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THE APPLICATION OF PROJECT MANAGEMENT TECHNIQUES IN OPERATIONS MANAGEMENT
ВИКОРИСТАННЯ МЕТОДІВ УПРАВЛІННЯ ПРОЄКТАМИ В ОПЕРАЦІЙНОМУ МЕНЕДЖМЕНТІ

Summary. *Introduction. Modern businesses require flexible and efficient management approaches, making project management methodologies increasingly popular across various industries. While project-based management is often essential for achieving strategic goals, its full application is most suitable for project-oriented companies, whereas continuous-production industries primarily use it for tasks like product development and technology implementation. However, project management techniques have the potential for wider application at manufacturing and service companies.*

Purpose. The research aims to analyze and discuss the possibility of improving the management of enterprises' non-project-based operational activities through the use of adapted techniques, methods and approaches commonly used in project management.

Materials and methods. The research is based on studies of Ukrainian and foreign scholars on operations and project management, as well as information about existing managerial practices. It uses scientific methods of observation, abstraction and generalization, comparison, analysis and synthesis, and deduction to investigate the current state of the problem, to find the areas that require improvement, and to propose potential solutions.

Results. The article provides a new perspective on existing problems and potential solutions in this field. The key features of operational activities and their similarities and differences in comparison with project activities are considered. An integrated approach is proposed that allows the application of certain methodologies and project management tools to production processes and service provision at enterprises in various industries.

Discussion. The results obtained can be applied to a wide range of enterprises, as well as other organizations. Further research can be aimed at identifying industry features and developing recommendations for using specific project management methods and tools.

Key words: *management, administration, operations management, project management, management methods, planning.*

Анотація. *Вступ. Сучасний бізнес потребує гнучких та ефективних управлінських підходів, тому нові методології управління проєктами стають дедалі популярнішими в різних галузях. Хоча управління проєктами часто є важливим для досягнення стратегічних цілей, його повне застосування найбільш підходить для проектно-орієнтованих компаній, тоді як підприємства з безперервним виробництвом в основному використовують його для таких завдань, як розробка продукту і впровадження технологій. Однак методи і засоби управління проектами мають потенціал для ширшого застосування у виробничих та сервісних компаніях.*

Мета. Метою дослідження є аналіз та обговорення можливості вдосконалення управління непроєктної операційної діяльності підприємств за рахунок використання адаптованих методів, прийомів та підходів, що зазвичай застосовуються в управлінні проєктами .

Матеріали і методи. В основу дослідження покладено праці українських та зарубіжних вчених з питань операційного та проєктного менеджменту, а також інформація про існуючі управлінські практики. Використано наукові методи спостереження, абстракції та узагальнення, порівняння, аналізу та синтезу, дедукції для дослідження сучасного стану проблеми, виявлення сфер, що потребують удосконалення, та пропозиції можливих шляхів вирішення проблем.

Результати. У статті запропоновано новий погляд на існуючі питання відповідно до теми дослідження та можливі шляхи їх вирішення Розглянуто ключові особливості операційної діяльності, її схожість та відмінності порівняно з проєктною діяльністю. Запропоновано комплексний підхід, який дозволяє застосовувати окремі методи та інструменти управління проєктами до виробничих процесів та надання послуг на підприємствах різних галузей.

Перспективи. Отримані результати можуть бути застосовані до широкого кола підприємств, а також інших організацій. Подальші дослідження можуть бути спрямовані на виявлення галузевих особливостей, розробку рекомендацій щодо використання конкретних методів та інструментів управління проектами.

Ключові слова: *менеджмент, управління, операційний менеджмент, управління проєктами, проєктний менеджмент, методи менеджменту, планування.*

Problem setting. Modern businesses and organizations operate in a highly dynamic environment that requires flexibility, high efficiency, and rapid

adaptation to change. Considering this, project management approaches, techniques, tools, and methodologies such as Agile methodologies (e.g. Scrum) and more traditional approaches like PERT (Program evaluation and review technique) and CPM (critical path method) become more and more popular among managers. They are used in managing various projects, a very common type of primary activity in numerous economic fields such as information technologies, research and development, design, construction, technology, etc.

The application of the project-based approach helps to structure processes, optimize the use of resources, improve the quality of the decision-making, and ensure the achievement of the company's strategic goals [1, p. 164; 2, p. 120]. Obviously, such opportunities are only possible if the company and its operations are project-oriented. In the case of enterprises in such industries as mechanical engineering, processing, and mineral production, i.e. those industries that are characterized not by temporary projects but by long, continuous, or cyclical production processes, and whose operations are continuous, the use of project management techniques is possible only for certain activities related to the development of new products, the introduction of technologies, and the implementation of certain administrative measures.

