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## CHANGES IN PORTFOLIES MANAGEMENT OF ORGANIZATION PROJECTS IN CONDITIONS OF BEHAVIORAL ECONOMY

**Annotation.** *The article discusses the methodological aspects of portfolio management of organizations development in conditions of behavioral economy. It is shown that the success of the organization's development portfolio is impossible without taking into account the dominant values of the organization. The article discusses conceptual provisions, methods and models that form the basis of value-oriented management of project portfolios. The conceptual foundations of the value-oriented portfolio management of organizational development are based on models of project life cycles, the formation of a vision for the development of organizations based on the evolutionary theory of values in dynamic environment. The existing concepts, models and methods of managing projects portfolios of organizational development are analyzed. Establishing the correspondence of the dominant levels of organizational values to the established practices of project management showed that the management of project portfolios should be considered from the perspective of a fundamentally new paradigm - as a systematic activity for the development of organizations based on the values that dominate the organization. The types of organizational cultures in accordance with the evolutionary theory of values are considered. The model of value-oriented development of the organization has been further developed and given an understanding of the essence of the spiral nature of the systems development and allows the implementation of joint measures for the organizations development in the form of projects portfolio. It is shown a model for diagnosing the state of organizational values at the stages of the system life cycle to determine a strategy for adapting organizational values to the requirements of the external environment. The method of competitive analysis of portfolio components has been improved to form the composition of the organization's development portfolio by applying the principles of value-oriented and reflective management to make managerial decisions. The practical application of technology for value-oriented management of the enterprise development portfolio as a complex organizational and technical system is considered.*

**Keywords:** *behavioral economics; project portfolio; value-oriented portfolio management; development of organizations; organizational values*

### Introduction

Due to the emergence of a “behavioral economy”, rational models of the classical economy, which were still used in many businesses, have proved ineffective. In classical economic theory, the decision of people in various economic situations is usually associated with selfish profit maximization. It has been accepted in the economy so far that a reasonable justification for decision-making should be independent of emotions, personal feelings or experience. If a person behaves differently than classical economic theory predicts, this is considered irrational behavior. But as modern studies of human activity have shown, no person is ever satisfied with these criteria [1]. Therefore, it can be assumed that people very often make decisions irrationally, that is, under the influence of personal emotions, feelings, or moral norms. The most famous work of Nobel laureate in Economics 2017, Richard Thaler, “The New Behavioral Economics”, criticizes the concept of rational economic behaviour [2]. Behavioral economics is a relatively new science and discipline. It is interdisciplinary in nature and is at the intersection of the two sciences, psychology and economics, which reveals the psychological basis of

human decision making. At present, behavioral economics cannot be ignored, as the behavioral approach reveals in-depth motives for the various scales activities of subjects: from the individual person and the firm to the whole market and entire regions.

Project management, as an interdisciplinary science, does not stay away from current trends. Moreover, the importance of “soft components” has steadily increased in project management during the last few years, which is related to the decisive role of the individual in project management. This human side of project management has become much more important in recent years, not only in practice but also in project management research [3]. The dominant terms for analyzing human behavior in project management are the project manager personality, project teams and special project environment.

The relevance of this article is due to the fact that nowadays, management systems often do not keep up with the changes that are taking place in society, and as a result, theoretical problems become the subject of theoretical research after they have become aggravated. One of the indicators of this affairs state is the ineffective methodologies for

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project, programs and portfolios management used by Ukrainian organizations. At the same time, the losses of society as a result of unsuccessful projects and programs built on inadequate decision-making procedures are several times greater than the funds needed to train the relevant personnel in the field of project management.

**The purpose of the article** is to investigate the basics of value-oriented project portfolio management in a behavioral economy. To achieve this, the following tasks were set:

- to analyze scientific and literary sources on the problems of portfolio management in modern conditions, as well as the content of project portfolio management scientific developments;

- to analyze the portfolio management of the organizations development taking into account the opposing processes of internal integration and external adaptation;

- to develop a conceptual model of value-oriented portfolio management of organizational development and to substantiate its theoretical and methodological basis

- to summarize methodological frameworks for value-oriented management of the organizations development through project portfolios and to carry out an experimental verification of the proposed model.

The scientific and technical problem of bases and models generalization of value-oriented project portfolio management was solved on the basis of a critical analysis of scientific and methodological sources, evolutionary theory of values and modern project management methodology. The theory of active systems development, spiral dynamics of organizational value building, system analysis, mathematical generalization and systematization of practical experience should be used in the research.

#### **Analysis of recent research and publications**

The development of project management can be traced from simple technical models to complex program and portfolio management tasks that are implemented in an uncertain environment [4]. Modern project management has gone from a purely economic evaluation of projects to an assessment of the human resources effectiveness and value-based management. For example, in the Japanese project management knowledge system P2M [5], a project is defined as a set of interrelated time and cost constraints designed to create a unique value that is defined by an organization's mission. In this way, the values that emerged during the life cycle of the project / program become a source of additional assets of the organization. Value-based project

management, which determines and structures the value-based approach to projects, is becoming increasingly popular in the modern world [6].

As early as in the last century, Max Weber [7] has determined that rational human action is driven by a conscious belief in the ethical values under which this action takes place, whether or not it brings success, in a general sense. Value-rational action always corresponds to the internal hierarchy of human values [8]. The study of this internal hierarchy and its changes, depending on the external changes of the surrounding world, offers endless prospects for the improvement of human behavior. Well-known popularizer of science, Richard Dawkins, in his book “The Selfish Gene” [9] hypothesized that a value meme is a unit of information that resides in the human brain and is a certain mutating virus in cultural evolution.

