

Typology of Institutional Transformation Strategies of Industrial Complexes in the Digital Economy

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ABSTRACT

The article is devoted to the study of theoretical aspects of the strategy of transformation of industrial structures. The main scientific views on the essence of change strategies and enterprise development are analyzed. The content of the strategy of institutional transformations of industrial complexes in the digital economy is determined as a set of goals, plans, principles and measures that determine the logic and parameters of controlled changes in the organizational and economic model of the enterprise's functioning in order to ensure its long-term competitiveness and adaptation to new market conditions. The general and distinctive elements of the transformation strategy, development strategy and growth strategy are highlighted. The level and place of the strategy of institutional transformations in the hierarchy and system of strategies of industrial complexes are determined. The recommended structure of goals and plans for the enterprise transformation strategy has been developed. Various types and kinds of change strategies classified by reputable domestic and foreign scientists have been investigated. The author's typology of strategies for institutional transformation of industrial complexes in the digital economy is proposed and justified. It includes: 1) a strategy of advanced transformation; 2) a strategy for resolving contradictions; 3) a strategy of following the trend. The developed typology can be used by the management of industrial organizations when choosing a strategy for reforming companies.

Keywords: institutional transformation strategy, typology of enterprise strategies, industrial complex, digital economy, digital transformation

1. INTRODUCTION

Structural changes in the economy, digitalization of business processes and increased competition in industrial markets require the search for new strategies for the development and transformation of industrial complexes and enterprises in Russia.

About 5 years ago, the number of digital innovations began to grow exponentially in the world. They have revolutionized approaches to business organization and created new opportunities to increase labor productivity and quality of administration, increase the speed of business interactions, reduce transaction costs, and speed up work with information [1]. Thus, over the past 2-3 years, more than 90% of the world's data volume has been created, the volume of business networks and electronic communications between economic agents has increased by 40%, and more than 30% of data has been placed in electronic cloud services. According to McKinsey consulting structures, up to 50% of all work processes in the world will have been automated by 2036 [2]. Despite the strong influence of digital tools on market development, experts from the reputable international network of audit and consulting companies PricewaterhouseCoopers note that the main task of

enterprises in implementing digital innovations is not so much to switch to new technologies and IT solutions as fundamentally change in strategies and business models [3].

The authors share this position and believe that transformation strategies for industrial complexes operating in a digital environment should not be limited to technical digitalization of management and production processes, but should provide for the synchronous transformation of all key elements of enterprises.

2. RESEARCH METHODOLOGY

The purpose of the article is to study the content and typology of strategies for institutional transformation of industrial complexes in the digital economy.

The object of the research is a system of strategies for large industrial enterprises and complexes. The subject of the analysis is the content of institutional transformation strategies, as well as the set of economic relations that arise in the process of their development and implementation.

The hypothesis of the research is that in the conditions of the digital economy formation, production complexes and

enterprises can maintain their competitiveness only through deep reforms (managerial, structural, organizational, technological, etc.). For their consistent and effective implementation, industrial companies need to develop and implement appropriate strategies for institutional transformation.

In this regard, the definition of the content, goals, role and typology of transformation strategies is of crucial importance for the development of the theoretical and methodological basis of strategic management of industrial complexes and enterprises.

Quantitative and descriptive analysis, methods of classification, typology and structural division are used as the basic research tools.

The methodological basis of the research is the work of authoritative Russian and foreign scientists in the realm of strategic development of industrial structures – L. D. Gitelman [4], V. M. Polterovich [5], O. S. Vihansky, Yu. P. Anisimov, H. Mintzberg, K. Thorley, H. Wirdenius, I. K. Adizes [6], P. E. Connor, L. K. Lake [7], R. Chinn, S. Dichter, K. Gagnon, A. Alexander [8] and others.

An analysis of the works of these scientists shows that there can be six main views on understanding the strategy of transformations and development: 1) the general line of action, corporate program or long-term plan of measures [9]; 2) a set of target areas, trajectories, landmarks and development vectors; 3) the response of the enterprise to external challenges; 4) the stage (phase) of the process of solving the problems of the organization; 5) a list of rules for making long-term decisions; a system of tools for the implementation of management and market activities [10]; 6) an idea that combines factors and methods of competition.