However, there is a possibility of wider application of project management tools and instruments for planning the operational activities of such enterprises, in particular, for optimization of production and logistics processes in supply chains and ensuring the implementation of their strategy in the most efficient way. To date, certain approaches, such as the critical path method, are used and represented in the scientific and practical management literature as project management methods aimed at managing large projects and are practically not used to manage mass production, continuous production processes, or operations of service companies.

Analysis of the latest research and publications. According to a number of modern scientific publications [3, p. 221], operations management is described

as the management of production systems and operations related to the production or transformation of materials, information and other operational resources into a finished product. Some sources also note that service activities are also the subject of operational management. In addition, there are researchers that characterize operations management as a "production and economic system" and indicate that production management, manufacturing management, and operations management are concepts that are closely related and often have a synonymous meaning [3, p. 221]. It is important to note that the activities in question are mainly the ongoing daily activities of the company in accordance with its strategic goal and are not project-based.

Project management, in contrast, is characterized as an effort to manage processes that are temporary in nature: product development, implementation of administrative measures, installation of equipment and machinery, design or construction of various structures, etc. The start and the end are key characteristics of a project. This difference is among the reasons why certain methods that are actively used in project management are often underestimated by managers as tools that can serve to improve production processes in mass manufacturing and service industries. Obviously, in the case of enterprises, such as IT companies, where projects are the primary activity, operations management is mostly project management. At the same time, in industrial enterprises, project activities are mostly a small part of the work.

Novakivskyi I. [1, p. 165] his work on the organizational system of enterprise management notes that project management methods can be best implemented in project-oriented organizations and those in which project management covers a significant part of the organizational management system. The paper also highlights the importance of using modern tools and means of project management automation with the help of information technology. The author also emphasizes the integration of project management tools with enterprise management systems and other software. This, in our opinion, may also

be an indicator of the high potential for using of project management tools outside of the traditional framework of project-related activities.

According to Ravinder and Kollikkathara [4, p. 307], there is a gap in the teaching of operational management in higher education institutions in terms of integrating learning materials on project management within operation management textbooks. More recently, the need to integrate these two areas of management education is emphasized by Gonzalez and Dudley [5, p. 41–43], in particular in the military sphere, that is the source of many modern approaches to project management and is a sphere of activity where the project-based approach is extremely common. All this is evidence of the insufficient attention paid to this issue worldwide, which highlights the importance of the topic discussed j this article.

Purpose of the research. The purpose of this research is to analyze and discuss the possibility of improving the management of operational activities of enterprises through the use of adapted techniques, methods and approaches commonly used in project management.

Materials and methodology. The research is based on theoretical studies of Ukrainian and foreign scholars on operations and project management, as well as information about existing managerial practices, particularly those outlined in the Project management body of knowledge (PMBOK) [6].

The study uses general scientific methods: observation, abstraction and generalization, comparison, analysis and synthesis, and deduction to investigate the current state of the problem, to find the areas that require improvement, to propose potential solutions for the discussed issues regarding the topic of the research, and to provide theoretical and practical recommendations which can be used to improve the operations management routines at companies that belong to wide variety of industries.

Presentation of the main material. The Guide to the Project Management Body of Knowledge [6, p. 153–192] contains a large number of models, methods,

and so-called artifacts that fall into several categories and are used to plan and organize project activities. With significant simplification, several wide categories can be recognized:

1) management function-related models and methods (motivation, leadership, communication, strategic change models, methods of individual and group decision-making);

2) analytical models and methods (mathematical and statistical methods, SWOT, Delphi, decision trees, simulations, benchmarking, critical path method CPM, PERT, etc.)

3) documentation and project visualization-related methods and outputs: plans, breakdown structures, schedules, journals, reports, network diagrams, flowcharts, Gantt charts, matrices, histograms, etc.).

These categories can serve as starting points for grouping the existing capabilities of the enterprise to implement these approaches and help in structuring specific activities that will be aimed at implementing management functions using project management tools. The main goals and objectives of operational management include controlling performance, managing risks, ensuring the quality of products and services, and reducing the costs of the company's business processes [7, p. 111]. Since an operation is a small-scale, short-lived independent element of a technological process or a separate type of work aimed at performing a specific task. Of course, the scale is different, but at the same time, we see significant similarities between the characteristics of an operation and those of a project: time constraints, a clear goal, and limitations in terms of organizational and resource factors.