At present, behavioral economics cannot be ignored, as the behavioral approach reveals in-depth motives for the activities of subjects of various scales: from the individual and the individual firm to entire regions. The 2002 Nobel Prize in Economics from American psychologist Daniel Kahneman and in 2017 by Richard Thaler [10] played a positive role in the development of behavioral economics. At the same time, project management abandons rigid hierarchical management structures and moves to flexible project-oriented systems, which is enshrined in the new project management standards [11-12]. The continuation of the particular project culture studying is the studying of the mental space of projects, as well as the formalized description of such a space that can influence the success of projects and programs [13].

#### **Research results**

Today, Ukrainian organizations have the most widespread management systems focused on managing individual projects. Implementation of project management tools continues to create such sets of projects (programs and portfolios) that would minimize the individual projects risks, as well as maximize the return on investment [14]. But most organizations lack the mechanisms to link strategic management and operational management through individual projects. The application of project portfolio management techniques helps to ensure that project activities are consistent with the organization strategic goals, to execute only strategically significant projects, and to prevent the waste of scarce resources on strategically insignificant goals. At the same time, the main driving forces behind the evolution of project management are the need to increase competitiveness, the compliance of the organization

with environmental changes and optimization of company size.

Project Portfolio is a set of interdependent or independent projects / programs planned for implementation in a given organization, with limited resources, time and priorities [15]. Portfolio project management principles can be applied to any developing enterprise. The key to their implementation should be to create the necessary projects, to organize them in the form of a decomposition structure [16] and to manage these projects as focusing primarily on obtaining benefits for the company as a whole, and not only for the implementation of a single project.

The main tasks facing the project portfolio management are to draw up an optimal timetable for each project and most often minimize the costs of its implementation (or maximize profit, or compliance with regulatory deadlines, etc.). The tasks of determining the optimal (from one or another point of view) sequence of portfolio components are solved in the framework of network planning and management: alignment of project resources, drawing up the optimal schedule, tasks of responsibility allocation and appointment of contractors; determination of optimal schedules of cash inflows and expenditures using financial analysis methods [15; 16].

Development of the overall enterprise strategy is carried out using the theories and methods of such disciplines as “strategic management”, “strategic marketing”, “strategic planning” and project managers often do not have sufficient authority to develop it, but project managers must demonstrate

the transition from abstract ideas to real change through projects and programs.

The mental platform of any organization, its spiritual core, is undoubtedly the values that underpin the norms and patterns of the organization behavior. The audit of any organization begins with the acquaintance with the superficial level of its basic values, then goes to the next, subsurface level, which touches deeper values, and at the very core is the deep, containing the secret beliefs [17]. It is the values shared and declared by the founders or the most reputable the organization members that most often become the key link from which the unity of views and actions ensure the achievement of the organization's goals.

In terms of axiology, values represent a set of critical assumptions that are perceived by members of the organization and determine the orientations of their behavior and actions [17]. The full identification of the employees with the organization means that they are not only aware of these ideals, clearly adhere to the rules and norms of behavior, but also internally fully adopt corporate values. In this case, the organization cultural values become the individual values of the employee, taking a stable place in the motivational structure of the behavior. Subsequently, the employee continues to share these values regardless of whether he is within the organization or working elsewhere. Moreover, such an employee himself becomes a powerful source of data values and ideals. The experience of many countries indicates that a profound change of the organization culture must occur when environmental conditions change, accompanied by certain changes in corporate values (Table 1) [17].

Table 1  
Traditional and new values of modern project management

| Traditional values                           | New values  |
|--|---|
| The complexity of structures                 | Simplicity of structures and processes                        |
| Centralization and dependency                | Flexibility and autonomy                                      |
| Management on rules and directives           | Management through organizational culture                     |
| Emphasis on financial and material resources | Emphasis on human resources                                   |
| Orientation to internal processes            | Taking into account external factors and customer orientation |
| Adaptation fee                               | Performance reward  |

The developer of the theory of evolution of values K. Graves [8] believed that the stages of development of values of the organization can be characterized depending on the manifestation of certain rules, norms and principles of internal interaction. If we follow the theory of evolutionary

development, we can see that the theory of general management swings in time and space of opposites (selfishness and altruism). There are numerous evidences that the theory has now turned toward humanistic management, behavioral models, and methods. Thus, a holistic view of an organization's

development strategy requires, in addition to rigid formalized approaches, the use of soft system tools and tools. It is known that the dissatisfaction of the stakeholders with the project results is a misunderstanding of the nature of the project activity. To overcome this shortcoming, a so-called

terrestrial paradigm has been proposed to judge the expectations of stakeholders on their value memes [17]. Consider the characteristics of the manifestation of various aspects of the terrestrial paradigm in relation to the traditional approach to project activity (Table 2).

Table 2

Influence of the meme paradigm on various aspects of project management

| Aspects of PM                      | Traditional approach   | Memetic approach  | The influence of the meme paradigm  |
|------------------------------------|--|---|---|
| Evolution                          | Projects create products and services for clients of the organization                | Projects create products and services according to the memes of project managers                  | Project management serves clients according to the memes of project managers                            |
| Theory and Practice                | PMBok is a practical guide that project managers use                                 | PMBok is a practical guide that project managers use in line with value memes                     | The practical use of the PMBoK guide is diminishing   |
| Project managers and project teams | Develop strategies to achieve the goals of the organization                          | Develop strategies in accordance with value memes   | The impact of project managers is changing. Project teams are a product of the evolution of value memes |
| PM profession                      | RMI is an organization created to disseminate best project management practices      | RMI is an organization that distributes project management value memes                            | RMI is a means of disseminating meme designs for project management                                     |
| Creating knowledge                 | Knowledge is created by social systems   | Meme knowledge creates social systems   | A new approach to knowledge formation   |
| Project organizations              | Project organizations are an association of professionals to create project products | Design organizations are an association of professionals for the manifestation of meme structures | Collective memes of project organizations depend on memes of individual managers                        |

