PUBLIC MANAGEMENT OF RURAL ROAD INFRASTRUCTURE PROJECTS IN UKRAINE AND ABROAD

Abstract. The article conducts a cross-cutting analysis of the state of legal support for the functioning of the rural road infrastructure sector in Ukraine and identifies prospects for its improvement with due regard for international standards introduced for the proper functioning of this sector. Additional measures to improve public administration in the field of rural road infrastructure in Ukraine are outlined, taking into account the EU experience. The conditions for the construction of toll roads in Ukraine are substantiated. The existing approaches to project management that can be applied to rural road infrastructure rehabilitation projects, as well as to the management of the relevant project portfolio, are analyzed. The classical approach to project management involves the creation of corporate project management systems based on established and recognized standards, such as the PMBOK of the American project management association PMI (Project Management Institute), ISO 21500 of the International Organization for Standardization ISO, etc. The flexible approach to project management represented by the Agile methodology originated in the IT industry to manage IT projects within medium-sized teams. A proactive approach to project management is to formulate in advance a strategy for implementing projects and project complexes (project portfolios, development Programmes) and, based on such a strategy, plan and implement predictable development, as well as take into account models for predicting the behavior of both the project itself and its internal and external environment. The spiral dynamics of organizational development is about positioning the spiral of organizational development, at the top of which the creative potential of each member of the organization is fully realized and revealed
(contextually applied to each member of the project management team and to each member of the project team as a whole). A syncretic approach to project management should involve the combination of previously unrelated elements within a single system without explicit mixing (merging).

**Keywords:** public administration, road infrastructure, rural territories, restoration projects, European integration processes, recovery.

Kalashnikova Yuliya Yurievna candidate of economic sciences, associate professor, associate professor of the Department of management and public administration, Kharkiv National University of urban economy named after O. M. Beketova, Marshala Bagana St., 17, Kharkiv 61002, tel.: (066) 144-91-95, https://orcid.org/0000-0002-9190-6187

Baklanov Oleksiy Mykolayovych postgraduate of the Department of management and public administration, Kharkiv National University of urban economy named after O. M. Beketova, Marshala Bagana St., 17, Kharkiv 61002, tel.: (099) 196-63-76, https://orcid.org/0009-0003-0697-7330

**PUBLIC PROJECT MANAGEMENT IN THE FIELD OF ROAD INFRASTRUCTURE IN URBAN AND RURAL AREAS**

**Abstract.** In the article, an all-round analysis of the legal protection of the road infrastructure sector in Ukraine and the identification of the perspectives for its improvement taking into account international standards, introduced for the proper functioning of this sector, is conducted. Additional measures for improving state management in the field of road infrastructure in rural areas of Ukraine are specified taking into account the experience of the EU. The conditions of building toll roads in Ukraine are substantiated. Existing approaches to managing projects that can be applied to the restoration of road infrastructure in rural areas, as well as to managing the corresponding portfolio of projects. The classical approach to managing projects involves the creation of corporate project management systems based on established and recognized standards, such as PMBOK of the American Project Management Institute (PMI), ISO 21500 International Organization for Standardization (ISO) standards, etc. A flexible approach to managing projects is presented in the IT industry for managing IT projects in small teams. A pro-active approach to managing projects envisages the presentation of methodology by Agile, which is used in IT-industry for managing IT-projects in frameworks of small teams. A proactive approach to managing projects involves relating in such a way, that the development of a strategy of realization of projects and sets of projects (portfolios of projects,
програм розвитку) і, виходячи з такої стратегії, планувати і здійснювати прогнозований розвиток, а також враховувати модель прогнозування поведінки як самого проєкту, так і його внутрішнього і зовнішнього середовища. Спіральна динаміка організаційного розвитку полягає в позиціонуванні спіралі організаційного розвитку, на вершині якої повністю реалізується і розкривається творчий потенціал кожного члена організації (контекстуально застосовується до кожного члена команди управління проєктом і до кожного члена команди проєкту в цілому). Синкретичний підхід до управління проектами має передбачати поєднання раніше не пов'язаних між собою елементів в рамках єдиної системи без явного змішування (злиття).

