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FORMATION OF A SYSTEM OF GOALS FOR MANAGING THE INNOVATION ACTIVITIES OF AN ENTERPRISE IN THE CONDITIONS OF POST-CONFLICT TRANSFORMATION

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The article examines the role of innovation in the development of enterprises. An approach to innovation management at an enterprise in the context of post-conflict transformation is developed, based on the premise that the goals of an enterprise should determine the goals of innovation management, and the processes of innovation management at an enterprise should be integrated with the vertical and horizontal levels of economic and production business processes in the context of post-conflict transformation. Based on the results of the study, the mathematical basis for innovation management in the system of methodological approaches (transfer management, algorithmic management, creative management) based on the identified processes of innovation management at enterprises in the context of post-conflict transformation is determined. An analysis of approaches to the formation of goals for managing innovations at enterprises in the context of post-conflict transformation is carried out. The approach, which is contained within 8 key spaces, with the allocation of 5 groups of goals (financial, production, marketing, human resource management, information and technical support) is substantiated. A system of goals for managing the innovation and investment activities of enterprise is formed. The author details managerial actions/decisions at the strategic, tactical and operational levels and specifies tactical functional goals in the context of financial, production, marketing, human resource management and information technology, which ensures further optimization of the use of various types of resources (primarily human resources) at the enterprise. A mathematical framework has been developed for the subsystem at the strategic, tactical and operational levels. The obtained results can be implemented in the activities of enterprises and used in further scientific research.

Keywords: enterprise, innovation, innovation activity, enterprise goals, management system, post-conflict transformations.

ФОРМУВАННЯ СИСТЕМИ ЦІЛЕЙ УПРАВЛІННЯ ІННОВАЦІЙНОЮ ДІЯЛЬНІСТЮ ПІДПРИЄМСТВА В УМОВАХ ПОСТКОНФЛІКТНОЇ ТРАНСФОРМАЦІЇ

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У статті досліджено роль інноваційної діяльності в розвитку підприємств. Розроблено підхід до управління інноваціями на підприємстві в умовах постконфліктної трансформації, який базується на передумові, що цілі підприємства повинні визначати цілі управління інноваціями, а процеси управління інноваціями на підприємстві повинні бути інтегровані з вертикальним і горизонтальним рівнями господарсько-виробничих бізнес-процесів саме в умовах постконфліктної трансформації. За результатами проведеного дослідження визначено математичне підґрунтя управління інноваціями в системі методологічних підходів (трансферне управління, алгоритмічне управління, креативне управління), які базуються на виявлених процесах управління інноваціями на підприємствах в умовах постконфліктної трансформації. Проведено аналіз підходів до формування цілей управління інноваціями на підприємствах в умовах постконфліктної трансформації. Обґрунтовано підхід, що міститься в межах 8 ключових просторів, з виділенням 5 груп цілей (фінансові, виробничі, маркетингові, управління людськими ресурсами, інформаційно-технічного забезпечення). Сформовано систему цілей управління інноваційно-інвестиційною діяльністю підприємства. Проведено деталізацію управлінських дій/рішень на стратегічному, тактичному й операційному рівнях та конкретизовано тактичні функціональні цілі у розрізі фінансової, виробничої, маркетингової сфер, сфери управління персоналом та сфери інформаційно-технічного забезпечення, що забезпечує у подальшому оптимізувати використання різних видів ресурсів (у першу чергу, кадрових) на підприємстві. Для підсистеми на стратегічному, тактичному та операційному рівнях розроблено математичне підґрунтя. Отримано результати можуть бути впроваджені в діяльність підприємств та використані в подальших наукових дослідженнях.

Ключові слова: підприємство, інновації, інноваційна діяльність, цілі підприємства, система управління, постконфліктні трансформації.

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FORMULATION OF THE PROBLEM

Ukraine needs to implement reforms to develop its national economy: an efficient, socially oriented, effective economy will help increase its competitiveness in global markets. The current realities require Ukrainian enterprises to implement the latest approaches to developing innovation and investment potential by creating a favorable investment environment, high-tech production, and intensifying research and innovation activities. On the other hand, globalization and integration transformations intensify innovation and investment processes at enterprises seeking new opportunities through new markets and access to financial resources. This actualizes the need for research and scientific substantiation of theoretical and methodological approaches to ensuring the innovation and investment potential of enterprises as subjects of the national economy.