After researching the profile of dominant values in Ukraine, it was found [18] that most often in Ukrainian companies we are dealing with four dominant levels of values that correspond to the four types of organizational cultures according to K. Cameron and R. Quinn's competing values model: hierarchical culture, market culture, clan culture and adhocratic culture [19]. Adhocratic (from Latin *ad hoc* – urgent, specialized, dynamic) culture is identical to the orange (by K. Graves) values level and corresponds to a purely project culture. This model helps clearly identify the type of dominant values that an organization focused on in response to environmental challenges. In [19], an OCAI assessment tool proposed for organizational values. The OCAI methodology helps determine the profile of organizational values that the organization members wish to attend to meet the requirements of

the external environment. The basis of the OCAI methodology is the framework construction of competing values of four “ideal” types of organizational cultures (Fig. 1). The OCAI tool focuses on six key attributes that reflect organizational values in meaningful dimensions [19].

1. “Dominant characteristics of an organization”, or determining what an organization is like in general.

2. “General style of leadership” in the organization.

3. “Personnel management” or a style that characterizes the staff and defines working conditions.

4. “Integrating entity” or mechanisms that allow an organization to stay together.

5. Strategic planning of particular focus that drive the organization's strategy.

6. "Success criteria" that show how victory is determined and how it will be rewarded and honored.

A holistic view of an organization's development from the point of assessing problems at the life cycle certain stages requires a detailed examination of the values according to which the portfolio is formed. Throughout the life cycle, the organization goes through certain points of bifurcation at which changes need to be initiated through projects [20]. According to the theory of K. Graves [8] the organization development goes in a double helix: the external spiral and the internal spiral. The external spira is the conditions of life and problems that the organization faces in a certain historical time. The internal spiral is the individual organization features, the cognitive processes, such as, the collective intelligence and the mental faculties by which the organization "filters" the outside world.

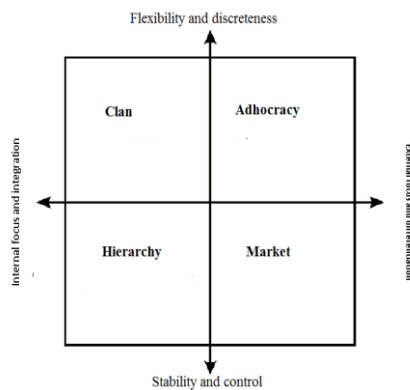


Fig. 1. Framework construction of competing values by K. Cameron and R. Quinn

External conditions are constantly interacting with the internal organization structures, and the strategy that arises during this interaction determines its level of organization existence or the transition to another level of organizational values. Thus, the organization survival is determined by its ability to change values depending on changes in the environment through project portfolios. The semicircle rotation of the organization values according to K. Graves [8] corresponds to the full life cycle of the company according to I. Adizes [21]. The movement in the spiral occurs between the axis "flex-stability" ( $S^+, S^-$ ) and "external focus-internal focus" ( $F^+, F^-$ ). The full circle in a spiral organization development goes in the following sequence:

$$F^-S^+ \rightarrow F^+S^+ \rightarrow F^+S^- \rightarrow F^-S^- \quad (1)$$

The life cycle of each value meme: "awakening – growth – heyday – decline – rejection" is repeated at each semicircle and is caused by powerful forces of external influence and inner discontent. The two main tasks of any organization – external adaptation and internal integration are constantly pushing the organization to move in a spiral (Fig. 2). The success of processes of evolutionary development ensured on the basis of knowledge of the spiral motion laws, construction of system actions in the form of a synergistic portfolio of relevant content projects [22].

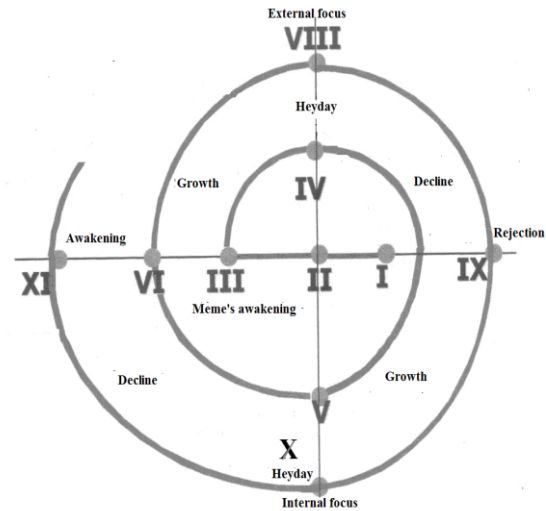


Fig. 2. The life cycle of a value meme

It is clear that the "ideal" strategic position of the company is constantly changing over time, so any organization is facing with the task of finding the best strategy constantly. In the period of implementation of the new value portfolio, the organization is experiencing a period of chaos, which is accompanied by an organization weakening in the transition of bifurcation points. But then there is a period of stable operation with the implemented solutions and rational using of the obtained values. Thus, understanding [23] of organization bifurcation points is important skill for project managers.

The main mechanism of logical communication of the portfolio various components is the level of dominant values, which is projected on aspects of enterprise management. However, the number of design levels can be quite large and management has the opportunity to design the organization on certain aspects, while abstracting from other projections. If the development strategy focuses on competition, achieving goals at any cost, then the company is dominated by values of the third and fifth levels (red and orange) according to K. Graves [8]. The signs of these strategies can be observed in the Ukrainian practice of maximizing the profit from the project at any cost. The fourth and sixth level strategies (blue

and green) focus on the social responsibilities and interpersonal relationships. These strategies are aimed at building a good climate within the company and good public relations.