Among the most well-founded definitions of the transformation strategy, one should note the definitions of V. Polterovich and K. Ryatov. Thus, Polterovich considers the transformation strategy as a promising trajectory for the transformation of institutions over time, taking into account resource, technological, and institutional constraints and including mechanisms for stimulating planned changes [5]. K. Ryatov understands the transformation strategy as a description of justified,

purposeful and planned actions of the organization related to the introduction of transformation technologies that open up new opportunities for the implementation of the mission in a specific micro - and macro-environment. [11]. In general, most researchers agree that the key task of the transformation strategy is to ensure an effective response of an industrial enterprise to emerging problems, evolving risks, opportunities and other changes in the external environment.

From the forgoing, the authors offer the following vision of the essence and content of the strategy of institutional transformation of the industrial complex operating in the digital environment.

The essence of the strategy of institutional transformations of the industrial complex in the digital economy is a logical sequence of stages of targeted and coordinated changes in the basic structure of elements and relationships of the industrial complex in order to ensure its balanced development and strategic competitiveness in the global transformation of economic relations as a result of the introduction of information and communication technologies and innovations [12].

In terms of content, the strategy of institutional transformations of the industrial complex in the digital economy is a system of goals, plans, principles and measures that determines the logic and parameters of a controlled change in the organizational and economic model of the functioning of an industrial complex in order to ensure the effective implementation of its potential, transfer to a more competitive state and adapt to new environmental conditions arising under the influence of large-scale integration of progressive information and communication technologies and innovations [12].

3. RESEARCH RESULT

In terms of content and targets, the transformation strategy is closest to the development and growth strategies, but it has a number of important distinctive elements (Table 1).

Table 1 Common and distinctive elements of an institutional transformation strategy, development strategy and growth strategy

Type of strategy	Similarities in the content of strategies	Differences in the content of strategies
Institutional transformation strategy	1. Focus on increasing the long-term competitiveness of the enterprise 2. Focus on the integrated and balanced development of the enterprise through the progressive transformation of all its elements, systems and spheres 3. The use of proactive measures, the rate of change 4. Focus on the implementation of innovations, digital services and new technologies 5. Focus on adapting the company to the market and taking into account new trends	1. Emphasis on deep internal changes in the enterprise 2. Focus on solving systemic problems and contradictions in the model of the company's functioning 3. Focus on the transformation of institutions, culture, management technologies and ways of organizing staff
Development strategy		1. Emphasis on strengthening the external (market) position of the company 2. Orientation towards taking advantage of new opportunities
Growth strategy		1. Emphasis on increasing the values of key quantitative indicators of the enterprise 2. The rate on expanding market share, production volumes and product sales

The strategy of institutional transformation is an essential element of the industrial complex management mechanism that integrates key priorities, goals, activities and projects for its transformation and development.

According to the author, the strategy of institutional transformation is a strategy of the first level in the hierarchy of strategies of a production organization.

Under certain conditions, the transformation strategy can act as a General strategy, as it provides for a balanced and

progressive change of all key elements, institutions and subsystems of the enterprise.

The strategies of institutional transformations and the development strategy of the industrial complex should be synchronized and not contradict each other. The main tool for ensuring their consistency seems to be the formation of a clear hierarchy of enterprise strategies with the determination of the place of the transformation strategy in it (Figure 1).

