S. RUSANOVA

AUTOMATED PROJECT MANAGEMENT SYSTEM IN TRANSPORT LOGISTICS

Part 2. Planning and managing a logistics center project in Project Management

The article is a continuation of regular research on project management based on efficient transportation. **The purpose of the work** is to improve the efficiency of management decision-making in the implementation of projects in transport logistics through the use of automated planning and analysis systems. **The object of study** is the process of forming organizational support for project management in transport logistics using automated planning and analysis systems for project efficiency. **The subject of the study** is the practical tools for organizational support of project management in transport logistics using automated systems for planning and analyzing project performance. **Methods**. In the course of the study, a systematic approach was implemented, general scientific methods were used, including logical analysis, synthesis, induction, deduction, analogy, and modeling. The theoretical and methodological basis of the study is the fundamental provisions of project management, management efficiency theory, scientific works of domestic and foreign scientists on project management at the micro, meso, and macro levels. Given the purpose of the work, several **tasks** were set and solved, in particular, the applied imperatives of resource and budget planning were outlined on the example of a logistics center based on the Odesa seaport and the project implementation was monitored in *Microsoft Project*. In terms of resource and budget planning, the expediency of using the method and indicators of the volume utilized is proved. The actual progress of the project against the planned indicators is analyzed. A new project was created using the *Microsoft Project* software and data entry method. In terms of monitoring, conclusions were drawn on the course of events in the project implementation and the status of implementation by individual types of work was clearly shown. All this made it possible to achieve concrete **results**. In terms of resource and budget planning, it was determined to what extent there is a deviation from the planned project implementation timeframe. In terms of monitoring, the need to optimize staffing, budget, and time parameters was identified. The essence of this optimization boils down to the decision to attract additional labor resources with the corresponding cost of work per hour. This made it possible to get rid of the conflict and obtain positive dynamics in the project implementation, as evidenced by the date of its completion, which remained unchanged after the resources were equalized. The need to continue the study and focus on project risk management is outlined.

Keywords: project; project planning; project implementation; project management; port logistics; transport logistics; logistics center.

Introduction

Today, project activities are often carried out in unstable, unpredictable conditions, when the external environment is characterized by increased uncertainty, and customer requirements are unclear and highly dynamic. As a result, there is a growing need for flexible project management. Ukraine's post-war recovery will be characterized by many positive and negative aspects. The key challenge of this period will be financing infrastructure restoration projects, including port infrastructure. Despite the fact that European countries are committed to providing assistance, our country faces acute problems of budget control, investment revenues, project implementation time, etc. Thus, according to the information portal Slovo i Dilo, three countries will take over the patronage of the Luhansk region at once: the Czech Republic, Sweden, and Finland. The United States and Turkey will help rebuild Kharkiv, and

Greece will help rebuild Mariupol and Odesa. Denmark has pledged to restore civilian infrastructure in Mykolaiv [1]. However, the restoration of ports and industrial infrastructure will be carried out according to a completely different mechanism, which is being developed by practitioners from many countries and different industries. A key factor in successfully attracting investment in this context is the transparency of the use of funds. The success of this condition is possible through the use of automated systems for planning and analyzing project performance, which proves the relevance and timeliness of the research results submitted for review.

Analysis of current publications

The theoretical, methodological and applied basis of the results obtained was the research of foreign experts of different periods and scientific fields.

Thus, on the basis of the publications of V. Rach, O. Medvedeva, Y. Zhuk [2], N. Bushuyeva [3], T. Andreeva, T. Petrovska, T. Tytar [4],

V. Beskorovainyi, L. Kolesnyk, D. Yevstrat [5], D. Lytvynenko, O. Maleeva [6, pp. 44–51] structured the procedure for project planning and management. The works of E. Boichenko and N. Vasylchuk [7, p. 25–32] became the basis for the formation of initial monitoring imperatives in general and the selection of monitoring indicators in particular. Thanks to the research of R. Bowen, J. Turner, A. Vasilevska [8–10], practical calculations were made in the Microsoft Project software package, as well as its various modifications [11, 16, 17]. The key ideas on the use of Project Management in logistics were based on the research of I. Koblyanska, E. Mishenin, V. Medvid, Y. Maistrenko [12]. The idea of risk assessment using Project Management is based on the principles of analyzing digitalization works, in particular by the following authors:

O. Polishchuk, T. Kulinich, N. Martynovych, Y. Popova [13]. Despite the sufficiency and completeness of the research, the period in which Ukraine is currently experiencing has exceptional characteristics that cannot be compared with those that were previously experienced, either in terms of the country's internal development or foreign policy. Therefore, there is now a need to develop organizational support for project management in transport logistics based on the use of automated project planning and performance

analysis systems for the purpose of its further massive implementation in practice, both at the micro, meso, and macro levels.

The purpose of the study is to increase the efficiency of management decision-making in the process of implementing projects in transport logistics through the use of automated planning and analysis systems.

Materials and methods

The information base of the study was the publications of domestic and foreign authors.