A value-based management methodology structures the approach to organizational development through value creation, organization priorities, stakeholder and customer needs. Today, projects and programs are seen as a means of realizing the mission and goals of the owner, leading to the creation of new values characterized by uniqueness and distinctive features. The

implementation of a “value approach” to a project-driven organization requires defining the basic concepts, elements and structure of the relevant value mechanism. The project portfolio itself is a tool that allows integrating the contractor’s actions to the vision of the future company reality. The gradual expansion of the system’s capabilities through the project management is depicted in the form of a spiral that unwinds from the center, as shown in Fig. 3.

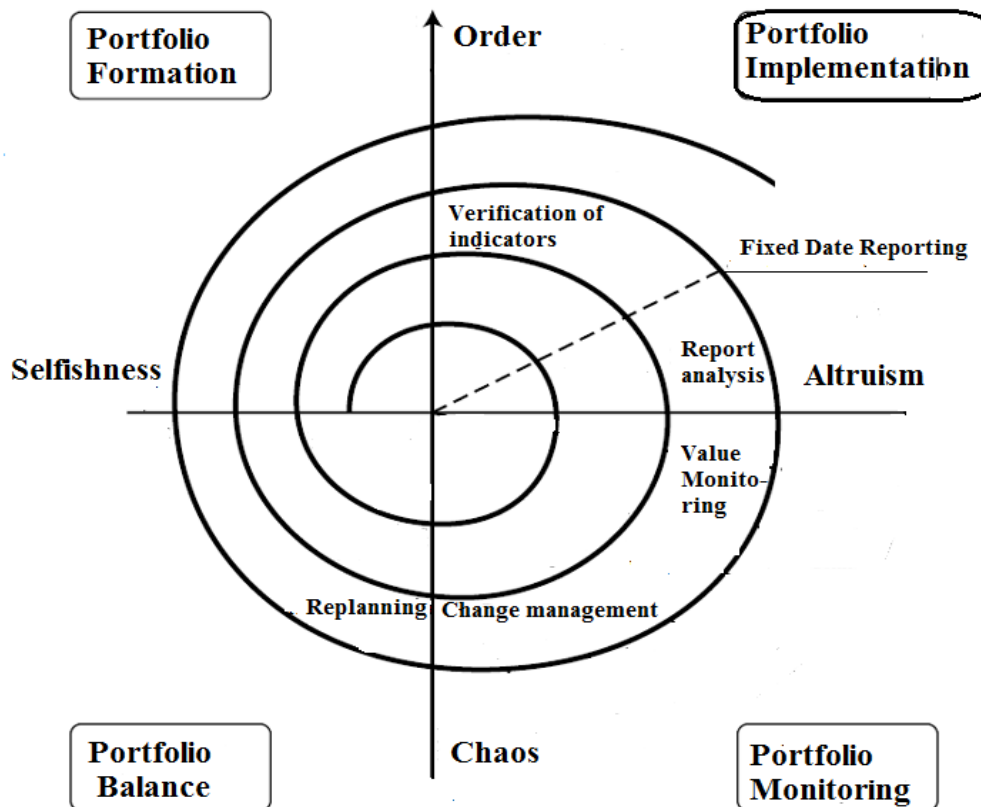


Fig. 3. Model of project portfolio life cycle

According to this simple model, the organization development through project management is described as a gradual reach of an ever-expanding area, as projects move from stage to stage and from iteration to iteration. This model emphasizes that spiral development leads to a gradual expansion of the scope of the organization subject area (service, schematic and system models) [5]. The spiral clearly illustrates that the traditional stages of a portfolio's life cycle, as well as continuous improvement, never end.

Mastering more advanced levels of values gives companies the following important benefits:

- the expansion of the space of organizational values is in the direction of enrichment of varieties

of organizational forms, and much more complex conceptual space of existence;

- the expansion of the conceptual space is towards a broader view of things, the expansion of influence zones and intervals;

- a consistent increase in the number of alternatives leads to more variants to accomplish the same thing;

- a consistent increase in the number of freedom that leads to more opportunities in terms of project management.

In modern conditions, the volume of information, communicative interactive tools is constantly increasing and, as a consequence, the fragmented perception of the world and tensions in

the humanitarian sphere of the person increase. It seems that humanity is not prepared enough to function in the conditions of the information society of the third wave. Project managers need to develop synergistic thinking to capture the complexity of problems and sources of their occurrence, to properly understand the relationships and interactions between things, phenomena and processes that are relevant to the different levels of value project management.

Classical management balances in the space between rigid mechanical and soft humanistic approaches. Since behavioral economics pays great attention to the so-called irrational behavior of people, project management should also be considered in terms of the behavioral theory basics. That is, each time the term project management is used, it should be considered in a holistic view, encompassing such concepts as personnel management, knowledge management, innovation management, change management, motivational management.

Strategic management of company development through projects in accordance with the principles of behavioral economics can be built on a system of balanced indicators [24], proposed in 1990 by Harvard School of Economics professors Robert Kaplan and David Norton. Their system is based on the principle that management with only financial indicators does not provide sufficient information to make correct management decisions. The system of balanced indicators translates the mission and strategy of the company into a system of the clearly set goals and objectives, as well as indicators that determine the degree of their achievement within four projections:

- finance (how the company evaluates investors);
- customers (how the company evaluates customers);
- internal business processes (what processes will enable at the company to realize competitive advantages);
- personnel's training and growth (what opportunities exist for the growth and development of the company).

The basic structural idea behind this method is to balance the scorecard in four groups. The first element "finance" includes the traditional financial performance of the organization. No matter how we prove the importance of the organization market orientation and the staff motivation, the company owner will always, first of all, be interested in the financial return on investment. Therefore, a balanced

system must begin (in classification) and end (in the final assessment) with financial indicators.

