

ORGANIZATIONAL AND FINANCIAL SUPPORT OF INVESTMENT PROJECT MANAGEMENT IN THE ECONOMIC DEVELOPMENT OF THE REGIONS OF UKRAINE³

Investment project management is a crucial component of the economic development of any country region, including Ukraine. Each project goes through certain stages in the implementation, while competent management activity plays a very distinct role. The main objectives of this study were to highlight the current issues of project management in the context of building the potential for regional development and to create a model for managing various investment projects that would be most suitable for the majority of Ukrainian entrepreneurs and to increase the efficiency of their functioning. The methods used quite actively in this study were analysis, deduction, induction, historical, modelling and others. The researchers define the essence of the concept of investment project, in particular, as a set of processes (planning, execution, management analysis) where the project is born and implemented. At the same time, all of the processes described above have subcomponents also characterized by certain features. This approach helped to describe in detail and consider the essence of investment project management. This work also shows that the most effective methodology for enterprise managing processes can be network planning and governing. It has certain comparative advantages, helping to depict the future planned management and implementation process in the form of graphs and models and to manage all internal processes during the project life cycle quite effectively, including technological and production steps. Therefore, this work brings new knowledge to the management theory, opening the way to a different view of the basic principles of investment project management.

Keywords: government support; innovation; network planning; modelling; process approach
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1. Introduction

An indisputable statement in the field of modern economic science is that investments (both domestic and foreign) have a decisive impact on the state of socioeconomic and cultural development of the territory (Ababio et al., 2022; Emako et al., 2022). The investing process generally means acquiring assets to generate income in the future (Sawitri, Brennan, 2022). However, innovative investment becomes more important in today's environment because it relies not only on expanding or modernizing production processes but also on investing in human capital (Xu et al., 2020). In other words, innovation should be an integral part of the investment. Nevertheless, the independent development of new technologies and encouragement of investors in some countries are unlikely without government support, particularly in those with economies in transition. This emphasized the problem of investment project management and research on this topic (Mingaleva, Aitkazina, 2013). Given the exceptional role of project management in modern conditions and its small importance in Ukraine, the authors decided to conduct a study with a more detailed description of this phenomenon (Crispin, 2020). Therefore, the purpose of this paper is to describe the essence of an investment project, to evaluate different approaches in the Ukrainian economic literature, and to suggest the most effective method of managing internal processes.

A large number of scholars have studied the topic of investment project management in the world including observation of how effective the development of this particular direction is at various types of enterprises. S. Spalek (2014) particularly examines in detail the effects that occurred after companies have actively invested in this field. Nevertheless, this particular study is limited as it focuses on only three industries: information technology (IT), mechanical engineering and construction. The concept of an investment project has been a subject of study by such well-known scholars as W.A. Valencia et al. (2023) who describe and analyse it from several perspectives, giving it a detailed definition based on the process method. In turn, B.T. Venczel et al. (2021) sought opportunities to improve the efficiency of investment projects. They were able to build a model that helped them to achieve this goal by using regular feedback from project stakeholders. In addition, the researchers provided a list of notable criteria and factors in project management. It should be also noted that the very thorough work by J. Soberaj and D. Metelski (2022), which assesses the determinants of investment project management in the rather specific conditions of the Polish construction sector. They formulate conclusions about local management features in some detail and consider options for using investment management methods. The authors L. Deng and Y. Chang (2022) provided an interesting example of using artificial neural networks to assess the risks of an investment project. At the same time, they do not describe in much detail the future prospects for the use of various technologies and the threats that neural networks may cause.

2. Materials and Methods

The authors should first note that project management has a vague definition in Ukrainian economic thought and it is often confused with business planning. Project management is a

consistent process of planning, execution, analysis and guidance through certain methods and tools to ensure the greatest efficiency in the implementation of a particular investment project. This phenomenon is a set of processes that form the relevant investment project in their synergy and gradual transition to each other, while the formation of a business plan is a much narrower concept of the integral components of project management. The authors used an extensive legal base, introducing new chapters of Ukrainian legislation, including the Law of Ukraine “On Investment Activity” (1991) and “On Protection of Foreign Investments in Ukraine” (1991). The relevant information came from certain international organizations, in particular, the International Organization for Standardization (2017) and the American National Standards Institute (ANSI).

