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## WORLD EXPERIENCE OF BUSINESS PROCESSES ORGANIZATION BUILD-INVESTMENT PROJECTS NEW FORMS AND MANAGEMENT IN THE FIELD OF UKRAINE COMPLEX OBJECTS DEVELOPMENT

*The scientific principles and practical recommendations on the organization and management of business processes and construction investment projects in the real sector of the Ukrainian economy are developed. These issues are considered on an example of the development of objects and processes in the oil and gas complex. The basis of its improvement is proposed to apply new forms and best international experience to ensure the modern progress and competitiveness of complex industrial and business systems. It is determined that the practical recommendations given in the article can be successfully applied in industry and other sectors of the real economy sector of Ukraine. Their use should ensure the acceleration of modern progress and the growth of the competitiveness of the domestic economy.*

**Keywords:** innovative and high-tech development, project management, engineering, development.

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## НОВІ ФОРМИ І СВІТОВИЙ ДОСВІД ОРГАНІЗАЦІЇ Й УПРАВЛІННЯ БІЗНЕС-ПРОЦЕСАМИ ТА БУДІВЕЛЬНО- ІНВЕСТИЦІЙНИМИ ПРОЕКТАМИ В СФЕРІ РОЗВИТКУ СКЛАДНИХ ОБ'ЄКТІВ УКРАЇНИ

*Розглянуто наукові основи та практичні рекомендації щодо організації та управління бізнес-процесами і будівельно-інвестиційними проектами в реальному секторі економіки на прикладі розвитку об'єктів і процесів у нафтогазовому комплексі України за рахунок упровадження нових форм та світового досвіду забезпечення сучасного прогресу й конкурентоспроможності складних виробничо-господарських систем. Запропоновано основні процедури та інструменти реалізації таких достатньо нових для України механізмів забезпечення інноваційного та високотехнологічного розвитку зазначених систем, як стратегічний, мультипроектний і проектний менеджмент, інжиніринг та девелопмент.*

**Ключові слова:** інноваційний та високотехнологічний розвиток, проектний менеджмент, інжиніринг, девелопмент.

**Introduction.** Nowadays the Ukrainian economy real sector state, its industrial, construction, oil and gas and other economy branches require the restructuring of the modern innovation and investment mechanism of high-tech and continuous development, based on the advanced forms application and world experience in this process organization and management, the latest advances in science, technique and technology in order to ensure their competitiveness in Ukraine and in the world.

Technical re-equipment and development of the state economy in the direction of world standards requires 3.0 – 3.5 trillion USA dollars in the various forms of investment. 1.2...1.5 trillion USA dollars should be mastered in the field of capital construction [1], that is, in the field of new construction and expansion of enterprises, industrial objects, oil and gas spheres, construction and other sectors of the national economy. This list should also include all types of construction investment and innovation projects and programs related to the reconstruction, modernization, overhaul and technical re-equipment of practically all available production facilities, equipment, buildings, constructions, various types of transport communications (highways and their infrastructure). The listed and other aspects of the present require world experience qualitative study and involvement in Ukraine and construction new forms organization and management in market economy for the modernization and development of all objects and processes in the economy real sector.

**Analysis of recent research and publications.** A number of domestic and foreign specialists developments are devoted to the study of issues related to the organization and management of business processes and construction and investment projects in the economy real sector, in the sector of capital construction, industry and objects of the oil and gas complex. Over the past decade, unconditional leaders in the field of innovation in the creation and practical implementation of the latest forms of organization and management of projects latest forms in the leading sectors of the economy are the leading construction and investment, development and engineering companies American academics and representatives. They created and developed the world-renowned worldwide standards of USA PMBoK project management: 2004 [2] that have been successfully applied and developed for several decades. Based on their principles, different sets of recommendations and norms of international organizations for project management are developed and are currently operating: the European standards of professional knowledge and skills on project management IPMA, the relevant requirements and recommendations of the World Bank and the European Bank for Reconstruction and Development, etc [6].