The second element of "customers" describes the external environment of the organization, its relationships with customers. The main focus of attention is the ability of the organization to respond for customer satisfaction; the ability of the organization to retain the customer; ability to attract a new customer; to increase customer profitability; volume of the market; market share in the target segment.

The third element "business processes" characterizes the internal processes of the organization: the innovation process; product development; organization preparation; supply of basic resources; production; marketing; after-sales service, etc.

The fourth element "learning and growth" allows describe the organization's ability to learn and grow, which focuses on the following factors: people with their abilities, skills and motivation; information systems that allow deliver critical information in real time; organizational procedures that ensure interaction between process participants and determine the decision-making system.

There is a cause-and-effect relationship between the metrics and goals of these four projections. For example, an increase in the absolute value of a return on investment can be ensured by an increase in the number of clients, which in turn is associated with a reduction in project planning errors (cost and timeframe project implementation) as well as staff competence.

Ideally, a project portfolio should integrate different aspects of an organization's development. Organizations that understand their own strengths sometimes consider their own competitiveness in four dimensions: structural, political, human and symbolic. In the concept of sustainable development, the following four aspects can most often be distinguished: environmental, economic, social and cultural. Underestimation of any of these components leads to distortion and disruption in the sustainable development strategy [24].

The procedure of forming a project portfolio is usually preceded by mutual consultations and discussions by the members of the working group and external experts about the final list of projects taking into account with their value, the resource constraints, the reality of finding investment resources and other aspects of project implementation. As a result of the analysis, alternative projects are selected and their relevant value indicators are determined. The members of the working group draw up a list of alternative projects,



assessed on the criterion of expected added value. The leader of the group should determine the best version of the portfolio, taking into account a set of indicators of the value of its components and known mathematical models.

One-criterion models for deciding on the selection of projects into the portfolio, taking into account the uncertainty factors, can be divided into deterministic and stochastic models [22]. In turn, the

deterministic models of portfolio formation that is realized under certainty, depending on the type of objective function and constraints and can be divided into four types: linear, nonlinear, dynamic and graphical. In [22] the following procedure of project portfolio formation is presented, using which it is possible to form a value oriented project portfolio (Fig. 4).

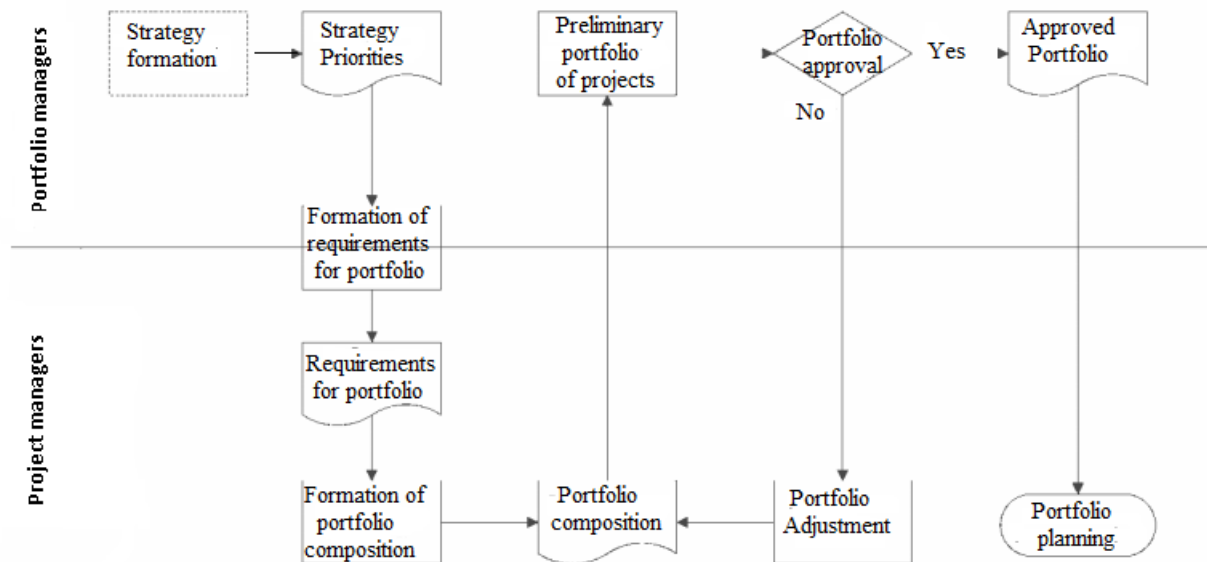


Fig. 4. The process of projects portfolio forming

The process of value-oriented portfolio forming is distinguished by the procedure for preliminary selection of projects according to the criteria for matching the level of created values. The procedure of forming a value-oriented project portfolio is a one-choice task that can be formulated as a linear programming problem. There are many proposed projects  $P = \{P_i\}$  with  $\{i = 1 \dots n\}$ , multiple resource needs  $c = \{c_i\}$ , multiple defined projects' values  $v = \{v_i\}$  that meet the individual preferences of experts, and a total resource constraint  $C$ . The projects must be selected to maximizing the portfolio's total value and satisfies resource constraints. For each project is defined a variable  $x_n$ , which can be set to 0 or 1, depending on the selection of the project into the portfolio or not

$$\sum_{i=1}^n v_i x_i \rightarrow \max, \quad (2)$$

$$\sum_{i=1}^n c_i x_i \leq C, \quad x_i \in \{0,1\}.$$

Task (2) can be solved by linear programming methods, for example, by using a simplex method. As a result of the decision we get a set of projects from which the portfolio should consist.

This model can be applied only under the following assumptions that limit its scope:

- the projects are independent;
- projects have low risk, that is, model parameter values are predictable;
- projects are going on simultaneously or in some way fixed start time of each portfolio project.