The research process implemented a systematic approach and used general scientific methods such as logical analysis, synthesis, induction, deduction, analogy, and modeling. Data processing was carried out using the *Microsoft Office* suite of applications, in particular, the *Microsoft Excel* spreadsheet, the *Microsoft Word* text editor, and *Microsoft Project*.

Study results and discussion

It should be noted that this article is a continuation of a study the results of which are reflected in other publications, in particular in [14]. According to the theory presented in [15, pp. 8–11], the basic structure of a project consists of several stages (Fig. 1), with four of the five stages being planning and one being management.
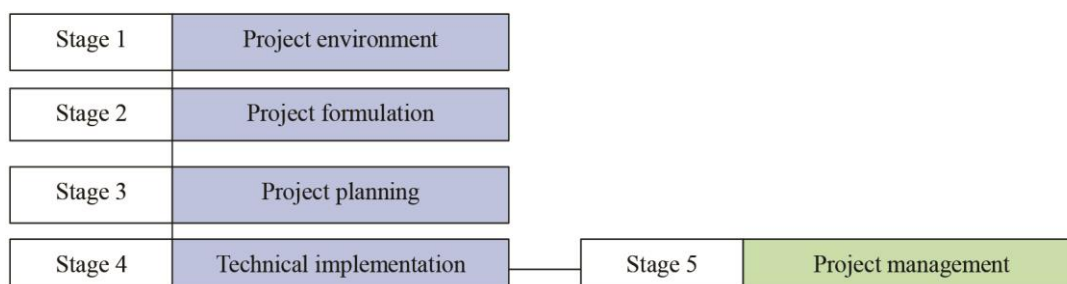

Fig. 1. Project planning and management process. *Source: compiled by the author based on [15]*

Given the topic of the article, let's take a closer look at resource and budget planning on the example of creating a logistics center on the basis of the Odesa seaport. The project management of a logistics center (hereinafter referred to as LC) involves monitoring the implementation of the project in accordance with the plan. This control is carried out on the basis of the events obtained as a result of monitoring, which makes it possible to predict possible changes and contributes to the

development of scientifically sound recommendations. The latter become the basis for substantiating appropriate management decisions in the early stages of problematic processes or phenomena in order to prevent, overcome, or neutralize their impact [7, p. 28]. Monitoring of the implementation of the LC project should be carried out after a certain period of time. Taking into account the war in Ukraine, which is a key risk factor, we believe that it is advisable to monitor it on a monthly basis.

That is why we set this time interval in *Microsoft Project*. This ultimately made it possible to establish that almost all resources (time, human, financial) in the LC project are overloaded. This creates the preconditions for optimizing resources and tasks.

It is worth noting that the most common universal tool for determining deviations in any project is the completed scope method (hereinafter referred to as CS) [3]. This method involves drawing up a full description of the project and a detailed schedule of its implementation at the initial stage, which was done by the author of the article. The advantage of the delivered scope method is that it provides accurate and reliable information on the progress of the project already at the 15% stage of implementation, i.e. at the beginning [3]. Thus, the monitoring of the implementation of the LC project using the actual volume method was based on the following indicators (Fig. 2).
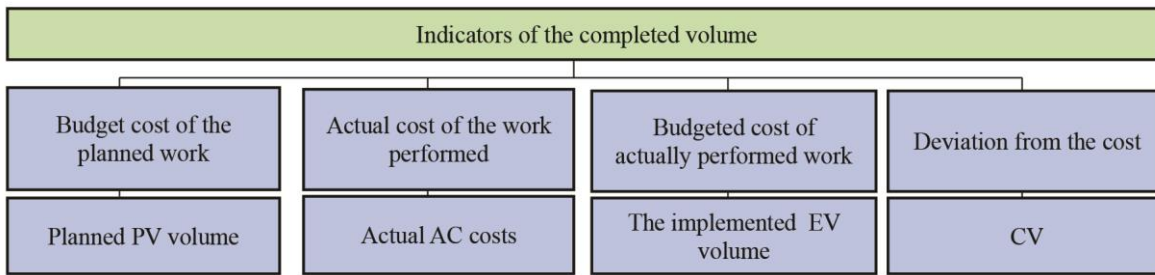

Fig. 2. Indicators of the completed volume method. *Source: compiled by the author based on [3]*

The planned (budgeted) cost of the planned work, or planned scope, is the sum of the planned budgeted costs of the work to be performed under the project on a certain date under consideration. It is calculated based on the project plan. The actual cost of work performed, or actual costs, is calculated as the sum of the actual costs of the project as of the date under consideration, based on accounting documents. The budgeted cost of work actually performed, or the completed volume, is calculated as the sum of the budgeted costs of all work actually performed on the project as of the date under review, based on actual project status reports.

The cost deviation is calculated using the formula CV=EV-AC and shows in monetary terms how much more resources were spent on the work already completed compared to what was planned [3]. In our case, we used the completed volume method to analyze the actual status of the LC project. To conduct monitoring using the completed volume method, we analyzed the actual progress of the project against the planned indicators and identified deviations (Table 1; Figs. 2, 3).

