from the trunk trees to its branches). Then, in a directed

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graph, which is a goal tree, when conditionally changing the directions of the goal tree to the opposite, on the contrary, we obtain causal relationships between phenomena and indicators considered in a particular tree (here we choose the sequence from tree branches to its trunk).

It should be noted that both in theory and in practice, it is not the term "consequential and causal relations" that is more common, but rather "causal and consequential relations". The latter connection is more natural and therefore common in various sciences. At the same time, there is no need to prove that these types of relationships are inverse: consequential and causal relations are "from partial to general" relationships, but causal and consequential relations are "from general to partial" relationships. In the first type of connection, is used such a method of scientific research as induction, and in the second – deduction. For example, the growth of production and sales (ΔPS) leads to an increase in working capital turnover (Δn_{to}), to the subsequent release of capital investment (ΔK_{ci}) and reduction of logistics costs (ΔLC), and in general to reduce the cost of production (ΔC) and, finally, to increase net profit (ΔPr_n) and return on capital invested in production (ΔR). This sequence of changes can be represented as a so-called "chain of communication", where the symbol "→" should be read as the verb "determines":

$$\Delta PS \to \Delta n_{to} \to \Delta K_{ci} \to \Delta LC \to \Delta C \to \Delta \mathrm{Pr}_n \to \Delta R. \qquad (6)$$

If in the given "chain of communication" to change the direction of arrows on the return, we will receive one of branches of a tree of the purpose directed on increase of return on capital.

As can be seen from the list of indicators of the chain (6), all of them, both natural and generalized – cost and are a quantitative measure that characterizes only LA and its impact on change (growth) of economic activity of the enterprise as a whole – production and sales (ΔPS) – on the final financial indicator of growth of profitability of production – ΔR.

Using the property of additivity of economic indicators, consider an example of building a tree of investor goals, the achievement of which will provide maximum effect from the implementation of the investment project, based on formulas for calculating net cash flow (NCF), profitability index (PI), capital price (CP), net profit (Pr_n), cost of the product unit (C_{pu}). When constructing the tree of goals for maximizing the economic effect and the profitability index of investments, the formulas for calculating these indicators are used to assess the effectiveness of investments in fixed assets for logistics purposes. The goal tree (fig. 1) takes into account that the criteria of maximum NCF and profitability index (PI) are consistent with each other. The growth factors of NCF and PI coincide – it is an increase in cash flows and a decrease in investment.

Capital price is the debt of the investor as a percentage of the amount of investment, which is defined as a weighted average. It is the sum of multiplications of the prices of the i-th sources of financing P_i, by their share in total investments d_i:

$$CP = \sum P_i \cdot d_i.$$

It is necessary to minimize the CP because it is accepted as a discount rate and this process causes the growth of NCF. Ways to achieve this goal are the minimum borrowing of capital $(p_{bor} \to \min)$ and its minimum share (in units) in the amount of investment $(d_{bor} \to \min)$.

In fig. 1, in addition to the above, the following notation values are accepted: $k_{d.t}$ – cash flow discount rate, N – sales volume;

P_{pu} – product unit price; C_{pu} – product unit cost; $C_{m.pu}$ – the cost of materials for the manufacture of a product unit; $C_{w.pu}$ – the cost of wages in the unit cost of production; R_d – the rate of depreciation; T_d – the period of depreciation of fixed assets of the enterprise PLS.