The list of projects candidate for the portfolio should include also the quantitative indicators of the value obtained from the preliminary project analysis. In terms of value approach, the indicators that need to be improved should not necessarily be directly related to financial return, they can be any parameters that measure the value of the portfolio. So defining the criteria by which projects should be evaluated in the form of a portfolio is one of the difficult tasks in deciding, whether to include a project in a portfolio, as well as in forming the portfolio itself. This is especially important for a wide range of social projects. The task of selecting a



project from a multitude of alternatives boils down to the task of maximizing the performance criterion  $F(s)$ . Formally, this task can be represented by the following formula:

$$F(s) \rightarrow \max, s \in S \quad (3)$$

where:  $S$  is the vector of potential portfolio components.

At the pre-selection stage, obviously ineffective alternatives are eliminated. For this purpose, instead of the criterion of the maximum of the objective function, we use the limit value of a certain criterion of efficiency:

$$F(s) \geq D, s \in S_D \quad (4)$$

where:  $D$  is some real number;  $s$  is a subset of the set  $S_D$ .

The next stage is the analysis of the most valuable projects on a set of criteria. In general, when designing a portfolio, we have to select projects with a sufficiently large set of parameters, that is, to solve a multicriteria decision-making problem and to deal with multiple alternatives, multiple criteria, and multiple criteria rating scales. To simplify this task, a consistent convolution of the values of the characteristics is used the method of hierarchy analysis proposed by T. Saati at the end of the last century [26].

The integral valuation of the project portfolio is determined taking into account the relative

importance of the values of the portfolio components and is calculated by the formula (5):

$$V = \sum_{i=1}^I V_{in} g_{in} , \quad (5)$$

where:  $V_{in}$  is estimated value of an individual component of the portfolio;  $g_{in}$  is the weighting of the relative importance of the value of the portfolio component according to the priority criteria for the strategy.

Thus, we obtain a formed project portfolio for further detailed plans development in specialized software. After the development portfolio is formed, the most important stage comes such as the implementation of real changes in the organization and achievement of the set strategic goal.

Value-based change management is a fast-growing separate scientific area. In project-oriented organizations, it is recommended to apply a model of organizational change based on determining the level of organization dominant values and moving to the next level.

### Experiments

The application of the research results provided an opportunity to develop a company strategy and to form a strategic portfolio of projects for LLC Energobud in 2018-2022. A conceptual scheme for modeling the development of organization based on a value-oriented approach presented in Fig. 5.

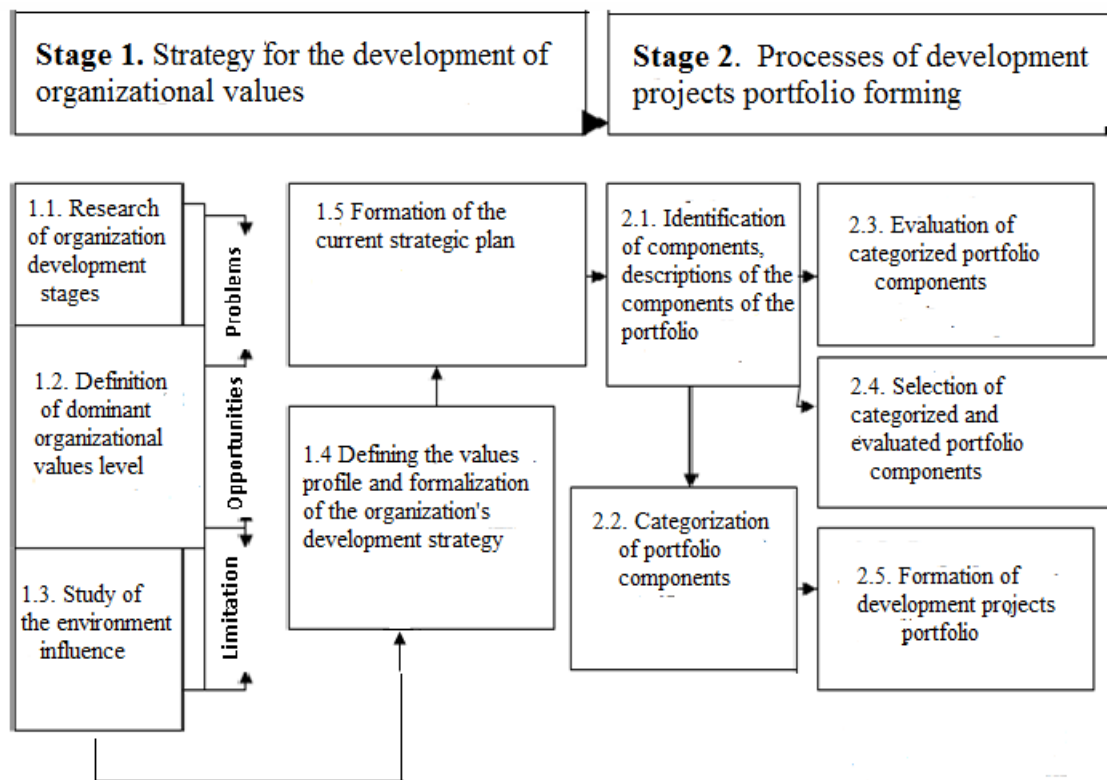


Fig. 5. Stages of modeling of enterprise development project portfolio

*Stage 1.* Development of a value-oriented development strategy based on an assessment of the current state of the system. At this stage, diagnostics of the organization' state and comparison of its characteristics of development with similar characteristics of other external systems, study of the influence of the external environment are carried out.