As can be seen from the figure (Fig. 4), to submit monitoring with tracking, you need to set the monitoring date. In our project, it is 05.12.2023. Thanks to the tracking, you can find out how much the project deviates from the planned project implementation time. Such a measure is necessary because the process of implementing a LC project is influenced by many factors, the dominant of which is the war and its consequences, which cause risks and ultimately advance or delay in the implementation period, shortage or surplus of project resources, etc.

After monitoring the implementation of the LC project by individual types of work, the results of which are shown in Figs. 5 and 6, we establish the real state of the LC project as of the monitoring date by comparing the actual indicators for individual types of work with the planned ones. Let's consider the actual data on the work of the project A (Fig. 5).

Considering the figure, it should be noted that the blue line reflects the actual status of the work according to the calendar – the start date is 05.11.2023, the end date is 09.11.2023. In this case, the blue line does not differ from the gray line in length, which indicates that there is no deviation from both the planned and actual dates. The work lasted five days as planned, so it was completed on time. Similarly, we analyzed the performance of works B, C...K (Fig. 6).

The analysis of the results obtained during the execution of the works made it possible to establish that the start and end dates for almost all works coincide, which indicates that the tasks for the development of resources were completed on time. The actual duration of two days, 100%, indicates that the work was completed on time. However, there is a deviation from the planned results for work K. The results shown in Figure 6 confirm that the work is only 20% complete. According to the current data, these works started on 11/12/2023 and should be completed on 11/29/2023.

Since the monitoring date is 05.12.2023, it can be stated that the works are being performed with a delay of 11 days. Thus, timely tracking of resource deviations allows timely and informed management decisions to be made. In addition, the results of monitoring project implementation deviations make it possible to forecast information on such indicators as the time and cost of the project. For this purpose, as already mentioned, we used the method of the completed volume and calculated the indicators (Table 2).

Table 1. *Results of monitoring project implementation deviations*[*]

Task	Dev. beginning, days	Dev. finish, days	Dev. duration, days	Dev. value, ₴	Balance of expenses, ₴	Dev. of labor costs, h	Balance of labor costs, h
Start	0	0	0	0,00	0,00	0	0
P3.0	**0**	**3**	**3**	**3 840,00**	**148 720,00**	**32**	**1 153,6**
P3.1	**0**	**4**	**4**	**3 840,00**	**24 320,00**	**32**	**160**
P3.1.1	**0**	**4**	**4**	**3 840,00**	**0,00**	**32**	**0**
A	0	3	3	2 400,00	0,00	24	0
B	3	3	0	0,00	0,00	0	0
C	3	4	1	1 440,00	0,00	8	0
P3.1.2	**4**	**4**	**0**	**0,00**	**14 080,00**	**0**	**80**
D	4	4	0	0,00	5 120,00	0	32
E	4	4	0	0,00	5 760,00	0	32
F	4	4	0	0,00	3 200,00	0	16
P3.1.3	**4**	**4**	**0**	**0,00**	**10 240,00**	**0**	**80**
G	4	4	0	0,00	2 560,00	0	16
H	4	4	0	0,00	3 840,00	0	32
I	4	4	0	0,00	3 840,00	0	32
P3.2	**3**	**3**	**0**	**0,00**	**39 840,00**	**0**	**265,6**
P3.2.1	**3**	**3**	**0**	**0,00**	**19 040,00**	**0**	**153,6**
J	3	3	0	0,00	8 960,00	0	89,6
K	3	3	0	0,00	7 680,00	0 ч	48
L	3	3	0	0,00	2 400,00	0 ч	16
P3.2.2	**3**	**3**	**0**	**0,00**	**20 800,00**	**0**	**112**
M	3	3	0	0,00	16 000,00	0	80
N	3	3	0	0,00	4 800,00	0	32
P3.3	**4**	**3**	**–1**	**0,00**	**50 400,00**	**0**	**448**
P3.3.1	**4**	**3**	**–1**	**0,00**	**36 960,00**	**0**	**336**
O	3	3	0	0,00	10 080,00	0	112
P	3	3	0	0,00	13 440,00	0	112
Q	3	3	0	0,00	6 720,00	0	56
R	4	4	0	0,00	6 720,00	0	56
P3.3.2	**4**	**4**	**0**	**0,00**	**13 440,00**	**0**	**112**
S	4	4	0	0,00	6 720,00	0	56
T	4	4	0	0,00	6 720,00	0	56
P3.4	**3**	**3**	**0**	**0,00**	**34 160,00**	**0**	**280**
P3.4.1	**3**	**3**	**0**	**0,00**	**20 560,00**	**0**	**136**
U	3	3	0	0,00	1 920,00	0	16
V	3	3	0	0,00	8 960,00	0	56
W	3	3	0	0,00	1 280,00	0	8
X	3	3	0	0,00	8 400,00	0	56
P3.4.2	**3**	**3**	**0**	**0,00**	**11 520,00**	**0**	**128**
Y	3	3	0	0,00	2 560,00	0	16
Z	3	3	0	0,00	8 960,00	0	112
P3.4.3	**3**	**3**	**0**	**0,00**	**2 080,00**	**0**	**16**
Ї	3	3	0	0,00	800,00	0	8
Ь	3	3	0	0,00	1 280,00	0	8
Finish	3	3	0	0,00	0,00	0	0