The systematic approach helped to understand the essence of the concept of an investment project by dividing it into an ordered set of small components (processes). The authors used a synergistic approach, which required maximum consideration of all aspects of the investment project management and the identification of the main and essential characteristics at the interaction level of internal processes. The researchers also used a significant number of long-known scientific methods. One of them was an analysis that processed large amounts of information in order to draw appropriate conclusions about the management of investment projects at enterprises. The historical method was widely used to assess the use of this concept in Ukraine. The modelling method was equally important, as it helped to substantiate and describe the process of company project management and show its main features and complexities. The models developed in this study involved the experience of analysing real investment projects and their subsequent implementation. The authors used a graphical method to depict the relevant models aimed at simplifying the process of perceiving information through its visualization. The models built using the abstraction method helped to avoid the influence of some minor factors. The authors applied the method of deduction to identify the main processes that play a major role in investment design. The researchers used both induction and deduction methods to draw conclusions about the general state of the processes of implementing the principles of investment project management in Ukraine.

3. Results

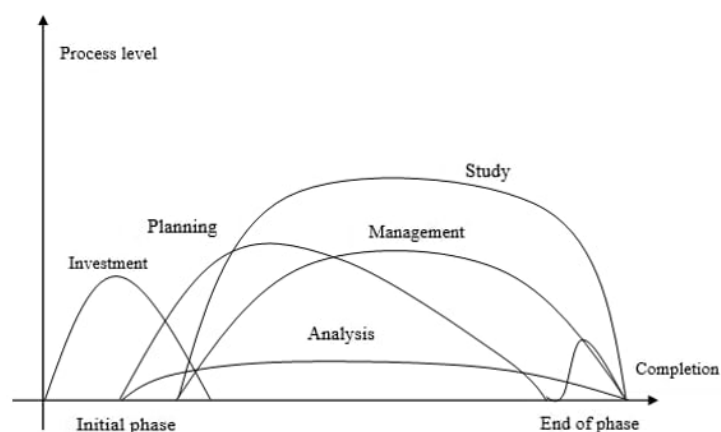
It is impossible to use financial resources effectively in modern conditions without comprehensive investment project management as one of the key areas of modern management. The specialists in this area are in demand and highly paid. Both ANSI and ISO 10006 (Flores-Rios et al., 2009) standards helped to unify and improve the efficiency of modern management systems. The term project itself is actually quite broad. It includes the creation of individual goods or services for further sale, as well as entire enterprises or companies. All of them are temporary, which means that they have a clear life cycle (their beginning and end) and are at the same time unique, i.e., different from all others and have no complete analogues. The management process itself should be subject to a certain logic that would interconnect all components during its implementation within areas of knowledge and have goals that include not only the outcomes but also the way to achieve them. The assessment of profitability and criteria of costs or process duration assist in defining the

achievement of success. A real opportunity to manage internal processes in the course of project implementation (cost, profitability, timing) comes from the effect of specific tools called project levers. They split into main and auxiliary, with resources and technologies classified as main, and contracts used to attract resources classified as auxiliary. The effective management of project levers mostly depends on the quality of the work organization process. It primarily involves communication between project participants and proper coordination of personnel. The information often used in project management is not always completely reliable, which increases the role of risk management (Yepifanov et al., 2008; Zvorych et al., 2019).

A project goes through a certain number of stages during its existence, generally called the life cycle (Haass, Azizi, 2020). The assigned managers can use different approaches to influence the processes at different project stages. Moreover, these internal processes are integrated. Therefore, when a manager influences one of the components, it usually affects all the others, which complicates management, prompting to find a balance within the framework of a large number of tasks and solutions for problems occurred (Beknazarov et al., 2020). Sometimes it is necessary to make tough decisions when improvements in some more important areas of the project's development are achievable at the expense of deterioration in others and this procedure is justified only if the manager is convinced that an overall effect will be positive.