Ключові слова: публічне управління, дорожня інфраструктура, сільські території, проєкти відновлення, євроінтеграційні процеси, відновлення.

The problem statement. Road transport is one of the most important sectors of social production and is designed to meet the needs of the population and social production in spatial movement. The purpose of public administration in the field of road transport in rural territories is to meet these needs in a timely, complete and high-quality manner, as well as the needs of state defense in the combat zone and frontline territories, to protect rights in the provision of transport services, to ensure safe operation of transport, to comply with the necessary rates and proportions, etc. Thus, the problem of integrated management of rural road infrastructure in Ukraine is urgent and needs to be addressed with due regard to international, primarily European, experience of effective public administration in this area.

Overview of recent research and publications. The problems of public administration in the sphere of road infrastructure in rural territories of Ukraine have received considerable attention from such scholars as: V. Boyko, Z. Varnaliy, I. Valyushko, T. Vasyltsiv, O. Sobkevych, Y. Shevchuk and many others. The experience gained during the implementation of the "Big Construction" projects should be rethought, developed and improved to solve more complex and critically urgent tasks in the restoration of road infrastructure in rural territories.

The purpose of the study (task statement). The purpose of the article is finding ways to improve public administration in the field of road infrastructure in Ukraine's rural territories, taking into account foreign management approaches to road infrastructure recovery projects.

Research results. The appropriate functioning of road transport is impossible without a developed and high-quality road infrastructure in rural territories, which, despite more than 30 years of development, is only beginning to develop in accordance with international, in particular European, standards, and therefore requires both adequate funding and good public administration. In order to assess the place of roads in the national transport system, a number of factors should be taken into account that are publicly available. For example, the length of roads of
The network of trunk roads is distributed throughout the country and connects all major cities of Ukraine, as well as provides cross-border connections with neighboring countries, of which 165.8 thousand km have a hard surface; there are also 250 thousand km of city streets, the condition of which is the responsibility of local authorities [1]. It should be noted that the entire road network in Ukraine was actually built by the end of the 1980s and is still under reconstruction, with a few exceptions for new construction. It is obvious that today the development of public roads lags behind the pace of motorization in the country by at least five times, with the number of cars increasing 7-fold since the 1980s, while the growth of roads increased 1.5-fold. In 1990-2010, their length remained virtually unchanged. It should also be noted that the density of roads in Ukraine is 6.6 times lower than in France (0.28 and 1.84 kilometers of roads per 1 square kilometer of the country's area, respectively). The length of motorways in Ukraine is 0.28 thousand kilometers (12.5 thousand kilometers in Germany and 7.1 thousand kilometers in France), and the level of funding per kilometer of roads in Ukraine is 5.5-6 times lower than in the above countries. It is not surprising that in 2017, Ukraine took 133rd place out of 148 countries in the ranking of American researchers who surveyed drivers in one hundred and fifty countries on whether they were satisfied with their roads [2].

To fulfil the objectives of the research, it is advisable to conduct a cross-cutting analysis of the state of legal support for the functioning of the rural road infrastructure sector in Ukraine and determine the prospects for its improvement, taking into account international standards introduced for the proper functioning of this sector. For example, the Constitution of Ukraine in Article 116 refers to the management of state-owned objects in accordance with the law (regarding road infrastructure) as the responsibility of the Cabinet of Ministers of Ukraine [3]. The Law of Ukraine "On Automobile Roads" [4] defines the legal, economic, organizational and social principles of ensuring the functioning of roads, their construction, reconstruction, repair and maintenance in the interests of the state and road users. In particular, it defines the concepts of "road", "street", "road surface", types of roads and their components, road management bodies and their powers. The novelty of this law is the definition of the legal status of highways in Ukraine, the classification and procedure for classifying public roads as toll roads and the general principles of financing the construction, reconstruction, repair and maintenance of highways.