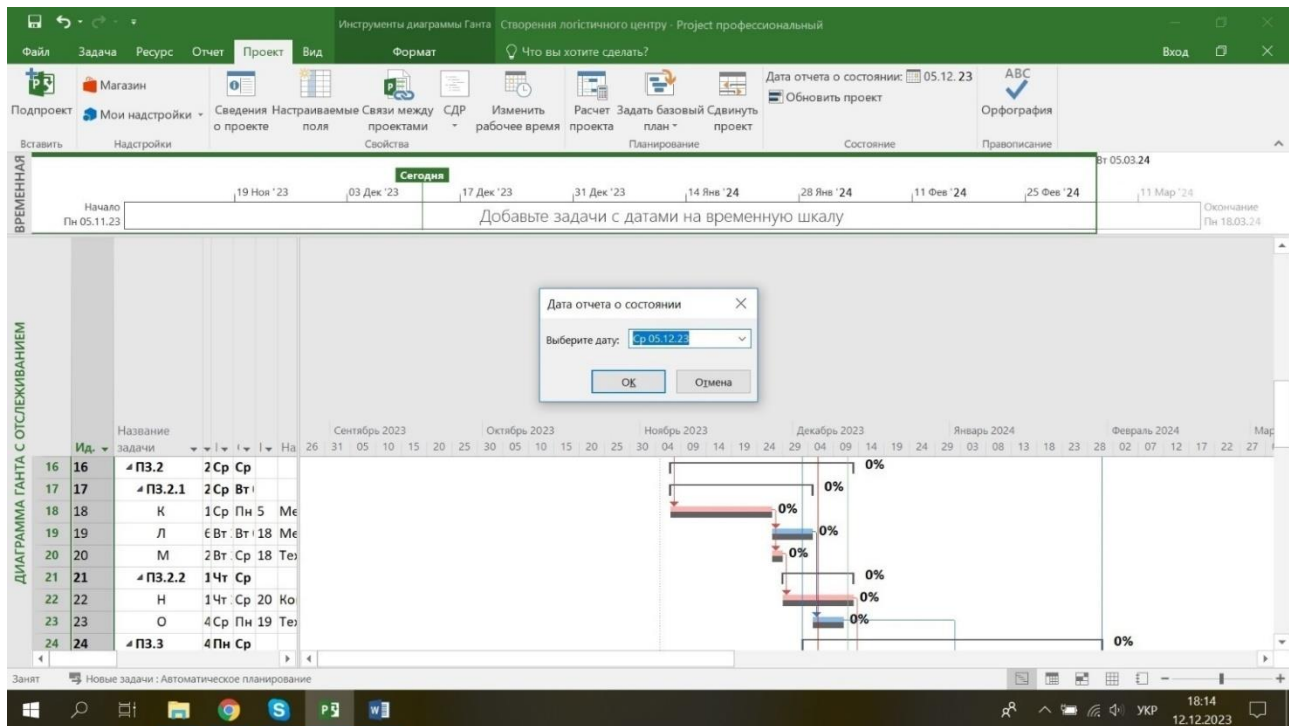*The following table was created in the program package *MS Excel*

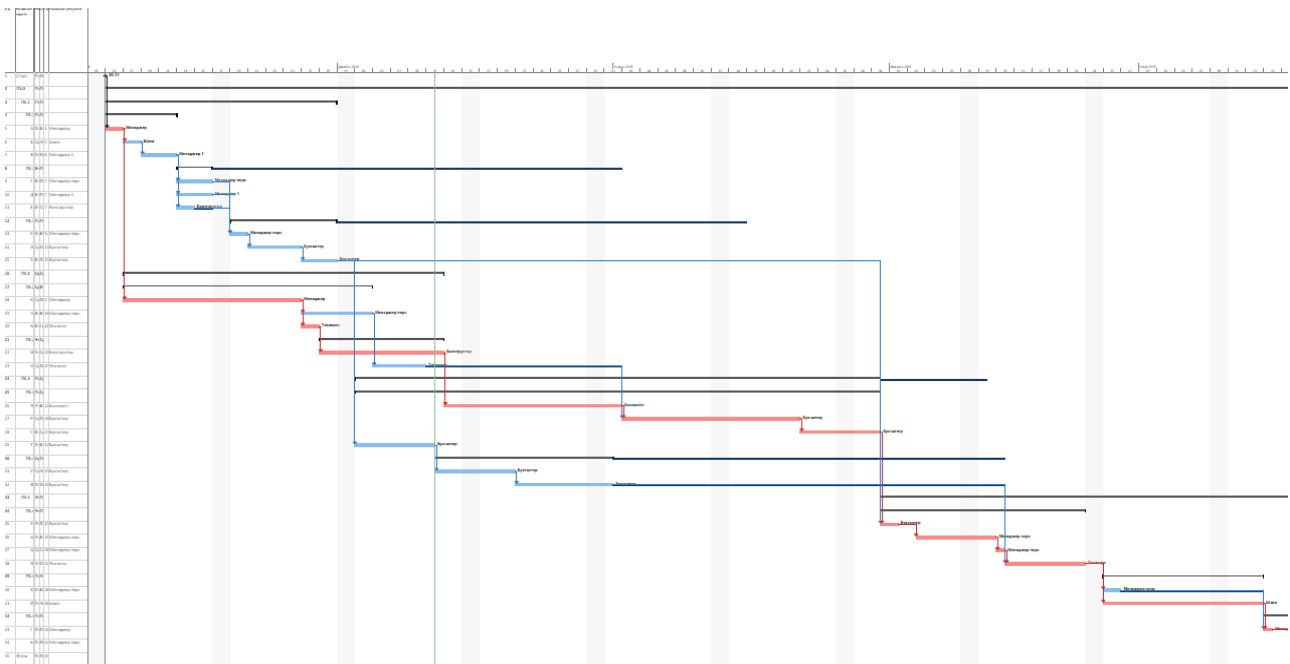**Fig. 3.** Monitoring with project tracking of the *Microsoft Project* LC creation