LITERATURE REVIEW

The analysis of existing approaches to innovation management has shown that each of them treats innovations, knowledge about innovations and related processes as groups of separate formalized properties. The innovation management system itself is viewed as a virtually independent system that is not bound by common goals with the enterprise. This approach leads to a technocratic and effective consideration of innovation management processes.

The role of innovation in the development of enterprises was studied by such domestic scientists as: Butenko O. [1], Zhyhor O. [2], Bozhkova V. [3], Ilyashenko S. [3], Bokovets V. [4], Ilyashenko N. [5], Klyus Y. [6], Ivchenko E. [10] and others.

In particular, O. Butenko considers innovation policy to be a component of the state's scientific and technical policy and proposes to develop a strategy for the preservation and development of the country's scientific, technical and innovative geopotential, which involves the use of administrative and market regulators [1]. According to Zin E. [7], one of the priorities of innovation development should be the improvement of legal and economic mechanisms at the state level. Zhyhor O.B. [2] identifies 2 directions for building and implementing an organizational and economic mechanism for implementing the policy of innovative development of the region: 1) intensification of the introduction of innovative elements in the management of regional development; 2) dissemination of innovations and effective use of the innovative potential of the region. Poleva N.M. [8] believes that improving the system of local self-government is one of the prerequisites for intensifying innovation processes in the region

Thus, the task of developing an approach to innovation management at an enterprise in the context of post-conflict transformation, based on the premise that the goals of an enterprise should determine the goals of innovation management, and the processes of innovation management at an enterprise should be integrated with the vertical and horizontal levels of economic and production business processes in the context of post-conflict transformation, is becoming urgent.

FORMULATION OF THE ARTICLE'S OBJECTIVES

The article is aimed at forming a system of goals for managing the innovation and investment activities of an enterprise in the context of post-conflict transformation.

RESULTS

The formation of a system of goals for managing the innovation and investment activities of an enterprise in the context of post-conflict transformation requires the use of a mathematical basis. This approach should be formalized mathematically.

We propose to consider the mathematical basis of innovation management in the system of three methodological approaches based on the identified processes of innovation management at enterprises in the context of post-conflict transformation:

- transfer management
- algorithmic management;
- creative management.

Transfer management is the management of various forms of innovation transfer between business partners and the enterprise, external professional communities and the organization, between professional communities within the organization, internal professional communities, as well as training of employees of the enterprise in new innovations [3]. It is based on transfers.

Algorithmic management is the management of cognitive processes. It is algorithmic in nature and involves searching for sources of innovations, searching for innovations themselves, searching for employees, identifying innovations in employees, etc.

Creative management is the management of informal processes that include the creation and improvement of innovations.

Accordingly, we will analyze approaches to the formation of goals of innovation management at enterprises in the context of post-conflict transformation and substantiate the theoretical and methodological approach.

Goals are a certain state of certain desirable characteristics of an enterprise, which its activities are aimed at achieving [9]. Fixing goals is the process of transforming the purpose of the business into a specific vector of goals.

In parallel with the fixation of goals, the process of directing the action of each element of the enterprise into a single vector begins. Goals must be fixed for each intermediate result that a manager of any level considers important in the process of achieving success. Intermediate results can be quite different:

- dividend growth;
- return on investment;
- Improvement of the company's reputation;
- trust in product quality or scientific and technological leadership;
- the ability to work in the context of post-conflict transformation;
- ability to compete in the market;
- financial stability;
- level of diversification;
- implementation of innovations, etc.