In addition to the listed and other standards of project management, which became the valid standards of investment business projects and programs design, organization and management for the development of complex high-tech, production, organizational-economic and transport systems in the leading economy branches, it is needed to submit the research of such famous foreign and domestic scientists as P. Martin and K. Tate [3], D. Gerd and A. Tovb [4], G. Kerzner [5], G. Tsines, Y. Zabrodin, A. Sarukhanov, S. Bushuev, I. Babayev, V Yakovenko S. Dziuba and others. In addition to the listed and other standards of project management, which became the valid standards of design, organization and management of investment business projects and programs for the complex high-tech, production, organizational-economic and transport systems development in the leading branches of the economy, the research of such famous foreign and domestic scientists as P. Martin and K. Tate [3], D. Gerd and A. Tovb [4], G. Kerzner [5], G. Tsines, Y. Zabrodin, A. Sarukhanov, S. Bushev, I. Babayev, V Yakovenko S. Dziuba and others. Analyzing existing publications, it should be noted that they pay great attention to the general procedures of projects organizational and economic management in a stable business environment, which are inherent in the advanced countries of Europe and the world. At the same time, due to the manifestation of crisis phenomena and the domestic economy development weakness, lack of

experience in project management in Ukraine construction, industry, oil and gas complex in the market economy conditions, it can be determined that the existing recommendations of international organizations and project management scientists [2 – 9] for domestic enterprises today are not enough and they need to be refined accordingly.

**Description of general problem unsolved aspects.** Considering the above factors and theoretical developments and practical recommendations lack for the business processes and projects organization and management in the field of capital construction and industry, as well as at the objects of the oil and gas complex in management modern conditions, there was a need to expand the list of applied researches on studying and engagement to the new forms domestic enterprises activity and world experience in the processes organization and management. According to the authors, solving this problem is an actual task, which has some scientific novelty and practical value.

**The purpose of the paper.** The main objective of the article is the scientific foundations and practical recommendations formation for the business processes and construction organization and management and investment projects in the economy real sector, such as the objects and processes development in Ukraine oil and gas complex due to the introduction of new forms and world experience in the modern progress organization and management in economic systems.

**Basic material and results.** A key condition for the competitiveness of Ukraine oil and gas sector is the creation of a modern, closed-loop cycle for high value-added products extraction, transportation, deep processing and production. The main objects of the oil and gas complex include:

- preparation of territory and routes for the oil and gas wells, storage facilities, pipeline systems and oil and gas extraction, storage, transportation, products processing and sale processes other objects arrangement;
- linear objects (engineering structures, equipment and communications) of main pipelines;
- facilities for the extraction, storage and gas preparation for transportation;
- main pipelines compressor stations;
- gas distribution stations;
- facilities for oil and gas extraction, collection, storage and preparation for transportation;
- stations for the oil and gas transfer;
- marine oil pipelines;
- oil refining objects;
- gas processing objects;
- natural gas liquefaction plants;
- other objects.

Almost all enterprises and organizations of the oil and gas complex which are the subjects of economic activity, in order to ensure their functioning and continuous development in the current conditions of Ukraine, new functions and corporate standards of industrial and commercial and any other activities formation, must introduce company main business processes different innovations and world experience that can be grouped into such groups:

1. Market analysis, needs and requests of consumers (and customers) for products and enterprise services (marketing research).
2. Formation of strategic vision (market philosophy) and strategy (strategic plans and programs) among enterprise owners, leaders and personnel.
3. Innovations development and introduction (the latest products, services, technologies, production systems, etc.), including «turn-key basis» production and implementation.

4. Products and services effective commercialization and sale ensuring.
5. Production systems and processes formation (organization and constant progress) and providing them with everything necessary in the necessary level of products and enterprises competitiveness formation conditions.
6. Development of production service and enterprises oriented on production and commercial service, marketing and advertising (including engineering, development and life-style or «brand» service).
7. Organization and management of contractual work (contracting), cooperation with suppliers, consumers, clients and other stakeholders.
8. Personnel management of the enterprise.
9. Management of information systems, flows and enterprise resources.
10. Management of investments, financial resources and enterprises expenses in projects and programs, etc..
11. Creation and development of work comfortable and safe conditions on the objects and in all systems of the enterprise (ecological safety and environmental protection activities, technical safety and labor protection management).
12. Management of external communications and the environment of the enterprise.
13. Enterprise development programming and designing (its products, technologies, production and other systems and business processes). Their «turn-key basis» implementation ensuring. Development and competitiveness growth continuation.

The transition to world standards of management and ensuring the continuous progress of enterprises in the oil and gas complex requires not only the implementation of the above measures and processes, but also the work on the development and application of new mechanisms, procedures and tools for their organization and the successful implementation of a «turn-key basis». These (new for Ukraine) mechanisms should first of all include strategic, project and multi-project management, engineering, reengineering, development, corporate and life services, etc. Consider them.