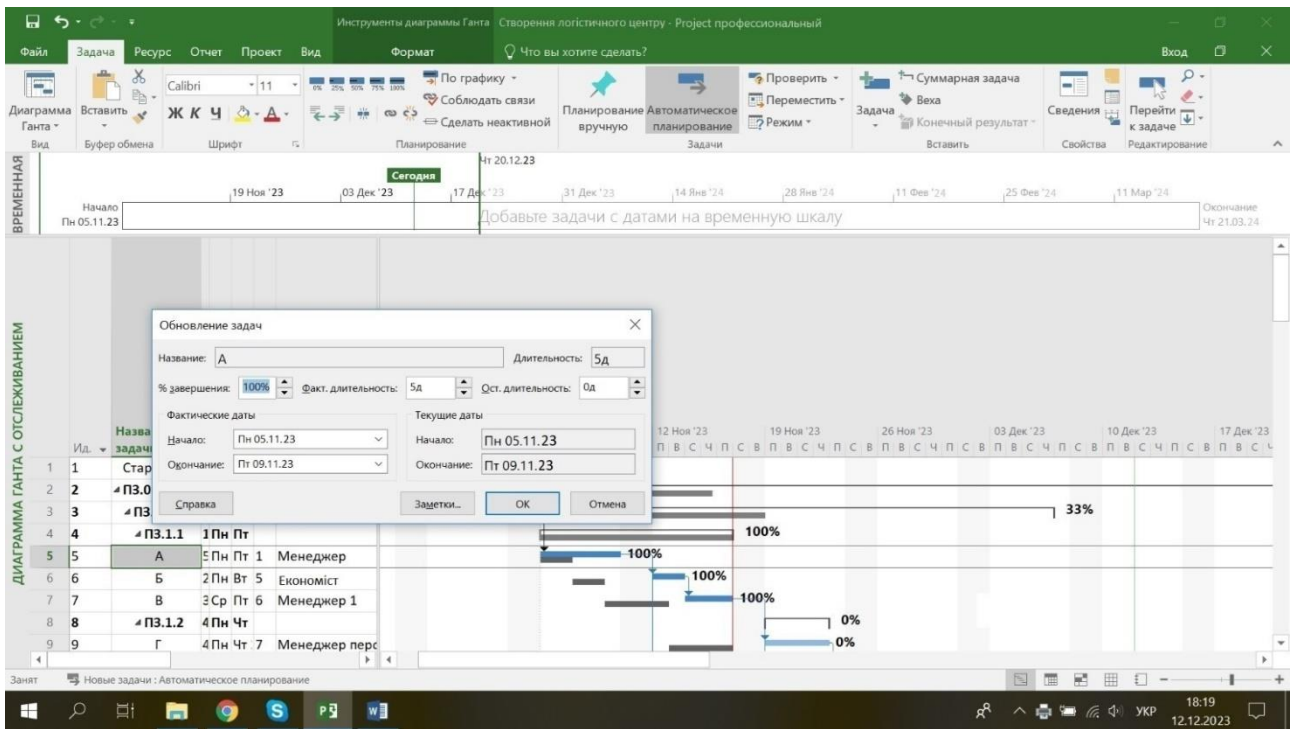**Fig. 4.** Basic (initial) project plan for the creation of a *Microsoft Project* LC