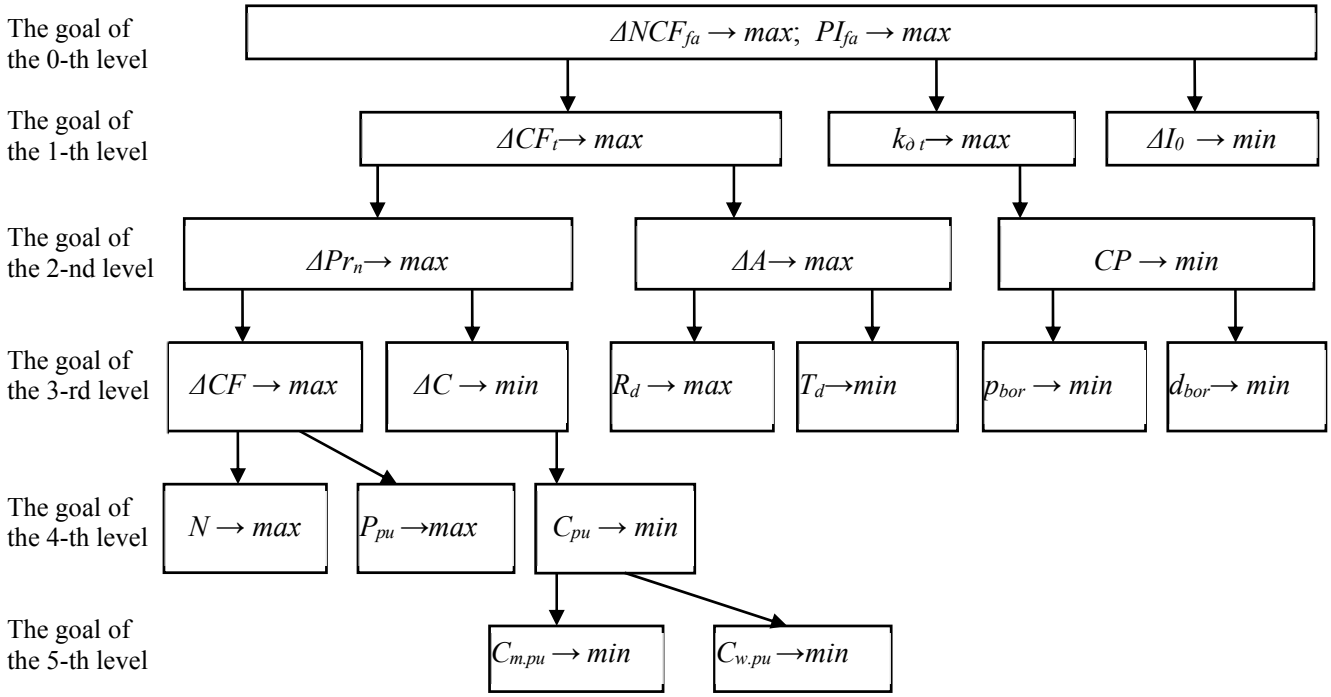

Figure 1 – Tree of maximizing the efficiency of investment in the main assets of the enterprise PLS

The considered tree of goals has five levels of detail of the algorithm for calculating the comparative economic effect – from the integrated indicator to the generalizing, and then – to the partial cost. Detailing can be continued further, passing to indicators of higher (in the sense of disaggregation) level: change of norm of an expense of materials and their cost, change of labor intensity of production, etc.

To assess the effectiveness of investing in the assets of the PLS of the enterprise as a whole on the so-called dynamic indicators that take into account the time factor, by analogy, use the above approaches. Thus, the increase in net cash flow (ΔNCF) when investing in the assets of the enterprise LS is equal to the sum of the increments of the NCF by type of assets (fixed assets (ΔNCF_{fa}), working capital (ΔNCF_{wc}), intangible assets (ΔNCF_{ia}) enterprise PLS):

$$\Delta NCF = \Delta NCF_{fa} + \Delta NCF_{wc} + \Delta NCF_{ia}. \quad (7)$$

In view of the above, the general goal $\Delta NCF \rightarrow \max$, in accordance with the additivity property of this indicator for any sources of its growth, can be considered as three independent branches of the tree of goals that implement the following requirements:

$$\Delta NCF_{fa} \to \max; \qquad \Delta NCF_{wc} \to \max; \qquad \Delta NCF_{ia} \to \max. \tag{8}$$

The most important position in the construction of target trees and further calculations of the economic effect is as follows: when maximizing the effect should use the method of elimination when calculating the growth of various indicators from changes in individual factors. For example, in determining ΔNCF_{fa} take into account changes in net income from the use of fixed assets of the PLS and the corresponding depreciation of these funds, in calculating ΔNCF_{wc} – increase in net profit from accelerating working capital turnover, and in determining ΔNCF_{ia} – corresponding increase in net income and depreciation of their value. Similar to changes in current expenses and annual profit, the calculations of each of the components of the total ΔNCF will include changes in only that part of the investment in the assets of the enterprise PLS, which is considered. This is the method of eliminating certain costs and revenues that change under the influence of a particular factor.