Considering the global experience of integrated and rational use of procedures and tools for strategic, multi-project and project management, it can be noted that in addition to the world-renowned ISO 9000 standards in the management of projects and programs for the development of complex and unique systems (enterprises, facilities of the oil and gas complex, etc.), advanced countries and companies today also apply such complexes of standards:

- 3rd version (edition) of the PMBoK Guidebook: 2004, which today is the current American national (and world) standard of the project and program management system [2];
- developed on its basis in recent years and widely applied in practice, other modifications to this methodology of project management, such as:
  - Japanese system of knowledge and skills in project management P2M;
  - a complex of international requirements for the competence of project management specialists and the relevant European standards for professional activities in this area – IMPA Competence Baseline (ICB);
  - project management methodology PRINCE 1 and PRINCE 2, applicable in the UK;
  - other standards of project and multi-project management used in the management of investment projects and development programs.

Summarizing the world experience in applying new forms of organization and development of enterprises, corporate and project management, this process can offer a new comprehensive solution to existing problems in the state, forming the general contours of the standards system for managing investment projects and programs for the complex industrial and economic systems development in the oil and gas sector of the Ukrainian economy:

1. Ukraine ISO 9000 standards, legislation and regulatory system determining the general management system in the state, branch, corporate and program-design environment.

2. Project Management Standards, as outlined in PMBoK: 2004, P2M, ICB (IMPA), PRINCE 1 and PRINCE 2, which create a regulatory and methodological framework for building a project management system and programs. They are the focal point for the entire set of management standards for any projects (including construction, reconstruction and technical re-equipment of oil and gas complexes, enterprise development programs).

3. On the basis of the above listed standards, specific corporate standards are developed for today powerful (advanced) development and engineering companies that are able to implement «turn-key basis» for any projects and programs, including the attraction of necessary investments. Worldwide examples of such companies are Fluor Daniel Corporation, Technip-Coflexip, Bechtel, Parsons, Man, Petrofac, Foster Wheeler Inc., AMEC, ABB Group, World Super Engineering, etc. They implement projects all over the world, and therefore their corporate standards (among other things) regulate multi-project and project management in subdivisions (strategic business units – SBU and so-called «professional project management offices – PMO offices»), participating in international and national unique projects, applying modern strategic multi-project and project management, engineering and development.

4. At the last stage, management standards are developed directly for specific projects and programs in the oil and gas sector. Their approximate list is shown in the Table 1.

One of the main tasks in the field of business projects organization and management and oil and gas complex development in Ukraine is to ensure its competitiveness in the conditions of the domestic economy globalization and neo-liberalization. Today, the concept of competitiveness should be considered as the property of economic entities and their products to the maximum society and individual consumers needs in comparison with similar companies and their products (including services), which are available (or offered) in the domestic and world markets. The key parameters that determine competitiveness today are the products, works and services quality, their price (cost), consumption and exploitation (service) costs, first of all, objects, structures and engineering communications in the oil and gas sector, including quality, price and other parameters of their «brand» and «life» service, modernization and further (continuous) development.

Today, engineering is recognized (in the leading countries and companies of the world) as a highly effective function of modern business and innovation and investment activity, which essence is to provide consumers with the latest products, high technologies and production systems, research, design, construction, calculation, analytical, production organizational structure advanced services, including the feasibility study and business plans, different types of project, work and other investment documents, professional supervision and project management of complex projects and programs. Today, the leading companies in the world operating in the oil and gas business use the following types of engineering: design, technological, cost, financial, industrial, integrated, which combines all the above types of engineering in various combinations. In leading countries and companies in the world, integrated engineering is called the Build-Own-Operate-Transfer system. This system assumes that the project's main executor (project team, «PMO office», customer, etc.) not only designs and implements a «turn-key basis» project, but also exploits it (for example, various facilities and engineering structures of the oil and gas complex) over a significant period of time (20...25 years), after which it can transfer it to the owner (for example, the state, or the operating organization).