Economic diagnostics of LLC Energobud has determined that the organization is in a phase of full prosperity. According to the evolutionary theory of values, after the phase of full bloom, either the organization must move to another level of organizational values, or it is doomed to gradual dying. The main task of the portfolio manager of development projects is the ability to maximize awareness of the dominant values in the multiplicity of all stakeholders' interests and to build on them a common platform. If an organization takes the right strategic position, it becomes possible to enter a new cycle of development based on a new value meme.

*Stage 2.* Projects with signs of having a certain value meme are selected for the value-oriented development portfolio of the organization. In the overall formulation of the task of forming a value-oriented portfolio of organization, we have  $n$  projects, each of which is characterized by the corresponding cost and value. The objective of the proposed model is to maximize the total value of the portfolio relative to the selected organization strategy, to budget constraints and the number of projects being implemented simultaneously.

The optimization model can be calculated on the basis of Excel software. The practical application of the model may lead to the absence of acceptable solutions (for example, in case of a clear lack of resources). In this case, it seems possible to tighten the number of projects in the portfolio.

*Stage 3.* Monitoring of portfolio performance and evaluation of the overall state of activity of the enterprise as a result of project portfolio implementation occurs after a certain period of time. At this stage, you may need to adjust strategy and to reformat the portfolio accordingly.

LLC Energobud has conducted pilot training for middle and senior management staff to develop value-oriented thinking during two months. In the proposal stage of project portfolio development the set of projects that maximize the value of the organization in accordance with the chosen development strategy is already determined. A list of potential portfolio components is drawn up on the basis of initiatives identified by organizational units. The portfolio components are analyzed for

compliance with the chosen value strategy. After a detailed analysis, the experts compiled a list of potential portfolio components and divided them into four groups according to four templates A, B, C, and D that characterize finance workflows, management structures, team intelligence, and information technology. As there are no objective estimates for project proposals, the expert method of pairwise comparisons was used to solve the problem.

Consider an example of a value-oriented portfolio with twelve pre-selected projects, which transform finance workflows, management structure, and teamwork and information technology. The evaluation and selection of future components of the portfolio was previously carried out by the method of paired comparisons by an expert's panel. The total financing budget is UAH 10,000 thousand. The general formulation of the problem is as follows:

$$0,25x_1+0,22x_2+0,23x_3+0,29x_4+0,3x_5+0,3x_6+0,32x_7+0,32x_8+0,22x_9+0,18x_{10}+0,21x_{11}+0,2x_{12} \rightarrow \max; (6) \\ 2320x_1+1540x_2+1120x_3+1530x_4+360x_5+420x_6+360x_7+1120x_8+220x_9+1100x_{10}+1360x_{11}+240x_{12} \leq 10000;$$

where:  $x_i \in \{0,1\}$ .

Task (6) can be solved by linear programming methods; in this case it is proposed to find a solution to the simplex method using the Microsoft Excel Office Solution Finder. The solution of the problem is given in Table 3.

The table shows that only three projects will not receive funding, which is sufficient to fill the current level of organization values. The implementation of the project portfolio is followed by a short period of the implemented solutions operation, when resources are spent only to control the achieved level of values.

In one way or another, an organization always has some resource constraints for a given portfolio. It usually turns out that the total amount of resources is less than the total need for resources. In this case, the resources within the portfolio can be distributed in proportion to the value of its components.

Strategic project portfolio management is a continuous process of creating, executing and evaluating a portfolio of strategic initiatives designed to achieve sustainable results and market organization benefits [15; 16]. The implementation of the strategic project portfolio largely manages the entire business. Strategic portfolio management involves providing ongoing review of portfolio projects and programs in the face of changes in the external environment. Therefore, the performance of

the portfolio is constantly monitored, periodically reviewed and its composition may change. As a matter of fact, an organization should, at the beginning of the start-up phase of a portfolio, begin to formulate proposals for a new development portfolio based on higher-level values. The success

of an organization's development portfolio is determined by the total synergistic effect of the portfolio's components, to which managers monitor the performance of the portfolio's components and overall organization indicators.

Table 3

Selection of projects for the development portfolio

| Option     | Value criterion | Cost (t. UAH) | Selection | Cumulative cost (t. UAH) |
|------------|-----------------|---------------|-----------|--------------------------|
| Project 1  | 0,25            | 2320          | 1         | 2320                     |
| Project 2  | 0,22            | 1540          | 0         | 2320                     |
| Project 3  | 0,23            | 1120          | 0         | 2320                     |
| Project 4  | 0,29            | 1530          | 1         | 3850                     |
| Project 5  | 0,3             | 360           | 1         | 4210                     |
| Project 6  | 0,3             | 420           | 1         | 4630                     |
| Project 7  | 0,32            | 360           | 1         | 4990                     |
| Project 8  | 0,32            | 1120          | 1         | 6210                     |
| Project 9  | 0,22            | 220           | 0         | 6210                     |
| Project 10 | 0,18            | 1100          | 1         | 7310                     |
| Project 11 | 0,21            | 1360          | 1         | 8670                     |
| Project 12 | 0,2             | 1240          | 1         | 9910                     |

The using of information technology in project management is expedient helps to solve a number of tasks and promotes effective control of project implementation [27]. Currently, there are many information systems for project management, but one has to be careful about the choice. It should also remember that the implementation of information technology in project management requires prior research, the planning of works set and the control over their implementation.

The applications of these results to Energobud LLC made it possible successfully implement the strategic portfolio of projects in 2018-2019. The company's financial performance for the current year even exceeded its previous expectations, increasing its competitiveness, which corresponds to the pace of environmental development. For the dynamic analysis of the enterprise state we used data on the growth of the average salary in the enterprise, which increased by 14 %, much more than the average salary in the industry.

It also found an increase in the innovation potential of the enterprise due to the growth of the share of innovative products in the enterprise by 18.5 % of the total production.