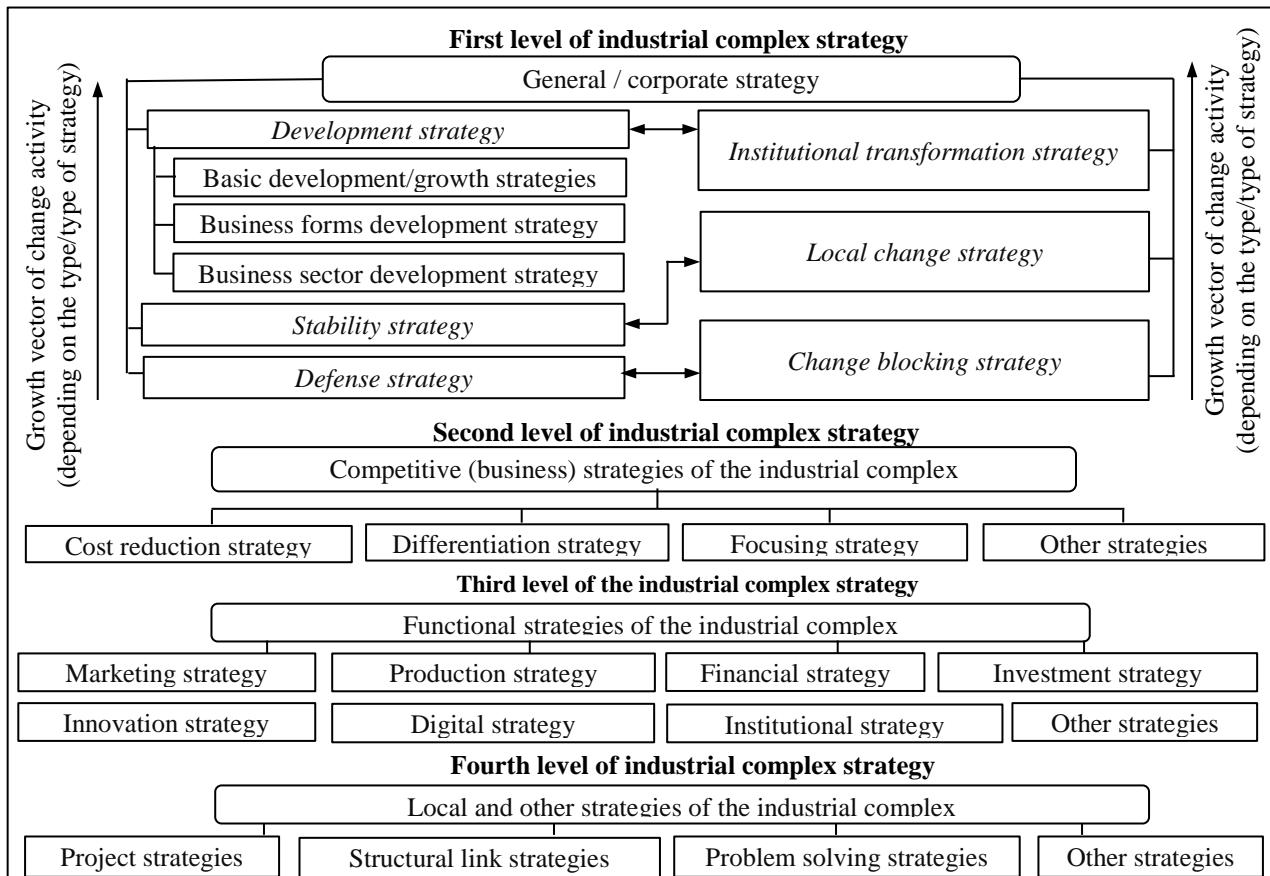


Figure 1 The place of the strategy of institutional transformations in the system of strategies of the industrial complex

As part of the study of the essence and content of the strategy of institutional transformation, it is necessary to characterize its goals. Traditionally, a goal is defined as the desired state of the system, which is planned to be achieved within a limited period of time.

Based on the study of theoretical, methodological and conceptual aspects of the transformation of organizations,

the authors propose a system of goals for the strategy of institutional transformations of the industrial complex (Figure 2).