The Laws of Ukraine "On Transport" and "On Road Transport" are related legal acts in the field of road infrastructure in Ukraine, which define the legal, economic, organizational and social principles of transport (including road transport and road infrastructure), define the concept and content of the transport system of Ukraine, governing bodies in the field of road transport and road infrastructure, types of road transport, general principles of road safety, etc. The laws that define the
sources of financing for the construction, reconstruction, repair and maintenance of public roads are the Tax Code of Ukraine [5], the Laws of Ukraine "On Sources of Financing of the Road Sector of Ukraine" [6] and "On Concessions" [7]. In particular, the Law of Ukraine "On Sources of Financing of the Road Sector of Ukraine" defines the legal basis for financing the costs associated with the construction, reconstruction, repair and maintenance of public roads and rural roads of Ukraine.

It should also be added that the share of international legal acts regulating the relations of public administration of road infrastructure in Ukraine is made up of agreements on attracting foreign investment in this area. In particular, it is worth noting that on 9 July 2018, Ukraine and the European Investment Bank signed a Financial Agreement on the project "Improving Road Safety in Ukrainian Cities" [8].

An integral part of good public administration in the field of road infrastructure is the procedure and conditions for financing rural road infrastructure in Ukraine, taking into account the best international practices.

To finance works related to the construction, reconstruction, repair and maintenance of public roads, a state road fund is created as part of a special fund of the State Budget of Ukraine. The revenues of this fund are generated by: excise tax on fuel and vehicles produced in Ukraine; excise tax on fuel and vehicles imported into the customs territory of Ukraine; import duties on petroleum products and vehicles and tyres; tolls for vehicles and other self-propelled machines and mechanisms whose weight or dimensions exceed the standard; and funds from the special fund of the State Budget of Ukraine received by the state from bank loans, foreign states and international financial organizations for the development of the network and maintenance of public roads; tolls on public roads of national importance, the maximum amounts and procedure for collection of which are established by the Cabinet of Ministers of Ukraine; concession payments - in case of construction and operation of roads under concession conditions; other revenues stipulated by the State Budget of Ukraine in the amounts determined by the law on the State Budget of Ukraine for the relevant year; tolls for vehicles and other self-propelled machines and mechanisms, weight or gross.

Although the first two categories of public roads of state and local importance were defined in the Law of Ukraine "On Roads" of 8 September 2005 No. 2862-IV, this did not solve the problem of proper public administration, as the legislation only defines general signs of roads belonging to a certain category, without classifying them and delimiting jurisdiction (powers of a certain public administration entity) for construction, reconstruction and maintenance.

Additional measures to improve public administration in the sector of road infrastructure in rural areas in Ukraine, taking into account the EU experience, may include:

- implementation of the procedure for acceptance of the reconstructed road into operation with the establishment of the responsibility of the contractor who
won the tender for construction, reconstruction or repair of the road for its maintenance, first for 5 years and then for 10 years, which is fully consistent with the established world practice of road construction and maintenance;

— determination of the responsible owner's representative for a particular road category, road, part of the road, which is possible only if the draft cadastral map of Ukrainian roads is fully completed.

Also, in Ukraine, based on the experience of most European countries, it is necessary to introduce the practice of road construction on the basis of concessions during their construction and operation.

For example, in France, Italy and Spain, the road sector has been financed mainly by concession investments for more than 30 years; in France, 5,830 km of roads have been built and operated under concession; the total length of Spanish motorways built by concessionaires is about 1,000 km; the UK has adopted a programme to improve the road network, focused on attracting private funds with the transfer of design and construction rights to private firms; in Germany, the practice of attracting private capital is expanding [9].