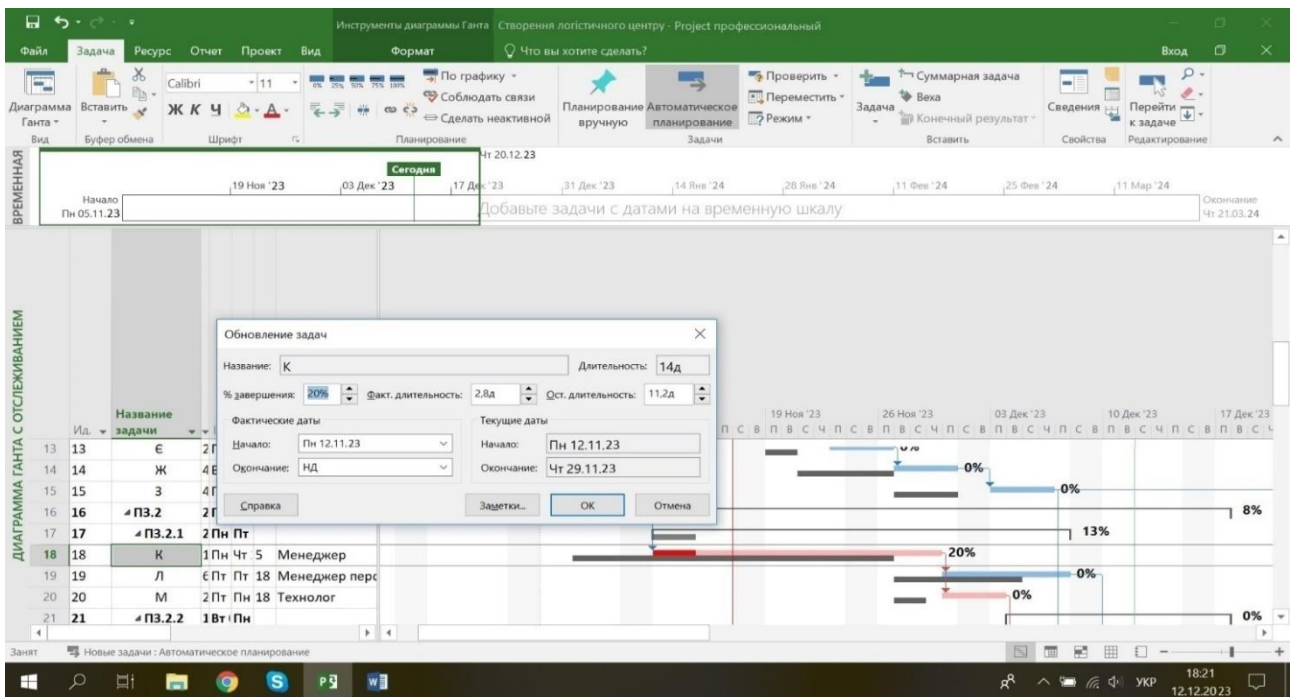**Fig. 5.** Monitoring of the implementation of the project to create the LC for A work

Fig. 6. Monitoring of the implementation of the project to create a LC for K work

218

ISSN 2522-9818 (print)
ISSN 2524-2296 (online)
Innovative technologies and scientific solutions for industries. 2023. No. 2 (24)

Table 2. *Results of the completed volume of the LC creation project*

Indicator	The essence of the indicator	Actual indicator value
Planned (budgeted) cost of works (planned PV volume)	It is the amount of the planned budgeted cost of work to be performed under the project as of a certain date under consideration. It is calculated based on the project plan.	31 040 UAH
Actual cost of work performed (actual AC costs)	Calculated as the amount of actual project costs as of the date under consideration based on accounting documents	11 840 UAH
Budgeted cost of actually performed works (utilized volume EV)	Calculated as the amount of the budgeted value of all work actually performed on the project as of the date under review, based on actual project status reports	31 040 UAH
Deviation from the cost (CV)	CV=EV–AC Indicates in monetary terms of the extent to which more resources were spent on the work already completed compared to what was planned	19 200 UAH The reason for savings – change in the price of resources
Deviation from the schedule (SV)	SV=EV–PV Indicates in monetary terms the extent to which the work performed at planned prices is less than planned	0 UAH due to advancement of the planned calendar schedule in monetary terms
Cost performance index CPI	CPI=EV/AC	2,621621622 CPI>1 indicates cost savings
Schedule performance index SPI	SPI=EV/PV	1 SPI>1 indicates cost savings
Cost deviation index CDI	CDI=CV/EV	0,618556701030 CDI<1 indicates cost savings

Thus, the monitoring results proved the need for optimization, the essence of which is to hire an additional manager and an economist with the corresponding cost of work per hour (180 UAH/hour and 90 UAH/hour, respectively). This made it possible to get rid of the conflict. Comparing the calendar schedule before and after optimization, we observe positive dynamics in the project implementation, as evidenced by the date of its completion – 18.03.2024, which remained unchanged after the resources were equalized. Along with monitoring, the project implementation procedure for the creation of a logistics center includes project risk management. Practice shows that due to instability in politics, the economy, the social sphere, cash shortages, inflationary surges, social aggression, natural disasters, etc. the project may not be completed. Therefore, achieving the ultimate goal requires identifying and minimizing risks, which is the prospect of future research.

Conclusion and further development prospects

The article discusses an applied task of implementing a project to create a logistics center based on Microsoft Project. The results of the study presented for consideration have led to a number of conclusions. The main ones are as follows.