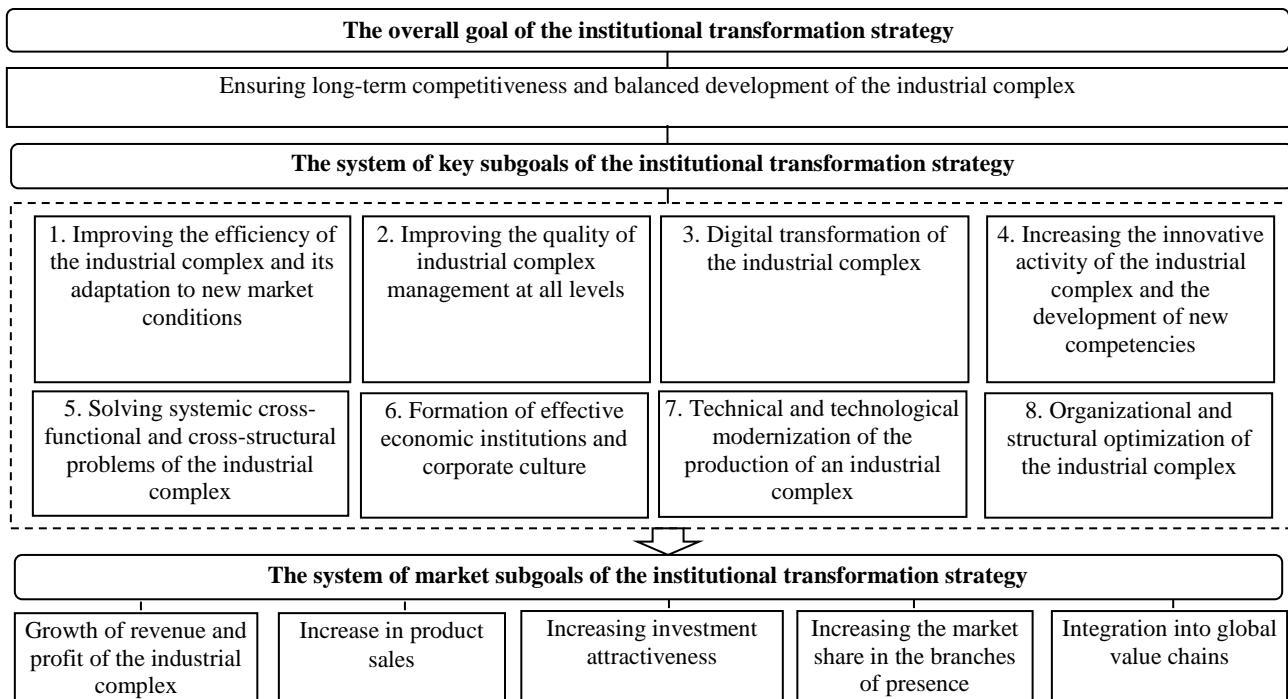


Figure 2 The system of goals of the strategy of institutional transformations of the industrial complex

The goals of the institutional transformation strategy are achieved through the implementation of a plan of program

activities and projects that are interconnected in terms of deadlines, budgets, and performers (Figure 3).

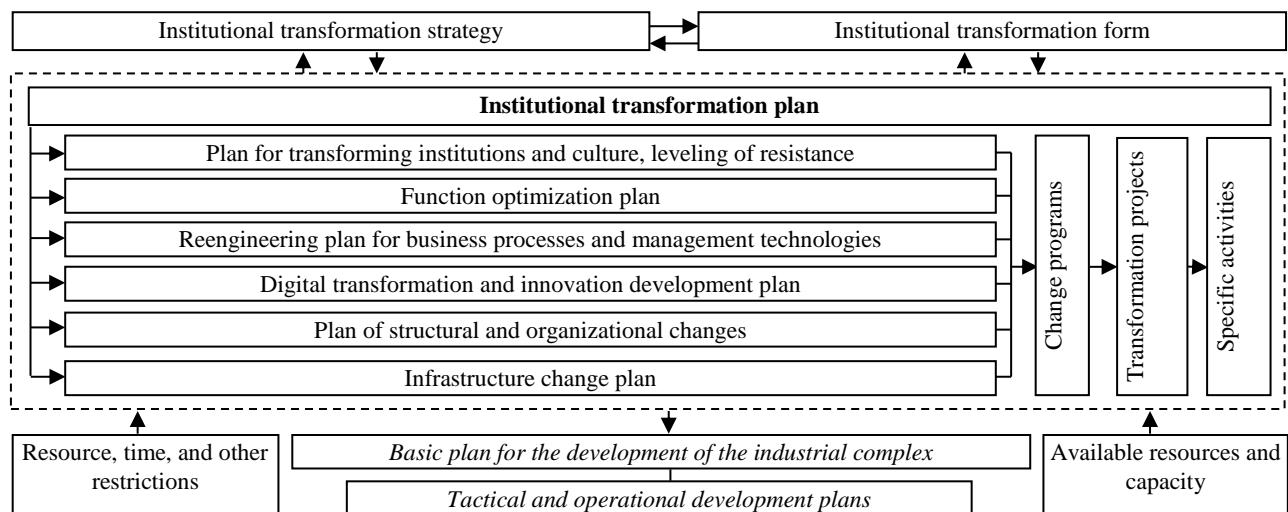


Figure 3 Recommended system of plans for the strategy of institutional transformation of the industrial complex in the digital economy

The study of the essence, content, structure, distinctive features, place and role of the strategy of institutional transformation allows us to analyze its variations and build an appropriate typology.