It's interesting to note that many modern approaches to project management, especially in the information technology sector, originate from operational management tools, such as lean manufacturing. For example, Kanban cards were originally used to indicate the need for materials in Toyota's production system, and today they are a key tool for teamwork planning and task

management in IT projects. Of course, these tools have been modified, and now it is reasonable to consider them as a completely separate tool that can be used from a new perspective, including in manufacturing, as a means of allocating resources, but not just for inventory.

If we consider the possibilities of implementing such project management tools as critical path calculation, network diagrams, kanban, some of them are already used in enterprises. For example, Gantt charts are used to indicate work schedules of production units of enterprises in various industries, not only for projects, although in the management literature, they are still positioned as a tool used mainly for project management. A significant share of these project management tools is aimed at optimizing and improving planning processes [6]. They can also be useful for the process of organization, i.e., the allocation of enterprise resources: people, machines, money, time, etc.

Based on the above, it is possible to propose the following approach to the implementation of project management (PM) techniques in operations management (shown in Figure 1).

It consists of a step-by-step analysis of existing operations at the enterprise, in particular, the processes of serial and mass production, service provision, as well as those activities that are already project-based. It is possible to advise to distinguish between three types of activities that exist at an enterprise:

1) cyclic/continuous processes,

2) acyclic recurring operations,

3) temporary one-time activities or projects.

So, the 3rd type allows the direct use of project management tools, while the 1st and 2nd types require the identification or determination of individual time-limited segments or parts of work that can be considered as activities that have a beginning and an end, similar to the way projects are addressed. A single production cycle or finished product assembly process, regardless of the volume of production, can be visualized using a simple network graph, a Gantt chart, the

critical path can be investigated, and the time spent on this operation can be optimized.