For the successful implementation of the post-war reconstruction of the country, it is necessary to rely on project management and its applied tools, which include *Microsoft Project*. It is outlined that project planning and management include, in particular, monitoring and risk assessment. The implementation of the logistics center project was monitored in *Microsoft Project*, which revealed the need for optimization, the essence of which is the additional involvement of a manager and an economist with the corresponding cost of work per hour (180 UAH/hour and 90 UAH/hour, respectively). This made it possible to get rid of the conflict. The calendar schedule before and after the optimization was compared. A positive trend in project implementation was established, as evidenced by the completion date of 03/18/2024. This date remained unchanged after the resources were equalized. The proposed developments practically prove the value of project management and create the basis for identifying and minimizing risks, which is the prospect of future research.

Recommendations

When planning investment projects, we suggest that entrepreneurs, local and state authorities use *Microsoft Project* and its modifications, in particular: *Project Expert, Spider Project, Worksection*.

219

ISSN 2522-9818 (print)
Сучасний стан наукових досліджень та технологій в промисловості. 2023. № 2 (24)
ISSN 2524-2296 (online)

References

1. "Post-war reconstruction of Ukraine: which countries took patronage over cities and regions", available at: https://www.slovoidilo.ua/2023/03/01/infografika/suspilstvo/pislyavoyenne-vidnovlennya-ukrayiny-yaki-krayiny-vzyaly-shefstvo-nad-mistamy-ta-oblastyamy (last accessed 21.05.2023)

2. Rach, V., Medvedieva, O.б and Zhuk, Ju. (2021), "Minimax ranking method for prioritization problems in project portfolio management and business analysis", *Intelligent Information Systems for Decision Support in Projects and program management*: collective monograph, *European University Press*, Riga: ISMA, P. 215–230. DOI https://doi.org/10.30837/MMP.2021.215.

3. Bushueva, N. (2007), "Models and methods of proactive management of organizational development programs" ["Modeli i metody proaktivnogo upravleniya programmami oganizacionnogo razvitiya"]: monograph., UPMA, 199 p.

4. Andreeva, T., Petrovska, T., Tytar, T. (2011), "Project management as a means of achieving the company's goal" ["Proektnyi menedzhment yak zasib dosiahnennia mety pidpryiemstva"], *Bulletin of the Transport and Industry Economy,* No. 34, P. 364–370, available at: http://www.irbis-nbuv.gov.ua/cgi-bin/irbis_nbuv/cgiirbis_64.exe?I21DBN=LINK&P21DBN=UJRN&Z21ID=&S21REF=10&S21CNR=20&S21STN=1&S21FMT=ASP_meta&C21COM=S&2_S21P03=FILA=&2_S21STR=Vetp_2011_34_222

5. Beskorovainyi, V., Kolesnyk, L., Yevstrat, D. (2022), "Formalization of the problem of transport logistics optimization networks at the stage of reengineering", *Innovative technologies and scientific solutions for industries*, No. 2 (20), P. 5–13. DOI: 10.30837/ITSSI.2022.20.005

6. Lytvynenko, D., Malyeyeva, O. (2022), "Risk management in projects of restoration the regional transport structure on the basis of participants' communication", *Innovative technologies and scientific solutions for industries*, No. 2 (20), P. 44–51. DOI: 10.30837/ITSSI.2022.20.044

7. Boichenko, E., Vasilchuk, N. (2017), "Monitoring of international donor support in the context of development of the united territorial communities", *Baltic Journal of Economic Studies*, No. 3 (5), P. 25–32. DOI: https://doi.org/10.30525/2256-0742/2017-3-5-25-32.

8. Bowen, R. (2013), "Implementing Best Communication Practices With Your Project Team", Bright Hub Project Management, available at: http://www.brighthubpm.com/resourcemanagement/60211-communicating-effectively-with-your-project-team/ (last accessed 21.05.2023)

9. "Post-war reconstruction of Ukraine: which countries took patronage over cities and regions" [Pislyavoyenne vidnovlennya Ukrayini: yaki krayini vzyali shefstvo nad mistami ta oblastyami], available at: https://www.slovoidilo.ua/2023/03/01/infografika/suspilstvo/pislyavoyenne-vidnovlennya-ukrayiny-yaki-krayiny-vzyaly-shefstvo-nad-mistamy-ta-oblastyamy (last accessed 21.05.2023)

10. Rach, V., Medvedieva, O., Zhuk, Ju. (2021), "Minimax ranking method for prioritization problems in project portfolio management and business analysis", *Intelligent Information Systems for Decision Support in Projects and program management*: collective monograph, European University Press, Riga: ISMA, P. 215–230. DOI https://doi.org/10.30837/MMP.2021.215

11. Vasylevska, A. (2012), "Enterprise project management using information technologies" ["Upravlinnia proektamy pidpryiemstva iz vykorystanniam informatsiinykh tekhnolohii"], Bulletin of the Kyiv National University of Trade and Economics, No. 1, P. 99–105, available at: http://visnik.knteu.kiev.ua/files/2012/01/10.pdf

12. "Project Management Institute (PMI)", available at: https://www.pmi.org/ (last accessed 21.05.2023)

13. Koblianska, I., Mishenin, Ye., Medvid, V., Maistrenko Yu. (2018), "Sustainable regional development policy formation: role of industrial ecology and logistics", *Entrepreneurship and sustainability issues*, No. 6 (1), P. 329–341 DOI:10.9770/jesi.2018.6.1(20)

