

## INNOVATIVE CONTEXT OF FORMATION OF THE PROGRAM OF INFORMATION TRANSFORMATIONS IN THE MANAGEMENT SYSTEM

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**Abstract.** *The innovative transformations of information-analytical management systems is investigated in the article, focusing on the software, communication and intelligence components of the processing, transmission and storage of data. The innovative foundation for the transformation of modern business, based on information systems of a new type, is laid. The information transformation in management is formed as a program of actions for modernization of data management in the conditions of innovative changes inherent in the digital business development trend. The configuration of the main measurements of the innovation development of the information management system is described with the definition of the stages that make up the basis or algorithm for the information environment of the enterprise. This allowed the formation of an optimal system of management processes with the definition of an integrated set of interacting elements (as well as their links) for collecting, processing, storing and providing information for achieving the established goals described in the business development strategy.*

**Keywords:** *innovation, information, management system, change project, digitalization*

**JEL Classification:** *D80, O32*

**Foreword.** Successful activity of the enterprise depends on many factors, among which the strategy occupies a special place, because it is a master plan of action that determines the priority tasks for the assessment of resources, risks, opportunities and constraints according to the individual characteristics of the business. The strategy can be called a scenario for achieving an ideal result in accordance with the chosen model of activity and implementation of core competencies of the enterprise. The strategy is a system of installations aimed at long-term strengthening of the competitiveness of the enterprise, in which the reputation of the business entity is realized, which includes the corporate and personal brand.

Strategy is formed as a system of processes of «act», «plan», «do», «learn». The model of effective strategy includes the purpose of the activity, planning, the formation of a team of experts, risk management, discipline of implementation, communication, financing and environmental friendliness. The latter factor is mandatory for modern business development, as it is in line with the concept of corporate social responsibility, which is the basis for sustainable growth of activity and strengthening of competitiveness. Today for a successful management of activities it is necessary to consider business as an ecosystem with complex financial and corporate relations. It is important to provide a single platform of relations based on digital technologies that combine financial and information flows. According to the concept of the ecosystem in the economy, business is a symbiosis, where different companies collaborate to provide sustainable growth. Enterprises create teams that can easily adapt to new markets and forming partnerships with other companies, customers, and even competitors.

**Researches analysis and goals setting.** The research goal is to reveal the essence of information transformations with a characterization of their priority role in economic processes and the formation of information and analytical provision of management as a parameter of change and promoting the inevitability of innovations in the conditions of digitalization.

The totality of general scientific methods of knowledge processes and phenomena that take place in the modern economy under the influence of digital transformation has become theoretical and methodological basis of scientific research. At scientific research used: gnoseological method for concretization of information transformations; system-structural method for specifying the principles of forming a new type of information; method of analogy for development of project changes; theoretical generalization and comparison methods for determining the prospects and directions of transformation of changes management projects on the basis of a new approach to the interpretation of events and phenomena.

**Research results.** The business strategy in the modern ecosystem of the economic environment is the result of decisions of managerial staff of the enterprise on landmarks, principles and rules that need to be reconciled to maximize the company's long-term valuable. Effective strategy – weighed, ambitious, well-digitized, inclined to critique and doubt, coordinated.

The strategic task in the enterprise ecosystem is to find new, different sources of growth, other markets for providing competitive dynamics, envisaging or adapting activities to new conditions and factors, or transforming the essence of business and its strategic idea.

In order to measure the progress of innovation growth, it is necessary to form a peculiar action plan – a roadmap of a strategy that describes the main stages of development, which are guidelines for the enterprise to make changes in processes in all subsystems.

1. An outline of an action plan that provides an initial version of the analysis of processes and risk analysis in accordance with the possibilities and limitations of activity. This stage is determined by the most difficult, since it requires a creative approach with the inclusion of elements of novelty, which allow coordinating the competencies of the enterprise.

2. The develop of pilot project of strategy. A key point in determining priority development – from local effort to experiment in order to establish how the management system will function on the scope of changes. The choice of meters is aimed at establishing how the staff is put to the chosen initiative, with adjustments to the original version of the plan.

3. Planning and start initiatives concerning change management in accordance with formed model of development strategy. The beginning of the actual implementation of management changes in the enterprise: the development of hypotheses, forming reaction patterns, experiment, analysis of the results during the project changes, the participation of the subsystems of the enterprise in the dissemination of initiatives to manage change in the activity. At this stage, more specific meters are needed, in particular, reflecting changes in business-related costs (cost reduction), changes in organizational culture (increasing knowledge sharing between project teams, the intensity of using corporate knowledge bases, etc.).

4. Provision of dissemination and support of first results. At this stage, change management receives the status of an official project at the enterprise. A selection of methods for measuring results is being conducted, and for this can also involve outside consultants.

5. Promotion of change management policy at the enterprise. Organizational structure (management of changes embedded in the business model of the enterprise) and organizational culture (the exchange, use and distribution of changes become the company's daily practice) are changing; necessary methods that reflecting benefits of the enterprise (dissemination of best practices, evaluation of efficiency, etc.).