The project implementation consists of separate processes that ensure its outcome in their accumulation and interaction (Verbytska, Melnyk, 2008). They break into two groups: managerial and result-oriented, where the second is generally dependent on the specifics of the project and a particular area of its implementation, which include production, logistics, marketing, etc. The managerial processes fall into six groups: initiation, planning, execution, analysis, management and completion. Each process implements individual project functions (Batenko et al., 2020; Sarychev, 2014), which require more detailed consideration. These processes take place within project development with varying intensity, overlapping each other. You can see exactly how this interaction occurs in Figure 1.

Figure 1. Process schedule in the project management phase



Source: Yepifanov et al. (2008); Zvorych et al. (2019).

As you can see in Figure 1, some processes start at the same time and have the same endpoints. Sometimes, the results of one of these processes lead to the launch of new ones. This interaction can be depicted in another way, as shown in Figure 2.

Figure 2. Process interconnection in the project management system



Source: Yepifanov et al. (2008).

As shown in Figure 2, the entire process has a clear beginning and end (investment and completion), but all four components (planning, management, execution and analysis) are constantly interacting with each other, exchanging information. Sometimes the closure (end) of one process is the initiation of another: for example, the construction process can finish only after the approval of the future building design. Repeating the initiation at the project stages helps to control the relevance of its implementation. If the need for this disappears, the next initiation allows for the reduction of future possible losses. The initialization itself includes only one sub-process, which is an authorization.

The planning process is also of great importance to the project and includes relatively many stages. At the same time, it should never be assumed that project management is just planning. All planning efforts should undergo assessment against the project's goals and the usefulness of the information. The management processes may have multiple repeats during project implementation. Besides, the volatility of the environment can affect some components. Although planning itself may include several options for outcomes and possibilities for resolution, it cannot accurately predict and consider them all. Any plans therefore should be "movable" and susceptible to changes in the event of an unforeseen situation. The planning consists of a number of subparts, including interaction, organization, supply and quality. It is similarly possible to describe the execution process, which usually breaks into such major subcomponents as a selection of suppliers, control of contractors, performance accounting, preparation of offers, quality assurance, development of the project team, etc. The execution follows planning and is essentially completely dependent on it. This

process should take place according to all the parameters formed at the previous stage (unless there are unexpected changes in the micro or macro-environment).

The analytic process builds on both of the previous ones, so it is logical to divide it into planning and execution analysis. In the first case, the analysis should evaluate how well the planning process occurred, how it reflects the real conditions in the environment and how exactly it analysed the capabilities of the team or workers. This component may not stand out as a separate one, since this type of data processing takes place simultaneously with project planning. The whole point of the aforementioned process is to analyse the implementation. Its role is to monitor the compliance and success of the project in accordance with predefined criteria and constraints. If the analysis shows that the implementation is going according to plan, there is no need to make adjustments. Nevertheless, the negative scenario necessitates changes to the implementation processes. The entire analysis can similarly be broken into smaller parts: analysis of cost, execution, resources, timing, quality and confirmation of goals (Birman, Schmidt, 1997).

The last component of this process is project management. Its essence lies in the application of managerial influences for the successful implementation of the project. If everything goes according to plan, the management process reduces only to fulfilling the planned tasks. However, when deviations require the need for corrective actions, it is necessary to find the best solutions and revise the remaining elements of the work plan, agreeing on these revisions with all project participants (Prokopenko et al., 2020). This may result in management changes that directly affect the project implementation process. The management system often includes the following subparts as overall management of changes, contracts, resources, risks, goals, quality and, when implemented, contract closure and administrative completion.

The authors should note that the described processes are generally universal and they can apply to various kinds of projects, namely construction, information, or any other. There may be nevertheless significant differences between different types of projects during their implementation (Birman, Schmidt, 1997). Forecasting and planning may help the specialists to assess all future project tasks and ways to achieve them. Therefore, the formulation and development of project goals assist in the prediction and planning of a series of activities for their completion. The plan for the implementation of the relevant set of aforementioned actions accumulates into a network in the form of a graphic representation, usually called a network graph and the display of the temporal interrelationships of future actions bears the name of the network model. All come into one system of network planning and management (NPM) methods. Their purpose is to manage design and technological processes, create new types of products and undertake the construction and restoration of buildings with the appropriate use of network graphs and models. The newly formed system offers a real opportunity to form a calendar plan for the implementation of a set of works as well as to forecast and accumulate appropriate reserves of time, money and materials. It also helps to allocate labour force or all other resources, to manage work on the principle of "leading link" and to increase the efficiency of management with a clear division of responsibilities (Law of Ukraine..., 1991; Zvarych et al., 2019).