Fixing the goals and increasing the level of specificity helps to move from a general, vague formulation of the company's mission to a practical work plan that can help achieve success. A set goal includes a list of clear results, the achievement of which requires certain efforts and organized actions. The desire to change the situation to the desired one forces the company's managers to be more creative, improve their business reputation and financial performance, which, accordingly, requires the concentration of all the company's efforts and capabilities. Challenging but achievable goals help to avoid self-deception by the successes already achieved, fluctuations, and internal disorder and ensure the balance of the company's work. Goals are a formal expression of the expectations of the owners and other persons interested in the success of innovation and investment activities, such as employees, customers, suppliers, etc. The company's goals can be formulated by the shareholders' meeting, members of the management board or the president (CEO) of the company.

The objectives of the enterprise are:

- introduce a new product or service to the market;
- enter the markets of neighboring regions;
- to find other, cheaper sources of raw materials and energy that will not reduce their quality;
- obtain a return on capital employed of at least 30% (before interest and taxes);
- increase profit growth in proportion to sales growth.

Goals are the starting point of planning. They are the basis for building any relationship (organizational, administrative, etc.). They outline the motivation system used in the company. They define indicators and approaches to assessing the performance of individual employees, departments, and the enterprise as a whole. Each of the defined goals is subject to requirements for their

- specificity
- measurability
- achievability
- realism;
- time limitations;
- motivation.

The managerial value of goals is a prerequisite; to achieve it, the goal must be defined in qualitative and quantitative terms, the methods of measuring which must be fixed and contain the necessary minimum (maximum) values to be achieved. Important characteristics of the goal are its achievability and realism. Unattainable, unrealistic goals do not motivate performers. Conversely, easily achievable goals have little motivation.

Attempts by a technically weak company to produce products at the level of world standards may result in the resignation of talented and intelligent engineers and managers. Goals should be specific, understandable to the executive and not ambiguous. Performers should know what is expected of them. On the one hand, the goal should be described in qualitative terms (better, more perfect, more efficient, more flexible), and on the other hand, it should have the necessary quantitative specification. The company's goals must be measurable.

Enterprises that set goals for intermediate results and then take active steps to achieve them are more competitive than those where managers operate with vague, blurred, declarative goals. When developing a goal, exclude such wording as: "maximize profits", "reduce costs", "increase sales", because they are immeasurable, and the executor will not be able to determine the degree of progress in achieving them. The goal should have a deadline. If there is no deadline, then the performer will always return to the initial point of action. For performers to know the sequence of actions, stages and steps should be defined within the deadline. The goal should include motivating employees to act in the right direction. It should be formulated clearly and formalized in such a way that its impact on the staff is enhanced and the mandatory nature of its achievement is increased. Verbal goal setting can be forgotten. A documented goal, with deadlines, quantitative and qualitative indicators, allows staff to more accurately navigate the effectiveness of its implementation. To avoid conflicts between people and departments, the company's goal must be compatible with the goals of individuals and groups. Unacceptability of the goal by the staff leads to its non-fulfillment and passivity. Thus, goal setting is an important process that requires considerable effort, including coordination of common views and negotiations.

The company's strategic and other policies are defined through the formulation of goals and the approval of additional operational sub-goals and objectives. This process is integral, as it links corporate planning and business operations. Each division, as well as each team and employee, should have its own goals

A properly organized goal-setting process has 4 phases:

1) identification and analysis of environmental trends;

2) setting goals for the enterprise as a whole

3) development of a hierarchy of goals;

4) setting personal goals.

Enterprise goals can be considered within 8 key areas.

1. Market position - the company determines its position in relation to competitors, forming its competitiveness indicators.

2. Innovations that define new ways of doing business, such as:

- use of new types of raw materials; - production and sale of new products in the existing market;
- formation of new markets;
- introduction of new technologies;
- use of new methods and technologies of production organization.

3. Productivity, which is determined by the goals of the enterprise's performance and their relationship with production resources. A more productive enterprise is one that uses fewer economic resources to produce a certain number of products.

4 All types of resources that are evaluated, taking into account their current level and future needs.

5. Profitability - the ability of an enterprise to generate revenues in excess of the costs necessary to generate revenues. Profitability goals are formulated in quantitative terms.

6. Management aspects - the qualitative level of management, personal achievements of managers. Goals related to the quality of management and not directly related to short-term profit.