Typology (from the Greek *typos* - form, imprint, sample) is a method of scientific cognition that involves the decomposition of a set of objects and their grouping using a generalized, idealized model. Typology is used for the purpose of comparative study of essential features,

connections, functions, relationships, levels of organization and coexistence of objects. Typology is also the result of a typological description and comparison of objects, elements, phenomena [13].

Typologization solves the problem of structuring, ordered description and explanation of systems [13].

Consider the most grounded typologies of strategies for institutional transformation (Table 2).

Table 2 Analysis of typologies of change strategies for enterprises and organizations

Authors	Type of strategies	Subtype of strategies	Criteria for the typical and kind division of strategies	Content of the strategy	Strategy implementation approach
L. D. Gitelman, B.E. Ratnikov [4]	1. Organizational change strategies	1.1. Evolutionary strategy	1. Speed of implementation of changes; 2. Type of enterprise reaction to changes	Gradual (incremental) and distributed over time changes in the business model of the enterprise	Conducting a series of successive changes that complement each other
		1.2. Revolutionary strategy		Dynamic and radical change (restructuring) of the business model of the enterprise according to a new vision	Carrying out the whole complex of changes (regardless of their depth) at once or in a short time
		1.3. Organizational change containment strategy		Refusal of proactive changes, adherence to the existing logic of the functioning and development of the enterprise	Maintaining the existing organizational structure and business process system of the enterprise
		1.4. Strategy for blocking organizational change		Ignoring the prerequisites for transformation, refusing to carry out organizational changes	Purposeful restriction of the influence of factors and forces that contribute to organizational changes in the enterprise
K. Thorley and H. Wirdenius	2. Change strategies	2.1. Directive strategy	1. Level of flexibility of the management of the organization during the transformation; 2. Level of development of the changes	Prompt implementation of the necessary organizational changes based on the use of authoritarian management tools. The implementation of directive strategies is most appropriate in the face of crisis trends at the enterprise.	The management "imposes" (uncompromisingly introduces) changes on the fundamental aspects and consults on the minor points.
		2.2. A negotiation-based strategy		Implementation of trade-off changes in the enterprise, developed by management, taking into account consultations with personnel. Consideration of the interests of the main parties involved in the process of changes in the enterprise.	Consistent implementation of the strategy's activities, in which the company's management negotiates and consults with other interest groups on the implementation of changes and is willing to make concessions.
		2.3. Regulatory strategy		Making changes in the organization based on the formation of a sense of responsibility among the staff not only for the transformation process itself, but also for obtaining the planned results.	Implementation of changes through the normative consolidation of new forms, institutions, parameters and algorithms of enterprise development, as well as the formation of responsibility of individuals and departments for the implementation of changes and achievement of goals.
		2.4. Analytical strategy		Making changes based on an in-depth analysis of the situation and involving the expert community (analysts, experts, specialists, etc.)	Carrying out external and internal audits, posing problems to be solved, involving experts in the development and implementation of solutions for the necessary changes.
		2.5. Action-oriented strategy		Implementation of changes through "trial and error", adjustment of measures and projects of the strategy for the transformation of the enterprise, taking into account the actual results obtained.	The use of various options for resolving enterprise problems, which are modified and corrected depending on the quality of the results obtained.
V. M. Polterovich [5]	3. Institutional reform strategies	3.1. Shock therapy strategy	1. Speed of the changes; 2. Method of implementing institutions (own or imported)	One-time and radical change in the system of existing institutions	Prompt introduction of more developed institutions borrowed from outside into the socio-economic system
		3.2. Growing strategy		Supporting the natural (gradual) evolution of one's own institutions	Consistent development and improvement of the quality of one's own institutions
		3.3. Strategy of intermediate institutions		A combined strategy based on a combination of various methods and options for transforming institutions	Combination of import (transplant), growing and reengineering of institutions
P.E. Connor, L.K. Lake [7]	4. Organizational change strategies	4.1 Facilitative strategy	1. Management's level of flexibility when interacting with staff 2. Level of employee involvement in transformation processes	Supporting the natural aspirations of staff for business transformation	Using the ideas, abilities and internal potential of the company's employees to make changes
		4.2. Information strategy		Motivating employees to change and leveling resistances due to a high level of staff awareness of reform plans	Informing employees about the planned transformations and their involvement in the change process
		4.3. Relationship strategy		Step-by-step replacement of outdated elements of organizational and economic relations with new practices	Testing and subsequent regulatory consolidation of new methods of work of the company's personnel
		4.4. Political strategy		Change in strategic vision and subsequent realignment of resources	Acquisition, sale or regrouping of strategic resources