The possibilities for using NPM are very large. They are capable to resolve issues related to projects involving several to thousands of people. The use of this model actually becomes

the basis for project application. Network planning consists of events or activities. In this case, “work” is used to refer to processes and connections between events. This concept breaks down into actual work (requiring the use of a large number of resources), expectations (not involving costs) and dependencies (the interaction between two activities when the result of one activity depends on one or more others). The event is the moment of completion of an individual process, which reflects a certain stage of project implementation. Most often, it is the result of the completion of one or more works (Issayeva et al., 2016). A special place in the network model belongs to the initial (referring to previous work) and final (referring to subsequent events that depend on it) events. The network is a graph shape that consists of points and lines connecting them. The points in this figure are called the vertices of the graph and the lines connecting them are called the edges (arcs). The NPM model is therefore a special kind of graph: its defining vertices have a direct connection to each other using appropriate arcs. It is finite and each of its vertices makes a connection in a certain order. These arcs are marked with arrows indicating the process of transition from one vertex to another.

It is possible to describe briefly the process of creating a network model. The entire process first breaks down into separate tasks stipulating the order of their implementation. The duration of their implementation undergoes further assessment. The network schedule helps to organize, optimize and calculate individual work parameters. When creating a schedule, the operators need to follow some rules. For example, they have to disregard the events that have only an outcome without any activity involved. In a similar manner, the events not preceded by at least one work step should be ignored. The operators should also avoid loops, i.e., paths that connect events to themselves, requiring only one starting and ending event. Following these simple rules helps to increase the effectiveness of the composite network model by avoiding its inefficiency or malfunctions.

4. Discussion

This study has repeatedly raised the issue of defining the concept of an investment project. The authors W. A. Valencia et al. (2023) tried to formulate it both from the perspective of the object of intervention and the processes, noting that determination of the investment projects from this point of view offers a different way of understanding the changes that occur in the processes of organizations. This approach, which manages to show the phenomenon in global and interdisciplinary terms, therefore brings more quality. In other words, it helps to describe the concept of investment management more broadly and vividly. This work of the researchers helps to justify the essence of an investment project as a certain number of smaller components (processes). It simplifies the perception of this concept in its essence.

The authors J. Soberaj and D. Metelski (2022) conducted a systematic study related to the management of investment projects in Poland in the housing construction sector, which has been developing very rapidly in recent years. They conducted an in-depth survey of the heads or key project managers on the ongoing projects. Using the collected data, the researchers come to several conclusions. Firstly, effective and efficient management of investment projects is the result of complex measures related to various activities: effective management

of internal processes and distribution of relevant responsibilities as well as the creation of intellectual capital, and preparation of flexible plans and schedules for project implementation. Secondly, investment project management is associated with changes in the macro environment, depending on economic, political, legal and social factors. It is also worth noting that the researchers mention the investment project management methodologies as Projects in Controlled Environments (PRINCE2) and Project Management Body of Knowledge (PMBOK). They describe their defining strengths and weaknesses, noting that PRINCE2 is the most effective system in the role of planning, management and risk control in meeting the widest expectations of end users, suppliers and other stakeholders. However, the scholars do not refer to the method described in this paper as NPM. In the opinion of the authors of this study, it is quite effective and useful in modern conditions. It is therefore relevant to conduct a future comparative study of this and other existing systems used for project management.