To intensify this process and introduce the world experience of road construction and operation on the basis of public-private partnership, the Law "On Concession" [7] was adopted on 3 October 2019, which defines the legal basis for the concessionaire's (state's) complicity in financing the construction and operation of roads, which is evidenced by the conclusion of a special agreement. This form of public-private partnership in road construction is effective in the construction of expressways, which, according to Ukravtodor, are planned to be built over 7,075 km at a total cost of about UAH 300 billion. Partial implementation of these ambitious plans is being carried out within the framework of the government's Big Construction project [10], which envisages the construction of 4,000 km of roads, and a separate Law of Ukraine "On Roads" [4] has been developed.

Meanwhile, concession-based road construction is not widespread in Ukraine. In our opinion, the main deterrent for investors is the low economic efficiency of infrastructure projects and the lack of practical mechanisms for providing guarantees from the state regarding the return on investment and compliance with road maintenance conditions.

Thus, in our opinion, it is possible to move this unbreakable stone, i.e. the construction of toll roads, under the following conditions: approval of a long-term road concession programme in Ukraine; identification, together with international experts, of the road corridors in Ukraine that need to be built and to be tolled (here, preference should be given to international highways that provide a transit road corridor, provided that these highways should be the shortest, with minimal curvature in the mountains).

From the well-known standard PRINCE2 (Projects In Controlled Environment) [11] of the English Project Management Association (the standard is
recognized as a national standard in the UK) to the flexible Agile methodology. PRINCE2, in particular, postulates models and methods suitable for use in rural road infrastructure rehabilitation projects, including a deviation management model, a method for periodically calculating the economic feasibility of a project, a model of the top-level project management structure, etc.

The development of project management methodologies also took place in the direction of forming the own standards of national associations, including APM Body of Knowledge [12] of the English Project Management Association and Programme and Project Management for Enterprise Innovation (P2M) [13] of the Japanese Project Management Association PMAJ (Project Management Association of Japan). It was the latter of the standards that launched the field of project value management knowledge, which is now reflected in almost all the latest editions of modern standards, including PMBOK.

When building a corporate project management system, an organization seeking to create such a system may use different approaches and methodologies. For example, Agile methodology [14], proactive management methodology [15], spiral dynamics approaches [16], etc. In this case, the task is to form an own approach based on the achievements of previous approaches on the principle of combining them. This task is described in the literature [9] and is implemented in the form of a hybrid, adaptive or convergent methodology. However, the use of the principle of not mixing individual methodological elements, their separate existence within the corporate methodology (the principle of syncretism) has not been sufficiently studied.

In order to determine the basis of such a methodology, we will analyse existing approaches to project management that can be applied to road infrastructure rehabilitation projects, as well as to the management of the relevant project portfolio.

1) The classic approach to project management. This approach involves the creation of corporate project management systems based on well-established and recognized standards, such as PMBOK by the American project management association PMI (Project Management Institute), ISO 21500 by the International Organization for Standardization ISO, etc. In general, the classical approach to project management is well established, proven, standardized, and suitable for use in a large number of projects. It can be recommended (as an element) for use as part of a syncretic project management methodology for the rehabilitation of rural road infrastructure.

2) Flexible approach to project management. This approach, represented by the Agile methodology, originated in the IT industry to manage IT projects within small teams [14]. However, it is now successfully used in projects of various sizes in other industries, both in general and, sometimes, in its individual elements. In general, the agile approach, regardless of its origin, implementation conditions, and individual applicable models, has significant similarities with the circumstances in
which road infrastructure rehabilitation projects should be deployed, and therefore it can be recommended for inclusion in a syncretic approach in the project management system for such projects.

3) Proactive approach to project management. The essence of the approach is to formulate a strategy for the implementation of projects and project complexes (project portfolios, development Programmes) in advance and, based on such a strategy, plan and implement predictable development, as well as take into account models for predicting the behavior of both the project itself and its internal and external environment. At the same time, probabilistic forecasting models are used, which make it possible not to manage in response to changes in the external environment (the so-called "reactive management"), but to ensure the project's progress in accordance with a previously created and comprehensively analyzed strategy [15].