Conclusions. The economic efficiency of the enterprise within the supply chain largely depends on the level of use assets of its logistics system. This necessitates investment. Such investments must be effective. Given this, at the article was proposed the practical application of methodological tools to assess the effectiveness of investment in the development of a key component of the supply chain on the basis of a targeted approach.

References

1. Ben', T. (2007). Metody opredeleniia ekonomicheskoq effektivnosti investitsiy; sravnitelnyy analiz. Ekonomika Ukrainy. No 3. PP. 12-19.

2. Birman, G., Shmidt, S. (1997). Ekonomicheskiy analiz investitsionnykh proektov ; pod red. Moskow : Banky i birzhi, YUNITI. 631 p.

3. Bromvich, M. (1996). Analiz ekonomicheskoy efektyvnosti kapitalovlozheniy. Moskow : Infra-M. 425 p.

4. Gladka, D. O. Metodyky analizu efektyvnosti investytsiynoy diialnosti. URL: file:///C:/Users/Home/Downloads/1852-6632-1-PB.pdf (Accessed 24.02.2021).

5. Zavlin, P. N., Vasilev, A. V. (1998). Otsinka efektivnosti innovatsiy. SPb. : Izdatelskiy dom «Bizness–pressa». 216 p.

6. Kovtun, N. V. Problemy otsinyvannia efektivnosti investytsiynoy diialnosti. URL: http://magazine.faaf.org.ua/osoblivosti-ocinyuvannya-efektivnosti-investiciynoi-diyalnosti-na-mikrorivni.html (Accessed 24.02.2021).

7. Krylov, E.I., Vlasova, V.M., Zhuravkova, I.V. (2003). Analiz efektuvnosti investitsionnoy i innovatsionnoy deiatelnosti predpriiatia ; 2-e izd., pererab. i dop. Moskow : Finansy i statistika. 608 p.

8. Nortkott, D. (1997). Priniatie investitsionykh recheniy ; pod red. A. N. Shokhina. Moskow : Banky i birzhi, YUNITI. 247 p.

9. Otsinka ekonomichnoyi efektyvnosti vyrobnychykh investytsiy. URL : https://pidru4niki.com/84362/ekonomika/otsinka_ekonomichnoyi_efektivnosti_virobnichih_investitsiy (Accessed 24.02.2021).

10. Pelikhov, E.F. (2005). Ekonomicheskaia efektivnost innovatsiy : monografiia. Kharkov : Izdatelstvo NUA. 168 p.

11. Pelikhov, E.F., Sumets, A.M. (2013). Upravlenie urovnem efektivnogo ispolzovaniia aktivov logisticheskoy sistemy predpriiatiia na osnove tselevogo podkhoda No 1. PP. 69-78.

12. Pryymak, V.M. (2008). Pryyniatia upravlinskykh richen. Kiev. 240 p.

13. Staryk, D.E. (2001). Raschety efektivnosti investitsionykh proektov. Moskow : ZAO «Finstatinform». 131 p.

14. Sumets, A.M., Pelikhov, E.F. (2013). Upravlenie urovnem ispolzovaniia aktivov logisticheskoy sistemy predpriiatiia na osnove tselevogo podkhoda. Logistika: problemy i recheniia. No 5. PP. 36-41.

15. Sumets, A.M. (2013). Tsilovyy pidkhid do upravlinia aktyvamy pidpryemstva iak metod pidvyshchenia efektyvnosti yogo logistychnoy diialnosti. Vcheni zapysky Tavriyskogo natsionalnogo universytetu imeni V.I. Vernadskogo. Tom 26 (65). No. 2. PP. 147-155.

16. Sharovska, T.S. (2010). Otsinka ta analiz realnykh investytsiy. Visnyk Zaporizkogo natsionalnogo universytetu. No. 1 (5). PP. 67-76.