14. Polishchuk, O., Kulinich, T., Martynovych, N., Popova, Yu. (2022), "Digitalization and sustainable development: the new covid-19 challenge requires non-standard solutions", *Problemy Ekorozwoju,* No. 17(2), P. 69–79. DOI: 10.35784/pe.2022.2.08

15. Rusanova, S. (2023), "Applied imperatives of project management in port logistics. Part I. Planning of the logistics center creation project" ["Prykladni imperatyvy upravlinnia proiektamy v portovii lohistytsi. Chastyna I. Planuvannia proiektu stvorennia lohistychnoho tsentru"], *electronic magazine "Scientific News of Daliv University"*, No. 1 (23). P. 211–225.

16. Brodska, A. (2013), "The use of information technologies in enterprise project management", *Management of the development of complex systems*. Vol. 13, P. 8–11, available at: http://urss.knuba.edu.ua/files/zbirnyk-13/8-11.pdf

17. "Worksection: Ukrainian project management system", available at: http://worksection.com/ua/ (last accessed 21.05.2023)

Відомості про авторів / About the Authors

Русанова Світлана Сергіївна – Одеський національний морський університет, асистент кафедри "Експлуатація портів і технологія вантажних робіт", Одеса, Україна; e-mail: rusanova20140909@gmail.com; ORCID ID: 0000-0003-3624-6582

Rusanova Svitlana – Odesa National Maritime University, Assistant Professor at the Department of Port Operation and Cargo Handling Technology, Odesa, Ukraine.

АВТОМАТИЗОВАНА СИСТЕМА УПРАВЛІННЯ ПРОЄКТАМИ В ТРАНСПОРТНІЙ ЛОГІСТИЦІ

Частина 2. Планування й управління проєктом створення логістичного центру в Project Management

Стаття є продовженням регулярних досліджень, присвячених управлінню проєктами на базі ефективного транспортного забезпечення. **Мета роботи** – підвищення ефективності прийняття управлінських рішень під час реалізації проєктів у транспортній логістиці з допомогою використання автоматизованих систем планування й аналізу. Об'єктом **вивчення** є процес формування організаційного забезпечення управління проєктами в транспортній логістиці з використанням автоматизованих систем планування й аналізу ефективності проєкту. **Предмет дослідження** – практичний інструментарій організаційного забезпечення управління проєктами в транспортній логістиці з використанням автоматизованих систем планування й аналізу ефективності проєкту. **Методи**. У процесі дослідження реалізовано системний підхід, використані загальнонаукові методи, зокрема логічний аналіз, синтез, індукція, дедукція, аналогія, моделювання. Теоретико-методичною основою вивчення стали фундаментальні положення з проєктного менеджменту, теорії ефективності управління, наукові праці вітчизняних і зарубіжних учених щодо управління проєктами на мікро-, мезо- й макрорівнях. З огляду на мету роботи поставлено та розв'язано декілька завдань. Окреслено прикладні імперативи планування ресурсів і бюджету на прикладі логістичного центру на базі одеського морського порту й здійснено спостереження за реалізацією проєкту в *Microsoft Project*. У частині планування ресурсів і бюджету доведено доцільність використання методу та показників освоєного обсягу. Проаналізовано фактичний хід виконання проєкту за плановими показниками. З використанням програмного продукту *Microsoft Project*, способом уведення даних створено новий проєкт. У частині моніторингу сформульовано **висновки** про перебіг подій у реалізації проєкту та наочно показано стан реалізації за окремими видами робіт. Усе це дало змогу здобути конкретні **результати**. У частині планування ресурсів і бюджету визначено, наскільки відбувається відхилення від запланованих строків реалізації проєкту. У частині моніторингу встановлено необхідність в оптимізації кадрового, бюджетного й часового параметрів. Сутність цієї оптимізації зводиться до рішення додаткового залучення трудових ресурсів із відповідною вартістю робіт за годину. Це дало змогу позбавитися конфлікту й досягти позитивної динаміки в реалізації проєкту, про що свідчить дата його завершення, яка після вирівнювання ресурсів залишилася без змін. Окреслено необхідність продовження дослідження та зосередження уваги на управлінні ризиками проєкту.

Ключові слова: проєкт; планування проєкту; реалізація проєкту; управління проєктом; портова логістика; транспортна логістика; логістичний центр.

Бібліографічні описи / Bibliographic descriptions

Русанова С. С. Автоматизована система управління проєктами в транспортній логістиці. Частина 2. Планування й управління проєктом створення логістичного центру в Project Management. *Сучасний стан наукових досліджень та технологій в промисловості*. 2023. № 2 (24). С. 212–220. DOI: https://doi.org/10.30837/ITSSI.2023.24.212

Rusanova, S. (2023), " Automated project management system in transport logistics. Part 2. Planning and managing a logistics center project in Project Management", *Innovative Technologies and Scientific Solutions for Industries*, No. 2 (24), P. 212–220. DOI: https://doi.org/10.30837/ITSSI.2023.24.212