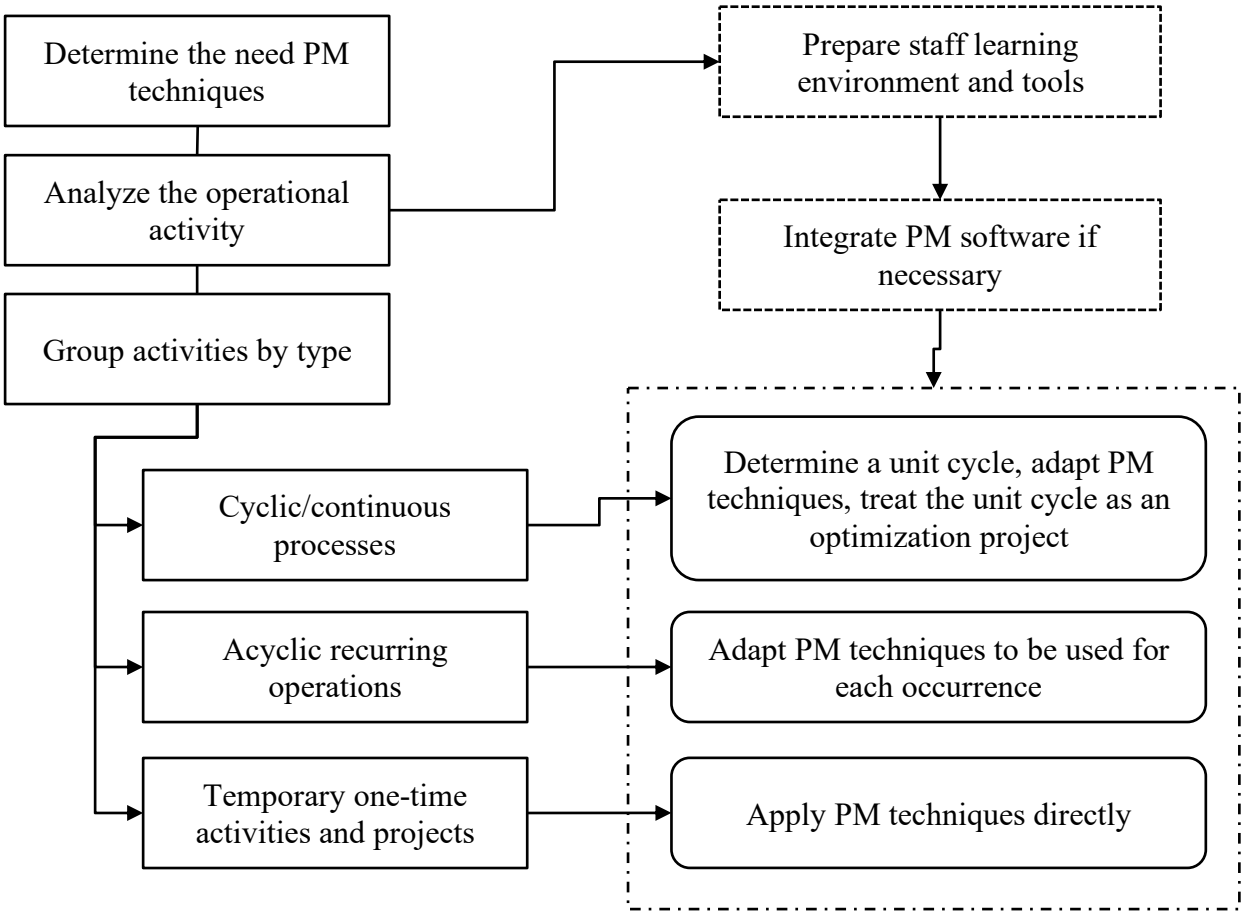

Fig. 1. Proposed approach to the use of project management techniques in the management of the company's operational activity

Source: developed by the author

This is especially important in those processes that include parallel sub-processes. For example, the process of automobile assembly at a production facility includes the preparation of individual components, such as the engine, transmission, and body, which are prepared in parallel. Obviously, in such circumstances, there is a possibility of inefficient use of time and delays or uneven workloads in individual production areas, which can have certain benefits if project management tools are used to optimize this isolated process with further transfer of the findings to the assembly line for mass manufacturing.

Of course, operations research tools, in particular, the critical path method, are an integral part of operations research, but given that this method is positioned in the scientific and educational literature as a project management method, it is highly probable that in an average mass-production manufacturing enterprise, this method is not used to optimize the processes.

Similarly, other project management means, such as agile project management methods, may be applicable to these cyclic repetitive processes with certain limitations, provided that, for instance, an iterative approach to performing this work is possible. This is not always possible in the case of a physical product, although it has definite potential in the service, research, and development sector.

In the case of acyclic repetitive processes, there are certain activities that are isolated in time from each other but are performed within a certain structure of a specified plan. For example, these can be inspections, reporting, equipment maintenance, inventory replenishment, etc. Each of these activities can be considered a mini-project, which in turn allows the application of project management techniques to them, although, in fact, these activities are not a project as such. Another important point is that the use of project management tools can be a one-time event at the planning stage of these recurring activities, i.e., it can be an element of planning only. Depending on the complexity of specific activities and their duration, it may be considered advisable to use such tools as responsibility assignment matrices, Gantt charts or project management software, resource and work breakdown structures, story estimates for particular activities, task tracking, and many others.

The process of implementing such an approach may consist of the following steps: identification of all activities at the enterprise within its operational scope, division of these activities into separate processes and operations, in the case of cyclical processes, breaking them into individual cycles, analysis of the possibility of using particular project management techniques, optimization of processes at the planning stage, ongoing and post-process control

over the execution of the individual cycles, improvement of the decision-making process regarding the overall course of mass production or service providing.

An important element in this case is staff training, which is an integral part of such initiatives, as the use of new, previously unused management tools and methods can be difficult for managers. Training can be organized in three directions: the use of software, theoretical training, and the development of systems thinking in terms of integrating the project-based approach and classical operations management techniques in the manufacturing and service sectors. Training can be time-consuming, so it should be divided into discrete elements and implemented gradually, in parallel with introducing specific project management tools.

In addition, it may be important to implement appropriate information technologies and integrate project management software with enterprise management systems, such as ERP systems. The implementation of information technology tools can be focused on two areas: the first is manual work with data: data analysis, business analysis, planning, development of schedules and timetables, allocation of financial, material, and other resources; the second is project management automation, which plays a significant role today [8, p. 92].

Conclusions and prospects for further research. Therefore, the proposed approach aims to increase the efficiency of planning and organizing operational activities by expanding the range of managerial tools used at the enterprise. Its application will allow companies whose activities are not project-based in their essence to gain additional opportunities to optimize manufacturing and service processes, improve production efficiency and resource utilization, increase staff awareness about scientific approaches, and, consequently, gain additional competitive advantages.

Further research in this area may be aimed at studying industry differences in this area, developing recommendations for the use of specific project management tools in managing operations in the presence of certain specific

combinations of internal and external factors that affect the functioning of the enterprise. It is also possible to study the impact of uncertainty and high risk caused by external factors on the use of the above-mentioned tools and approaches.

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