**Table 1 – Recommended list of project management standards at the oil-gas complex**

Standard No.	Procedures which the standard relates to
1	Organizational structure of the enterprise
2	The main business processes of the enterprise
3	Corporate governance standards
4	Strategy and strategic plans for enterprise development
5	Organization of works on the pre-investment phase of the project
6	Preparation of proposals for the tender
7	Pre-project research, development, approval, examination and approval of feasibility study, business plans and other project documentation
8	The main aspects of project management (including the formation of its statute and the project management plan or program)
9	Organization of work on a project (program)
10	Development of project documentation
11	Use of project documentation
12	Identification and control on project documentation (program)
13	Project Control (Development Program)
14	Project quality plan
15	Memo (instruction) to project management (programs)
16	Shifts management
17	Discussion on the progress of the project implementation (programs)
18	Project planning (program-design activities)
19	Development and implementation of works breakdown structure and the organizational structure of the project (program) in the dynamics of its development
20	Project cost control (program)
21	Development of cost allocation structure
22	Project Reports (Program Activities)
23	Management on information, documentation and document circulation in the project (program)
24	Equipment and mechanisms
25	Project staff and personnel policy
26	Project Risk Management
27	Safety and creation of comfortable working conditions (labor protection, safety engineering, ecology, technogenic and other kinds of safety)
28	Procurement by project (program)
29	Subcontract agreements
30	Work instructions and regulatory framework
31	Materials control on the site
32	Check and test on the site. Adjustment works
33	Maintaining executive documentation
34	Preliminary development, testing and launching of objects (project, program)
35	Final report on the project (program)
36	Accumulation and use of project data (program)

The undeniable advantages of engineering should include: increasing the efficiency of any innovation and investment projects and programs for the development of enterprises and facilities of the oil and gas complex; reduction of design and program activities terms and cost with simultaneous growth of their quality and modernity; attractiveness for the owner, customer and investors; creation of prerequisites and real opportunities for the transition to world standards of management, corporate and project management; reducing investment and other risks, increasing competitiveness.

In addition, engineering, construction, development and other companies that have participated in or may be involved in projects and programs in the oil and gas sector, there are real opportunities and economic interest to provide a complex of «branded» and «life-long» services, or develop the objects of the oil and gas complex both in Ukraine and in the world.

Development is one of the most advanced and modern concepts of programmatic and design (system) management, when within the framework of a unique innovation-investment, construction, organizational or other project or program of enterprises and objects development of the oil and gas sector, not only an object is created of any complexity and uniqueness (enterprise, building or construction, industrial and other equipment, communications having a long-lasting decade-operation period), but also permanent and long get integrated service, modernization and development of this facility and professional management. It is a function of a legal owner who will carry out commercial or other exploitation of the whole object (equipment), and the potential co-owner, its developer and manufacturer. Such company development of the two mentioned entities always is considered in continuous facility improvement, increases technical and technological capacity, competitiveness, modernization of the brand service system, as well as in the mutually beneficial production and facility commercial exploitation in the prospect long-term. Thus, development is an implementation mutually beneficial form of various business projects and programs for innovation and investment enterprises – developers and producers of a unique product (including buildings, structures, communications, involved in the production of the economy oil and gas sector) and for the goods owners and buyers.

The engineer and developer-oriented advanced companies, construction companies and industrial enterprises world experience shows that the application in their business projects and development programs of the above-mentioned innovations from strategic and multi-project and project management, engineering and development allows these organizations to get:

- total duration of projects and programs reduction, by 12...20%, including their active-investment phase – 15...25%;
- work complexity reduction by 12...25%;
- operating costs reduction by 20-25%;
- the project total cost reduction by 10...15% or more [5].

At the same time, the quality and competitiveness of both the project (or program) and its developers and owners are grown up.

Considering the economy real enterprises and objects state in Ukraine, and especially in its oil and gas complex, as well as the need for their engineering, re-engineering (revolutionary, bifurcation renewal) and continuous development to world standards of management and business activities) at relevant enterprises it is necessary to accelerate the engineering and development subsystems and functions implementation in their innovation-investment models of activities continuous development and improvement, which in the end eventually lead to increased efficiency and competitiveness of domestic business entities and their products, reduce and protect against the negative impact of the crisis and provide integration into the global and European economy.

**Conclusions.** Summing up, it can be determined that the introduction of new forms and world experience in the organization and management of business processes and construction-investment projects for solving the problems of industrial objects and oil and gas complex capital construction in Ukraine, including the practical recommendations of the article authors, all considered promotes the progress of our country real economy sector, increases the population welfare, and ensures their dynamic transition to world standards of management, life and progress.

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