6. Measurement of results by quantitative and qualitative parameters, which allows drawing conclusions about the prospects of the strategy and make adjustments if necessary. Such measurements are primarily aimed at marketing and sales, but may also relate to other types of activities, such as communications (effective knowledge transfer in the chain of «manufacturer–seller–customer»), which also gives as a result the sales growth, or the spread of best practices.

Implementing a strategy is a process by which the enterprise creates valuable for the ecosystem participants, a process by which the company forms its own individual characteristics that distinguish it from competitors and make it more attractive to consumers. The formation of a strategy is a complex process, but at least the issues need to be addressed in its implementation, in particular, it is necessary to ensure the implementation of key management processes (Table 1).

Not only the overall business strategy, and also the strategy for developing an information system for each enterprise is individual and is determined primarily by the objectives of its operation, as well as the existing capabilities and limitations of activity. Thus, business strategy and development strategy of information system are interdependent and complementary instruments of managing an enterprise.

**Table 1 – Managerial processes of influence on the implementation of the strategy**

<b>Process</b>	<b>Characteristic</b>
Formulation and measurement of strategy	The strategy should be formulated in the final version with its wording, which is understandable for each subject of management. Not only financial benchmarks must be measured, but also corporate, social and environmental development levers
Management of a limited number of strategic initiatives	A significant number of processes can lead to complicated management and slow down in the implementation of the strategy. In determining mandatory processes, it is necessary to consider not only their financial nature, but also to focus on key processes of sustainable development, among which the innovations, customer retention and digital development are dominant concepts
Monitoring and managing the implementation process	The proposal of several hypotheses for consideration in order to evaluate processes in accordance with a defined plan. Establishing interrelationships between strategy elements for organization feedback between control subsystems and the external environment. Use in developing the hypothesis of the principles of operational perfection strategy for adapting of activity to constantly changing external and internal conditions
Implementation of the strategy at all levels of the enterprise	Familiarization of personnel at all levels of the organization with the basic provisions of the formed strategy. This is the transfer of the strategy to operational levels with the definition of the degree of guiding influence and responsibility. Delegation of strategy implementation in the subsystems of the enterprise direct executors according to their professional competence. Establishing effective communication as a program that consistently involves all subsystems of the enterprise to priorities and progress of the strategy. The use of information channels for the co-ordination and coordination of the basic provisions of the strategy
Coordination of implementation of business unit strategy	Implementation of the strategy requires the coordination and integration of all parts in the enterprise system. Educational corporate programs, system of motivation of the organization should be focused on strategic priorities. Information technologies development should be guided by the same perspectives that are prioritized for marketing, financial, engineering services, customer service departments, etc.

	Enterprise departments should be familiar with the strategy priorities and optimize their own activities within the internal borders of change
Link of strategic initiatives and budget of the enterprise activity	Structural compatibility of planning and budgeting should be ensured. The strategy includes long-term goals and programs when the budget is linked to short-term operational activities. The strategy is implemented with cross-management of business initiatives when the budget is structured hierarchically by different departments. Therefore, these processes should be synchronized to establish a link

An enterprise information system can be defined as a system of management processes that uses an integrated set of interacting elements (as well as their relationships) for collecting, processing, storing and providing information for achieving the set goals described in the development strategy. Forming an enterprise information management system should be considered as one of the most important modern business development programs, consisting of a chain of interconnected projects, the results of each of which are necessary for the implementation of the following plans.

The strategy of innovation development of the information system provides an answer to four basic business questions: «Why?», «What are the real needs?», «How?», «What are the expected results?» (Table 2).

**Table 2 – Configuration of the main measurements of innovation development of information system managing an enterprise**

The basic question	Characteristics of development
Why?	The answer to the question is the business strategy with the mission, goals and objectives of the enterprise. Professionally and comprehensively developed business strategy allows optimizing the information system and formalizes the target indicators of the strategy. The place of the information system in the strategy is how it can affect the success and effectiveness of achieving the goals in the business development, as well as in assessing this impact on the activation of the enterprise
What are the real needs?	The answer to this question allows assessing the state of available resources and to predict the need for additional resources for the development of an information management system. It is imperative to assess the state of tangible and intangible resources with special attention to professional, technological and technical provision
How?	To answer this question, it is necessary to formalize the requirements for the resources that will be used for the development and operation of the information system, as well as to choose the most optimal variant of development. Variant of information system development is possible scenarios of different technological support to support actual and expected level of management
What are the expected results?	This question should be asked in order to identify and clearly formalize the effects of the development of the information system, permissible costs and risks. It is necessary to consider the administrative, social and economic effects in the complex, while developing qualitative and quantitative performance indicators. Such indicators should be interlinked with the indicators developed for the business strategy. In the process of developing a strategy for the development of the information system there should be laid the basis for optimization of all planned costs, as well as formalized possible risks for the further development of preventive measures

The development of a strategy for an information management system involves following the specified stages, which constitute the basis or algorithm for the enterprise information environment.