Continuation of Table 2

L. Perlin, K. Schuler [14]	5. Coping strategie s (adapted from manag ement psycholo gy theory)	5.1 Reframing strategy	1. Attitude of staff to the existing problems in the organization	Constructive transformation and solution of situations that create problems for personnel and the enterprise	Solving organizational problems by changing the way they are seen and understood
		5.2. Problem change strategy			Transformation of the content of problems and their subsequent leveling
		5.3. Emotion management strategy			Motivating staff to make changes based on a combination of bonuses and sanctions
R. Chinn, K. Benn [15]	6. Strategie s for impleme nting changes in human systems	6.1 Rational strategy	1. How to implement changes 2. Level of flexibility of management in implementing reforms 3. Staff motivation level	Implementing reforms through voluntary employee participation	Convincing staff that changes are appropriate
		6.2. Power strategy		Transforming the organization's business processes by forcing employees to make changes	Using administrative enforcement methods to drive change
		6.3. Retraining and norms change strategy		Carrying out transformations through building a new system of values, norms and rules	Carrying out transformation based on the introduction of new norms, values and work mechanisms
S. Dichter, K. Gagnon, A. Alexand er [8]	7. Transfor mation strategie s	7.1. Top-down strategy	1. Subject of the initiation of reforms 2. Development vector of transformations	Development of strategic guidelines by top management and their translation to lower levels for implementation	Initiation and control of transformations is carried out by the company's management
		7.2. Bottom up strategy		Reform of the organization based on the combination of local projects and proposals in the strategy	Transformation is initiated by the staff
		7.3. Horizontal strategy		Combining senior management reform course with employee initiatives	Combining multiple sources and carriers of transformation in the enterprise

The analysis of the existing typologies shows the following.

The issues and aspects of transformation of industrial enterprises remain poorly understood. There is a shortage of reasonable classifications of strategies for institutional transformation production systems, especially those operating and developing in the digital economy. Thus, a relatively comprehensive view of the problem of systematization and typology of strategies for deep changes in economic systems is presented in the works of only 10-15 domestic and foreign authors, while most other academic materials contain only individual (often contradictory) developments on the topic under study.

The considered typologies of transformation strategies by L. D. Gitelman, V. M. Polterovich, B. E. Ratnikova, and K. Thorley are of great scientific interest, but they are characterized by a number of features that do not always allow them to be effectively used for the system transformation of industrial complexes. This is due to the fact that the types and kinds of strategies presented by these authors are mainly focused on organizational and structural reforms and do not contain a detailed description of other important aspects of transformation (functional, process, digital, institutional, and others). In addition, some typologies are applicable only to macroeconomic

systems (countries, national economies, etc.) and cannot be adapted to smaller – scale objects, such as industrial complexes and enterprises, without prejudice to their content.

Typologies developed by R. Chinn, K. Benn, L. Perlin, and K. Shuler mainly characterize strategies that involve the use of psychological, emotional, and cognitive potential of personnel to transform production organizations, as well as the involvement of personnel in the transformation process. According to the authors, these typologies are more suitable for solving individual strategic tasks in the field of personnel management than can be used when carrying out complex institutional changes in industrial complexes, which include (in addition to performing personnel issues) reengineering of business processes, optimization of organizational structures, updating the composition of functions, building digital platforms, regrouping material infrastructure and implementing many other projects. Within the framework of solving these problems and developing the theoretical basis for enterprise transformation, the authors propose the following typology of strategies for institutional transformation of industrial complexes (Table 3).