7. Personnel - performance of functional duties and attitude to work. The goals should effectively reflect the ways in which people are motivated, and the company should recognize its responsibility to its employees.

8. Social responsibility - understanding the duty of business to contribute to the welfare of society. Making a profit generally contributes to the growth of living standards in the country. Business influences social life, creates a favorable environmental environment, participates in solving acute social problems, etc.

Strategic and financial goals are also formulated. Strategic goals are aimed at ensuring higher product growth rates than the industry average, increasing market share, improving the quality of products and services compared to competitors, achieving lower costs, and improving the company's reputation. It is almost impossible to set quantitative indicators of the parameters to be achieved or the timeframe for achieving them for strategic goals. This is long-term planning for an indefinite period of time. At the same time, some strategic goals (e.g., gaining an advantage over competitors) must be achieved on an ongoing basis. If financial and strategic goals are aimed at achieving key results, they have the highest priority.

Trajectory and point goals can be distinguished. Trajectory goals set the general direction of development, reflecting the most general (systemic) issues. Point goals are formulated to achieve specific end results. Trajectory and point goals are interrelated with the concept of long-term and short-term goals. Trajectory goals are considered to be long-term goals, and point goals are considered to be short-term goals.

The goal also determines the duration of the period for its achievement. A larger goal requires a longer period.

Internal business processes form the value proposition to the client.

The training and development component describes how people and technology contribute to the realization of tasks. Improved performance in this component is a leading indicator for the internal business process, customer, and financial components.

The system of D. Norton and R. Kaplan reflects the interdependence of components and represents a chain of cause-and-effect relationships of the company's goals. However, the system does not separate the goals of 3 levels of management (strategic, tactical, and operational). At the same time, in any field of activity, there are tasks of strategic, tactical, and operational levels. For example, for financial activities, forecasting such indicators as ROI, shareholder value, and revenue growth is a strategic task, calculating them is a tactical task, and collecting data for calculation is an operational task. In addition, information technology is considered a component of training and development, while it is a necessary tool for all components.

The rationality of performing any type of activity, including financial, production, marketing, and human resources management, largely depends on the skills and level of mastery of information technology. Therefore, we have identified 5 groups of goals of the enterprise in the post-conflict transformation:

1) financial

2) production

3) marketing

4) human resource management;

5) information and technical support.

Each group of goals includes strategic, tactical and operational levels. For formulating a system of innovation management goals (i.e., the main thing is to determine what knowledge employees need to perform professional actions), this classification of enterprise goals is most productive, as it divides goals by the main areas of the enterprise's activity and distinguishes between top, middle management and executives.

Let us consider the goals of innovation management. By the goal of innovation management we mean a value judgment, which is a triad (name of the innovation, brief description, type of innovation following the proposed classification). Innovation management goals are formed on the basis of the enterprise's goals and form a system of innovation management goals. The system of innovation management goals can be represented as a system of dependencies:

$$\mathbf{G_{yi} \geq G^{f}_{yi}}$$
$$\mathbf{G_{yi} \geq G^{p}_{yi}}$$
$$\mathbf{G_{yi} \geq G^{m}_{yi}}$$
$$\mathbf{G_{yi} \geq G^{y}_{yi}}$$
$$\mathbf{G_{yi} \geq G^{i}_{yi}}$$

where:

G_{yi} – goals of innovation management;

G^{f}_{yi} – financial goals;

G^{p}_{yi} – production goals;

G^{m}_{yi} – marketing goals;

G^{y}_{yi} – goals of human resource management;

G^{i}_{yi} – goals of information and technical support.