1. The starting point is an assessment of the initial state of the management system, technological provision and information system of the enterprise.

2. Expected accomplishments – definition of the development strategy with the formation of a detailed pilot project.

3. Accessibility of resources – determining the necessary resources and tools that provide movement from the starting point to the desired results.

4. Digital transformation of information processes – the establishment of digital development priorities and their alignment with the general business strategy.

5. Implementation of hypotheses of innovative development – implementation of the plan to achieve the goals of the information system in accordance with the new rules of doing business, digitizing activities and implementing analytical applications for information development.

6. Formation of digital architecture – the development of a methodology and basic provisions for the organization of a digital platform information system, balanced with the platform of enterprise activities.

In the process of developing a strategy for the development of the information system of the enterprise, it is necessary to achieve the correspondence between the planned and desirable level of business development, which should be reflected in the life cycle of the development of the information system of management.

At the preparatory stage, a strategy for the development of an information management system through the design of a model, including business strategy analysis, formalization of business priorities and the identification of digital potential, is being developed.

Strategy of the development of the information system is formed in the directions, in particular, the organization of the composition of information and business processes, the implementation of digital architecture, ensuring a balance between tangible and intangible resources. At these stages, it is imperative to ensure the proper professional competence, which is the basic factor for the development of information management system. It is important to develop a training program and involve in raising the level of professional competence of leading specialists. The next step is to develop a plan for implementing the strategy, which includes preparatory activities in technological, technical, resource and professional fields.

When formulating alternatives to the implementation of the program for the development of the information system, it is necessary to ensure that they are in line with the actual business requirements, that is, contribute to the development of not only operational level, but also predicted level of implementation of business functions. Achievement of the goals is conditioned by the implementation of certain measures and projects, without which it is impossible to further develop in accordance with the chosen strategy; the projects should be interconnected and mutually supportive. Variant formation of projects is carried out according to the principles of multi-project management (to achieve a balance between the project boundaries and the resources used).

The development of an information management system can be initiated only after the definition and formalization of short-term, intermediate and long-term goals, after which it is necessary to proceed to the implementation of operational measures, the implementation of which will allow provision the readiness of the enterprise to implement the priority projects. Effective implementation of priority projects is a guarantee of the achievement of the set short-term goals, ie the transition to a new quality level of information management system development. After this, the review and adjustment of the following goals, measures and projects, as the process of development of the information system is open and depends on both internal and external factors of the

enterprise. After the correction, the necessary measures are taken again and projects are being launched to achieve intermediate goals.

The use of a pilot project for the development of an information system is carried out from the established and agreed basic provisions that correspond to the individual characteristics of the enterprise. At the stage of project use it is necessary to take into account constant changes in the conditions of activity, that is, the influence of the environment and the corresponding reaction of the internal environment of the enterprise.

For each development option, it is necessary to assess the probability of occurrence of risks, opportunities for their prevention, and also consider measures to reduce the negative effects in case of these risks. The most typical risks include: the right choice of digital solution; risk of incompleteness of the implementation project; risks of product quality of the project; risks of project exclusion, etc.

Analysis of options for development by other groups of criteria (time, budget) allows estimating the terms of development, introduction and operation of technological decisions and to compare financial expenses in possible scenarios.

For an effective transition to a new level of information system development, it is necessary to organize all processes of the enterprise in accordance with the key factors.

1) Availability of a developed business strategy.

2) The factor of professional competencies – the formed team of innovators, the presence of candidates among experts, which could make a team of changes, sufficient level of ownership of modern management principles, the possibility of attracting system specialists and analysts, the positive attitude of employees to change.

3) Developed business processes – readiness for optimization and, if necessary, to change business processes of the enterprise.

4) Documentary provision – the availability and use of documents regulating the activities of departments and employees, instructions on complex and critical processes, production standards and statistics.

5) Infrastructure development level – sufficient level of communication, productivity of workstations and servers, availability of qualified specialists in the development of digital infrastructure.

6) Financial provision – the availability of free cash for investing in the innovative development of the information system, evaluation of possible sources of obtaining an economic effect, development and approval of a reasonable budget for development.

If the enterprise's management, after analyzing these factors, understands that the level of readiness is rather low, then it would be advisable to carry out a project to prepare the enterprise for the development of an information management system. Main actions may be preceded by such a project or implemented in parallel, in accordance with the criticality of terms and availability of resources of the enterprise.

## **CONCLUSIONS.**

The article is devoted to theoretical research and solves the scientific task of innovation transformation of information systems of the enterprise in accordance with the trend of managerial modernization and digitalization of business. For this purpose, proposals were made for the development of information management of a new type of enterprise with an increase in the efficiency of information processes regarding the proposal of optimal data for the system of sustainable business development. The central factor in digital transformation is innovations, which today is an obvious feature of a digital-oriented business, and therefore increases the amount of information processing by expanding the networks of interconnections and promoting new products through the digital platform. The program of information transformation in managing an enterprise is developed, which allowed providing a comprehensive transformation in the information system of the enterprise with the organization of a new level of information relations.

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