The author S. Spalek (2014) suggests assessing the effectiveness of investment in enterprise project management. The above-mentioned authors argued that improving the company project efficiency is currently one of the most important features. They logically bind company management to many factors, notably modern approaches to business development, technological progress and consumer preferences. The researcher also comes to similar conclusions. The scholar believes that company development and the large number of projects conducted simultaneously require competent project management. The author writes that an enterprise must regularly review the shortcomings in its operations and look for opportunities to improve its efficiency to succeed in the future. This is exactly the process that involves investing. The scientists are also conducting research on how the impact of the continuous development of project management produces a global effect on certain industries including construction, engineering and IT (Berdykulova et al., 2021). They eventually came to several conclusions: first, increasing the level of maturity in all three industries does not lead to lower costs in future projects. However, this statement is not always true. For example, if a company is just starting to develop project management, raising its awareness will have a positive impact on its future costs. If it is no more a newcomer in the relevant field, its further development will likely be not so effective. Second, the impact of project management development demonstrated its major strength in the IT sector, while the machine building and construction sectors showed less progress. It would seem logical to conclude that this kind of management is less effective in the real economy. Thus, its use would be more efficient in the service sector.

The choices of achieving success using project management were the subject of study by the authors B.T. Venczel et al. (2021) who stated that it is impossible to identify universal factors that will affect the success of investment projects. They primarily substantiate it by the fact that each project is unique, i.e., it has a certain number of variables so it cannot be identical to any other. Nevertheless, they offer their own model, which should ensure the most successful implementation. In their opinion, the process of creating a project consists of two major parts: implementation and results. As part of the implementation, the team should discuss the strategy and relationships with stakeholders, various resources and contracting opportunities, etc. In other words, they collect certain information, organize the main processes, assess risks, formulate the appropriate budget, etc. Once the project is implemented, the core team expects feedback on how acceptable were the price and quality

and whether all main processes were completed on time. This model is therefore cyclical: the team can make changes to the project using feedback until a decision of completion after having obtained the expected result. It may seem that this approach differs significantly from the one presented by the aforementioned authors in their work, where the main difference is the possibility of receiving feedback and the benefits it provides. However, this is not entirely true. The model they propose describes the assessment process, which includes analysis of the fulfilment and confirmation of goals, cost, resources, timing and quality. Moreover, feedback on the effectiveness of this project can occur notably within this framework.

The study by L. Deng and Y. Chang (2022) is of particular interest because it describes not only the importance of investment project management but also considers the possibility of using artificial intelligence technologies (artificial neural networks) for this purpose. They pay special attention to the assessment of project risks, conducting a study of one of them and showing that the results obtained by artificial intelligence are quite realistic. In general, the specialists believe in the high probability of further development of this technology and its implementation by scientists and experts in various fields, including those related to investment or management. Thus, investment project management remains an important component of enterprise management activities, which significantly helps to improve the company's performance. However, unfortunately, this field is largely unexplored in Ukraine today, so it requires further implementation and development, particularly using the latest technologies. The definition of an investment project and the corresponding management model proposed in this study can engage important steps toward the evolution of these concepts and their subsequent following among Ukrainian entrepreneurs.

5. Conclusions

This paper assesses the possibilities of managing investment projects in Ukraine and shows that efficient use of financial resources is impossible without a proper project management system. Nevertheless, this practice is still not widespread, which creates misunderstandings by confusing this concept with business planning. The proposed study demonstrates that project management is a unique type of management characterized by special approaches to planning, organization, coordination and motivation. The management processes break into six main groups: initiation, planning, execution, analysis, management and completion. It is worth noting that they are quite complex and consist of smaller processes requiring only individual analysis when working on a project.

The planning management methods serve primarily to determine the possible and desirable (target) characteristics of the managed object's state in the future. However, several specific measures are required to implement the optimal plan for the appropriate allocation of production resources most successfully. At the same time, different models of network planning and management involve drawing up a specific plan for the implementation of the relevant set of short-term interdependent works (operations). This kind of complex usually serves as a certain network, including the graphical representation, called a network graph. A clear demonstration of all time-related interactions of future works without exception is a significantly distinctive feature of network models. This paper has shown and proved that the

general proposed system of network planning and management method can have a significant positive impact on the management processes in Ukraine, if implemented on a mass scale among enterprises. It is relevant to consider other approaches to investment project management for further research. In addition, it is important to look for real opportunities to develop Ukraine's investment potential and attractiveness, as well as to spread the culture of investment among the local population.

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