Its subsystems are innovation management goals in the financial, production, marketing, human resources, and information and technical support areas. Each subsystem of innovation management goals in the sphere of enterprise activity includes subsystems of innovation management goals of strategic, tactical, and operational levels:

- for the financial industry:

$$\mathbf{G^{f}_{yi} \geq G^{sf}_{yi}}$$
$$\mathbf{G^{sf}_{yi} \geq G^{tf}_{yi}}$$
$$\mathbf{G^{tf}_{yi} \geq G^{of}_{yi}}$$

where:

G^{sf}_{yi} – financial goals of strategic level innovation management;

G^{tf}_{yi} – financial goals of tactical level innovation management;

G^{of}_{yi} – financial goals of operational level innovation management;

- production:

$$\mathbf{G^{p}_{yi} \geq G^{sp}_{yi}}$$
$$\mathbf{G^{sp}_{yi} > G^{op}_{yi}}$$

where:

G^{sp}_{yi}– production goals of strategic level innovation management;

G^{op}_{yi} – production goals of operational level innovation management;

- marketing:

$$\mathbf{G^{m}_{yi} \geq G^{sm}_{yi}}$$
$$\mathbf{G^{sm}_{yi} > G^{tm}_{yi}}$$
$$\mathbf{G^{tm}_{yi} > G^{om}_{yi}}$$

where:

G^{sm}_{yi}– marketing goals with strategic level innovations;

G^{tm}_{yi}– marketing objectives of innovation management at the tactical level;

G^{om}_{yi}– marketing objectives of operational level innovation management;

- personnel management:

$$\mathbf{G^{yb}_{yi} \geq G^{syb}_{yi}}$$
$$\mathbf{П^{syb}_{yi} > G^{tyb}_{yi}}$$
$$\mathbf{G^{tyb}_{yi} > G^{oyb}_{yi}}$$

where:

G^{syb}_{yi} – strategic level human resource management goals;

G^{tyb}_{yi} – goals of human resource management at the tactical level;

G^{oyb}_{yi} – goals of human resource management at the operational level;

- information and technical support:

$$\mathbf{G^{i}_{yi} \geq G^{si}_{yi}}$$
$$\mathbf{G^{si}_{yi} > G^{ti}_{yi}}$$

$$G^{ti}_{yi} > G^{oi}_{yi}$$

where:

G^{si}_{yi} – goals of information and technical support of the strategic level;

G^{ti}_{yi} – goals of information and technical support of the tactical level;

G^{oi}_{yi} – goals of information and technical support of the operational level.

To implement this methodology, it is proposed to use an algorithm consisting of 3 stages that are implemented sequentially.

At the first stage, a hierarchy of enterprise goals is formed on the basis of expert and creative decision-making methods for the areas of its activity (production, management - human resource management, financial, marketing, information and technical) and levels of management (strategic, tactical, operational).

With the help of expert assessments, the second stage identifies the initial goals of the innovation management system, which are necessary to achieve the enterprise's goals for the above areas of activity and management levels.

The third stage, based on the analysis of the primary goals of innovation management identified in the second stage, is intended to define the relationships between the goals of the existing innovation at the enterprise. At this stage, a system of innovation management goals is formed.

On the basis of the above approaches to innovation management (transfer, algorithmic and creative) and their corresponding methods, the innovation management goals are achieved. The resulting innovations are adapted to the specifics of the business structure and implemented. One of the results of this process should be their accumulation in a single corporate innovation base.

By corporate innovation base we mean an intelligent information system that accumulates the results obtained in the process of managing innovations at an enterprise. The first method of innovation management is the transfer management method. This is due to the fact that it is essentially a reflection of transfer processes that correspond to practical thinking.

Practical thinking within the framework of professional activity is aimed at the professional environment, so a practitioner will first of all look for the necessary innovations in it, establishing relationships with colleagues, business partners, learning, and adopting experience.

If the empirically found innovations are not enough, it is logical to move to a theoretical way of thinking and create new innovations. The end of innovation management is their accumulation in the innovation base. Thus, the schematic theoretical and methodological approach to the formation of the "tree of goals" of innovation and investment activity of an enterprise in the conditions of post-conflict transformation is presented in Fig. 1.