Table 3 Typology of strategies for institutional transformation of industrial complexes

Type of strategies	Subtype of strategies	Content of strategies	Strategy idea	Strategy goals	Priority areas of the strategy
Institutional transformation strategies	Advance transformation strategy	System of innovative ideas, initiatives, solutions and action plans aimed at transformation, proactive development and ensuring the leadership of the industrial complex in the sales markets and in the branches of its presence	Enterprise development is through the implementation of innovative solutions (development of new technologies, competences, markets, working methods, business models, etc.). Conversion of the company has conducted earlier and faster than the market (in the industry). The industrial complex is an exporter of change.	Ensuring leadership of the industrial complex in the industries and markets where it operates	1. Search, development and implementation of advanced business models and market struggle 2. Improving the quality of management at all levels 3. Increase in labor productivity 4. Increasing innovation activity 5. Digital transformation 6. Organizational, structural and functional optimization 7. Mastering new competencies 8. Formation of an innovative digital ecosystem and effective institutions 9. Decrease in transaction costs 10. Optimize the logic and speed of business processes
	Conflict resolution strategy	Anti-crisis plan of transformations, focused on the systemic solution of existing problems and contradictions at the enterprise	The development of the enterprise is carried out by solving the accumulated problems and leveling the constraints. The transformations are forced and are due to the exhaustion of the potential of the existing model of the functioning and development of the enterprise.	Minimization of transaction costs, as well as resolution of systemic problems and contradictions that hinder the dynamic development and effective functioning of the industrial complex	11. Production and technological modernization 12. Increasing the flexibility of the enterprise
	Trend following strategy	Program of reactive changes that are catching up in relation to the level of market (industry) development. The strategy provides for the introduction at the enterprise of models and management tools previously tested by other market participants	The development of the enterprise is carried out through its adaptation to the market. Institutional changes first occur in the industry (in the market), and then they are imported by the industrial complex.	Maintaining the level of development of the industrial complex at a level not lower than the industry average	

4. DISCUSSION OF RESULTS

The strategy typology is formed based on the integration of two key criteria:

– target and functional orientation of strategies. According to the authors, this is the main criterion, as it provides for the allocation and classification strategies transformations, based on their initial practical purpose, for industry development of the enterprise or permit its fundamental problems;

– market strategy challenge. This criterion is additional and characterizes strategies from the standpoint of scenarios of the market position and behavior that they form for the industrial complex.

The strategy of advanced transformations is the most promising for increasing the competitiveness and efficiency of the functioning of industrial complexes in the long term. It is focused on a deep restructuring of the business model of an enterprise, providing for updating its strategic vision, corporate culture, business process algorithm, composition of functions and organizational structure, as well as the introduction of digital innovations and improving the quality of management. This strategy

can be chosen by an industrial complex claiming leadership in the industry and striving for leadership in the development of new technologies and the use of innovative forms of labor organization.

The conflict resolution strategy can be used to carry out institutional transformations at industrial enterprises, which have a number of fundamental problems and imbalances in the model of organizing business processes. This strategy is aimed at leveling internal system contradictions in the industrial complex, as well as balancing the level of development of interacting elements.

The trend following strategy is based on the idea of reasonable conservatism, which provides for the transformation of the enterprise through the implementation of proven solutions and projects. On the one hand, this strategy avoids the risks typical for pioneer companies. On the other hand, it provides the opportunity to implement a program of effective and proven innovations at the industrial complex. The trend following strategy can be chosen by large manufacturing organizations and systems with a strong position in the industry, operating in stable markets and seeking to eliminate the risks of major managerial mistakes.

The main priority areas of the proposed types of institutional transformation strategies are improving the quality of management, digitalization of business processes, increasing labor productivity, reducing transaction costs, forming an effective innovation culture, as well as industrial and technological modernization.

5. CONCLUSION

The study allows us to draw the following conclusions. Ensuring effective and timely transformation of production enterprises is one of the most important tasks of economic science. About half a century ago, Harvard business school Professor R. M. Kantor discovered fundamental differences between organizations that implement transformation and companies whose thinking style is directed against change and innovation. According to the observations of R. M. Kantor, transforming firms are much more competitive, as they use an integrative approach to analyzing and solving problems, challenge established practices, and act on the border of their capabilities. The most important feature of these enterprises is that they measure themselves not by the standards of the past, but by the vision of the future [16].

In the digital economy, solving the issue of forming typologies of strategies for institutional transformations is of particular importance, since it allows the management of organizations to select the necessary strategy for the transformation and development of business during a period of profound market changes and the emergence of the digital world.

The typology of strategies proposed by the authors can be used by management as a theoretical and methodological toolkit for carrying out fundamental transformations in the business models of industrial enterprises and complexes.

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