Thus, it can be considered that the first experience of implementation of a value-oriented portfolio at the enterprise was successful.

### Conclusions and prospects for further research

The novelty of the study lies in the formalization of the theoretical propositions of the organizations development management by implementing a value-oriented projects portfolio formed based on the evolutionary theory of values. Management of the organization evolutionary development could be done through the implementation of portfolio management on the basis of a spiral lifecycle using known techniques, methods and tools. The methodological basis of value-oriented development management are the methods of evaluation of organization dominant values, which differ from the traditional approach by interpreting reality in accordance with the value memes of project managers.

The existing concepts, models and methods of organization portfolio management are analysed. It has been established that in a behavioral economy, project portfolio management should be viewed from the perspective of a fundamentally new

paradigm - as a systematic activity for the development of organizations dominant values. At the article a model of organizational development based on the formation of a value-oriented project portfolio is constructed, the types of organizational cultures are determined in accordance with the evolutionary theory of values.

The model of project-oriented development of the organization has been further developed, which gives an understanding of the essence of the spiral nature of the systems development and allows implementing joint measures for the development of organizations in the form of a project portfolio. The method of competitive analysis of portfolio components has been improved to form the composition of an organization's development portfolio using the principles of value-oriented and reflective management for making management decisions.

In the future, the author plans to continue to study the processes of effective portfolio management in the context of behavioral economics, namely, to explore the mutual influence of portfolio components, as well as the possibility of integrating classical management practices and provisions of PMBOK-7 in the activities of constantly improving project organizations.

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### ЗМІНИ УПРАВЛІННЯ ПОРТФЕЛЯМИ ПРОЕКТІВ ОРГАНІЗАЦІЙ В УМОВАХ ПОВЕДІНКОВОЇ ЕКОНОМІКИ

**Анотація.** У статті розглядаються методологічні аспекти управління проектами розвитку організацій в умовах поведінкової економіки. Показано, що успіх портфеля розвитку організації неможливий без урахування домінуючих цінностей організації. У статті розглядаються концептуальні положення, методи і моделі, які становлять основу ціннісно-орієнтованого управління портфелями проектів. Концептуальні засади ціннісно-орієнтованого портфельного управління організаційним розвитком базуються на моделях життєвих циклів проектів, формування бачення розвитку організації на основі еволюційної теорії цінностей в умовах динаміки оточення. Проаналізовано існуючі концепції, моделі і методи управління портфелями проектів організаційного розвитку. Встановлення відповідності домінуючих рівнів організаційних цінностей усталеним практикам проектного управління показало, що управління портфелями проектів повинна розглядатися з позиції принципово нової парадигми - як системна діяльність щодо розвитку організації на основі домінуючих в організації цінностей. Розглянуто типи організаційних культур відповідно до еволюційної теорії цінностей. Отримала подальший розвиток модель ціннісно-орієнтованого розвитку організації, що дає розуміння суті спіралеподібного характеру розвитку систем і дозволяє реалізувати спільні заходи з розвитку організації у вигляді портфеля проектів. Показано, як модель діагностики стану організаційних цінностей по етапах життєвого циклу системи дозволяє визначити стратегію адаптації організаційних цінностей до вимог зовнішнього оточення. Удосконалено

метод конкурентного аналізу компонентів портфеля для формування складу портфеля розвитку організації при застосуванні принципів ціннісно-орієнтованого і рефлексивного управління для прийняття управлінських рішень. Розглянуто практичне застосування запропонованої технології управління ціннісно-орієнтованого управління портфелем розвитку підприємства, як складної організаційно-технічної системи.

**Ключові слова:** поведінкова економіка; портфель проектів; ціннісно-орієнтоване управління портфелем; розвиток організації; організаційні цінності

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### ИЗМЕНЕНИЯ УПРАВЛЕНИЯ ПОРТФЕЛЕМ ПРОЕКТОВ ОРГАНИЗАЦИЙ В УСЛОВИЯХ ПОВЕДЕНЧЕСКОЙ ЭКОНОМИКИ

**Аннотация.** В статье рассматриваются методологические аспекты управления проектами развития организаций в условиях поведенческой экономики. Показано, что успех портфеля развития организации невозможен без учета доминирующих ценностей организации. В статье рассматриваются концептуальные положения, методы и модели, которые составляют основу ценностно-ориентированного управления портфелями проектов. Концептуальные основы ценностно-ориентированного портфельного управления организационным развитием базируются на моделях жизненных циклов проектов, формировании видения развития организаций на основе эволюционной теории ценностей в условиях динамического окружения. Проанализированы существующие концепции, модели и методы управления портфелями проектов организационного развития. Установление соответствия доминирующих уровней организационных ценностей установленным практикам проектного управления показало, что управление портфелями проектов должно рассматриваться с позиции принципиально новой парадигмы - как системная деятельность по развитию организаций на основе доминирующих в организации ценностей. Рассмотрены типы организационных культур в соответствии с эволюционной теорией ценностей. Получила дальнейшее развитие модель ценностно-ориентированного развития организации, которая дает понимание сути спиралевидного характера развития систем и позволяет реализовать совместные мероприятия по развитию организаций в виде портфеля проектов. Показано, как модель диагностики состояния организационных ценностей по этапам жизненного цикла системы позволяет определить стратегию адаптации организации к требованиям внешнего окружения. Усовершенствован метод конкурентного анализа компонентов портфеля для формирования состава портфеля развития организации с применением принципов ценностно-ориентированного и рефлексивного управления для принятия управленческих решений. Рассмотрено практическое применение предложенной технологии управления ценностно-ориентированного управления портфелем развития предприятия, как сложной организационно-технической системы.

**Ключевые слова:** поведенческая экономика; портфель проектов; ценностно-ориентированное управление портфелем; развитие организаций; организационные ценности



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