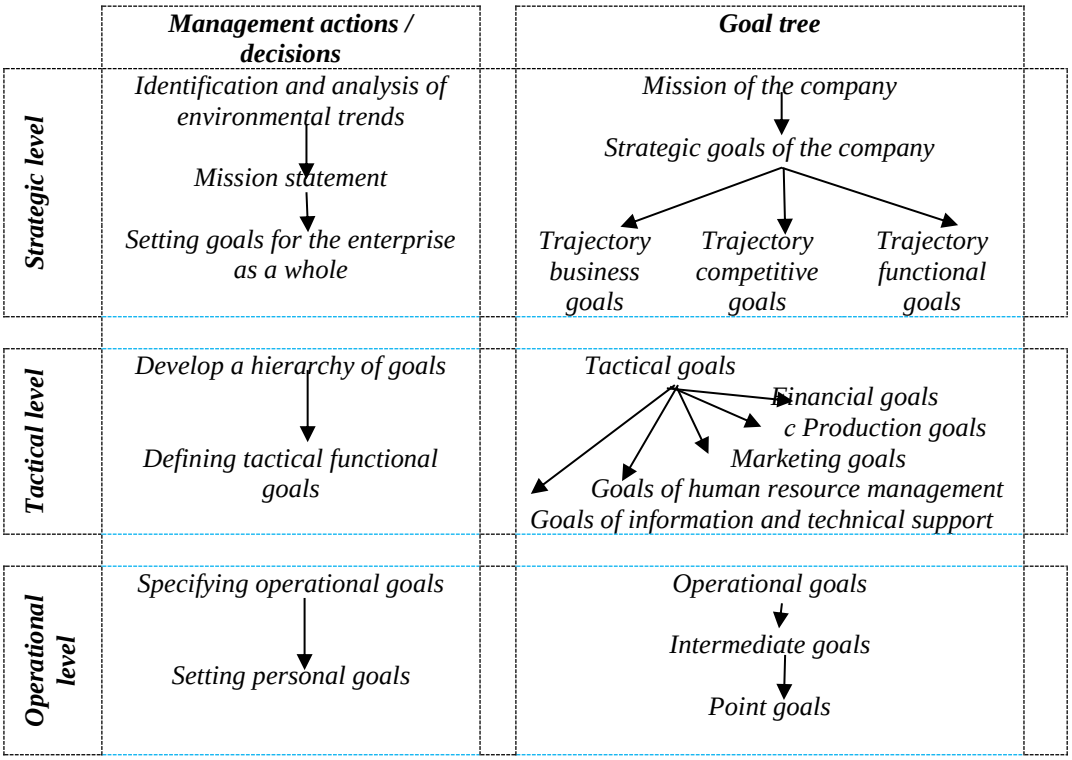

Fig. 1. Theoretical and methodological approach to the formation of the "goal tree" of innovation and investment activity of an enterprise in the conditions of post-conflict transformation

Source: compiled by the author

A feature of this theoretical and methodological approach is the specification of goals for different levels of management (strategic, tactical, operational), which makes it possible to define and detail them more clearly, which further allows to clarify the periodization of their implementation (this is important given the limited resources of enterprises).

In addition, detailing the goals by areas of activity (production, management, financial, marketing, information and technical) makes it possible to optimize the use of resources at the enterprise (primarily human resources) and reasonably direct the efforts of various business units to accomplish tasks (sequentially, in parallel, independently of each other in close cooperation).

CONCLUSIONS

Thus, according to the results of the conducted research, the mathematical basis for innovation management in the system of methodological approaches (transfer management, algorithmic management, creative management), which are based on the identified processes of innovation management at enterprises in the context of post-conflict transformation, is determined. An analysis of approaches to the formation of goals of innovation management at enterprises in the context of post-conflict transformation is carried out. The approach, which is contained within 8 key spaces, with the allocation of 5 groups of goals (financial, production, marketing, human resource management, information and technical support) is substantiated. The formation of a system of goals for managing the innovation and investment activities of an enterprise made it possible to detail management actions/decisions at the strategic, tactical and operational levels and to specify tactical functional goals in the context of financial, production, marketing, human resources management and information and technical support, which ensures further optimization of the use of various types of resources (primarily human resources) at the enterprise. A mathematical framework has been developed for the subsystem at the strategic, tactical, and operational levels.

The obtained results can be implemented in the activities of enterprises and used in further scientific research.

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