Undoubtedly, the current conditions and their dynamics, the war during which the projects under study are to be implemented, are characterized by poor predictability of their course. It may seem that the use of proactive management and proactive models is not appropriate and appropriate in such circumstances.

4) Spiral dynamics of organizational development. An approach that has not yet been sufficiently developed within the framework of classical project management methodologies and, at first glance, does not correlate well with them. It consists in positioning a spiral of organizational development, at the top of which the creative potential of each member of the organization is fully realized and unleashed (contextually applied to each member of the project management team and to each member of the project team as a whole). Describes the levels of the organizational development spiral and the corresponding models of interaction between team members within these levels [16]. Along with the high risk of applying such an approach in the harsh conditions of administrative management, it is a certain antagonist to it, and therefore well corresponds to the principle of initial incompatibility of methodologies before inclusion in a syncretic approach. The place of application of this methodology can be separate units (working groups) included in road infrastructure rehabilitation projects, which are engaged, in particular, in generating alternatives, developing solutions, creating new models of technical or managerial nature.

5) A syncretic approach to project management. This approach should involve combining previously unrelated elements within a single system without explicit mixing (merging).

Let us formulate the principles on which the syncretic project management methodology developed for use within project (portfolio) management systems for the restoration of rural road infrastructure can be based:

− the principle of non-mixing of methodology components;
− the principle of integrity of each component;
the principle of sufficiency of models and methods presented in the component to reproduce the relevant approach;
the principle of consistency between components;
the principle of mandatory IT implementation of the syncretic methodology (and/or its components) in the relevant integrated instrument.

Importantly, it is important to note the syncretic nature of such tools, namely their origin from different, often unrelated fields of knowledge, and those that are not usually used together. This corresponds to the syncretic nature of the proposed methodology for managing rural road infrastructure rehabilitation projects.

Road infrastructure rehabilitation projects are extremely relevant now, during the war, and they will not lose their relevance after our victory. Their successful implementation has an impact on the urgent solution of urgent logistical problems, including humanitarian ones. Such projects have special requirements, including the need to quickly restore destroyed road sections or their components and create conditions for safe travel, and are being implemented under severe constraints caused, among other things, by a significant increase in road freight traffic due to the blocking of ports and low throughput at railway transshipment points where the gauge is changed, which leads to accelerated road destruction due to excessive traffic.

**Conclusions.** Taking into account the analysis of legal acts that regulate the principles of public administration in the sphere of road infrastructure in rural territories and based on strategic plans for the development of this sphere in Ukraine, it is advisable to introduce the following legislative changes: adopt the Law "On Road Infrastructure", which defines the legal, economic, organizational and social principles of ensuring the functioning of road infrastructure in rural territories, directions of its development, reconstruction, repair and maintenance, with clear jurisdiction of specific public authorities, including Ukravtodor, road services of local state administrations, and local governments. In addition, based on the experience of most European countries, Ukraine should introduce the practice of road construction based on concessions during their construction and exploitation. For example, in France, Italy and Spain, the road sector has been financed mainly by concession investments for more than 30 years; in France, 5830 km of roads have been built and operated under concession; the total length of Spanish motorways built by concessionaires is about 1000 km; the UK has adopted a programme to improve the road network focused on attracting private funds with the transfer of design and construction rights to private firms; in Germany, the practice of attracting private capital is expanding. This paper identifies the urgent task of building a syncretic methodology for managing rural road infrastructure rehabilitation projects, analyses and proposes the components of such a methodology in the form of a classical approach, a flexible methodology, spiral dynamics, and a proactive approach. The principles on which a syncretic methodology for managing road infrastructure rehabilitation projects (portfolios) can be based are formulated, and a set of necessary IT decision support tools is described that will strengthen the tools of the syncretic approach to managing road infrastructure rehabilitation projects.
References:


Література: