

Development of an Adaptive Management Strategy of High-Technology Enterprises in Modern Crisis

Sergey V. Novikov, Gennady V. Tikhonov

Moscow Aviation Institute (National Research University), Moscow, Russian Federation

Received: 01 October 2020

Accepted: 22 June 2021

Abstract

The article is devoted to the development of a multicomponent adaptive strategy for managing Russian high-tech enterprises in modern crisis conditions. Adaptability and flexibility are considered as the most important indicators of the efficiency of structures, their ability to ensure sustainable operation and effective innovative development of high-tech enterprises. A significant place in the article is devoted to possible approaches and methods of adaptive management of the enterprise in crisis, with the help of which changes in the internal and external environment are monitored, which can be expected and random, make current operational decisions that contribute to the achievement of pre-set goals based on correction of certain tasks. The questions about the quality of adaptation, adaptive characteristics of the structure and their consistency with the level and quality of adaptation of other elements of the enterprise, conjugation of adaptability and flexibility and pace of changes are considered. A number of modern techniques related to the development of strategies for the development of high-tech enterprises in crisis conditions are analyzed. The necessity of conducting a comprehensive accounting of the crisis as the main factor associated with the uncertainty of the external environment at the stage of strategic analysis is substantiated. There is an option, in which it is possible to include the crisis and its main characteristics into the strategic three competence model of the enterprise, as an additional controlled parameter. There is a general specificity of the formation of the strategy of a high-tech enterprise in conditions of risk and uncertainty.

Keywords

adaptation, planning, enterprise, external environment, tools, management, analysis, crisis, business processes, strategy.

Introduction

The sustainable development of an organization in the existing and changing economic and socio-political conditions in the industry, country and world in general is determined by the effectiveness of its strategy. In an environment of changing external conditions and internal factors, sustainable development can be achieved by the organization's ability to respond in a timely manner and adequately to them, carrying out its mission and achieving its goals, i.e. adaptability. The adaptability of an organization is based on a set of parameters and indicators of the state of the external

and internal environment, methods of their measurement and a set of tools for managing the organization. To constantly keep the organization on the trajectory of sustainable development, adequately responding to conditions and changes in the external and internal environment is a function of the adaptive strategy. Its effective implementation is determined by the informativeness of the parameters and indicators of the state of the external and internal environment of the organization, methods of their measurement, quality of control actions and regulators (Laws and Prideaux, 2006). However, the fundamental difference between adaptive strategies is in its readiness for changes in the external and internal environment in a wide range of meanings in the form of a ready-made set of possible options. Such a set of ready-made solutions as a reaction to the widest range of influence of possible destabilizing factors on the activities of an organization is provided by its structure and the method of forming an adaptive strategy formula (Fasser and Brettner, 2002).

Corresponding author: Sergey V. Novikov – Moscow Aviation Institute (National Research University), Volokolamskoe Highway, 4, 125993, Moscow, Russian Federation, phone: +7(963) 7537 110, e-mail: snovikovmai@mail.ru

© 2021 The Author(s). This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>)

The development of organizations in a market environment is inevitably associated with the need to anticipate changes in the economic situation, search for effective areas of activity and improvement of management. The need for strategic management of Russian enterprises is due to the following prerequisites: rapid changes in the external environment stimulate the emergence of new methods, systems and approaches to management; active integration processes in Russian business; influence of the process of business globalization, in which national differences and preferences are erased, is the standardization of consumption. It is very important in this situation to determine the specifics and development priorities of organizations based on their comparative advantages, developing a strategy for working in a competitive environment (Volberda, 2004).

The general goal of the adaptive strategy for managing high-tech enterprises in modern conditions is to develop its mechanism in Russia in crisis conditions.

The very strategy for the development of high-tech enterprises in a crisis is based on the development of a three-dimensional “model of three competencies”. The novelty and uniqueness of this model include the fact that the characteristics of the crisis on the industry (competencies) are included in the three-dimensional model as a parameter and influence on the choice of strategy. This is the main difference between the three competencies model and the classic portfolio models. Thus, the proposed model enables high-tech enterprises to conduct a comprehensive analysis of the current situation and choose the most appropriate strategic position. A significant advantage of the model is in the possibility of its use for industrial enterprises in almost any industry. The model and, therefore, the strategy for choosing a strategy is based on a three-dimensional matrix.

Theoretical basis

One of the important principles used in the management of high-tech enterprises is the principle of active adaptation to the dynamics of external factors. To determine the directions and methods of adaptation, it is necessary to properly structure the system of external factors and outline the nature and degree of their influence on the development of business activities of high-tech enterprises.

Traditionally, the structure of the external environment of any enterprise is understood as an ordered set of elements combined into two large groups: macro- and microenvironment (in other interpretations: external environment of direct and indirect impact). In

this case, the degree of influence of the enterprise management system on a particular element of the external environment is used as a criterion for differentiating the elements of the environment.

This approach, of course, is fundamentally correct. However, the scope of its application is mainly large businesses that can have a serious impact on the state of the environment. High-tech small and medium-sized businesses, as a rule, have rather modest opportunities in the area of reverse impact on the environment. The specificity of their functioning is maximum flexibility and maneuverability. This specificity makes it necessary to correct the ideas about the structure of external factors that determine the functioning of small and medium-sized high-tech enterprises, and hence the structure of the analytical base used in the development of management decisions regarding the use of the adaptation strategy.

Russian modern high-tech enterprises change their organizational structure with great frequency and speed: positions, jobs, responsibilities are being modified rapidly. Structures disintegrate, merge in a new form, rebuild again, etc. This is a rather contradictory process, since, on the one hand, the structure, being a static element of the system, ensures its stability (of course, along with other components), and constant and rather rapid changes can lead to a loss of structural stability. Indeed, structure is a way of organizing, ordering elements into a system, set of stable connections and relations between them, then organization is a certain degree of ordering of components. The organizational structure of management (OMS) is understood as a set of connections and relations involved in the management process between structural units located at all levels of management. OMS is, in its essence, a certain form of business activity, and in this sense it is, of course, secondary in relation to business. But there is a close relation between these concepts. Moreover, business processes are primary. Within the framework of these two interrelated and interdependent parts, management is carried out (Merkulova, 2017):

- mission, goals and development strategy of the enterprise;
- enterprise as a specific business system (business processes);
- enterprise as an organizational structure;
- enterprise as a personnel structure.

So, there is the following business design chain: product → technology → resources → business processes → management system → organizational structure (as part of the management system) → personnel structure.

Consequently, the organizational structure is secondary not only in relation to existing business processes, but also in relation to mission, goals and strategy, as well as in relation to management functions. The structure is the penultimate stage of design, the final stage is the personnel structure. But this does not diminish the importance of designing efficient structures. An essential prerequisite for the effective functioning of any organization is the design of their structure. OMS is an important man-made and purposefully created entity. To form it, the entire labor process is first divided into subtasks, and to solve common problems, the process of coordinating various actions is being established (Booth, 2015).

During the reforming the country's Russian market in the field of high technology, each company should really evaluate its positions and capabilities in real time in order to maintain the image of the industry and develop intersectoral economic relations, as well as develop an adaptive management strategy for the future.

The modern concept of the term "adaptation" comes from the Latin "adaptation", that is, in ancient times, was understood as the process of adapting the system to real conditions. Later, the signification was expanded by scientists and practitioners working in various areas of human life (Antonov et al., 2019). In general theoretical terms, the mechanism of adaptive enterprise management in crisis conditions involves the development of:

1. System of principles of adaptive management. The most important principles are: information content, perspective, progressiveness, complexity, etc.
2. Methods for collecting, generalizing and systematizing the necessary information, which include: researching the actual needs of related enterprises, analyzing sectoral and cross-sectoral programs, participating in tenders for government orders, etc.
3. Possible approaches and methods of adaptation include: methods of product modernization (design and technological), optimization of enterprise costs in order to obtain competitive advantages in the market, expanding economic ties with consumers of products, improving the organizational structure of the enterprise, identifying its capabilities for import substitution of products, etc.
4. Development of the main (alternative) directions of adaptation of the enterprise proceeds, first of all, from the criteria that the enterprise has determined.
5. Anti-crisis management plan of the enterprise assumes that the enterprise has already defined: goals and objectives of stabilization, strategic al-

ternatives for further development; the company starts to sell them. The main goal of adaptive management is to track changes in the internal and external environment and make operational decisions.

6. System of coordinating the goals and objectives of stabilizing the enterprise with the goals and objectives of the industry and related enterprises is an important element of adaptive management. If the development benchmarks of the industry or related enterprises have changed, the enterprise needs to adjust its plans and activities.
7. Indicator systems for assessing the level of adaptation of an enterprise to crisis conditions should be considered in the following directions:
 - from the standpoint of changing the economic potential of the enterprise and the efficiency of its use;
 - from the standpoint of the resulting economic and financial indicators of economic activity;
 - from the standpoint of the activity and effectiveness of anti-crisis measures.
8. Strategy of adaptive enterprise management depends, first of all, on its position in the pre-crisis period. It can be aimed at:
 - systematic increase in the level of adaptation due to certain factors of production;
 - stabilization of the level of adaptation due to certain resource constraints and production difficulties;
 - forced decrease in the level of adaptation due to objective and subjective reasons.
9. System for monitoring the level of adaptation of individual enterprises should facilitate the selection of strategically important business partners, associates in production activities, etc.
10. Analysis of the fulfillment of goals and objectives is carried out by comparing planned (predicted) indicators and activities with actual ones. At the same time, not only the analysis of changes in individual indicators is carried out, but also the impact of these changes on the level of adaptation of enterprises in the current competitive environment. Factor analysis of the change is also carried out.

There are difficulties in determining the frequency of regular consideration of key parameters that allow effective strategic decisions. In addition, in order to fully meet the requirements of the owners of the company, there is a problem of the exact choice of a specific model of strategic management in a crisis.

Classic portfolio models of strategic decision (McKinsey matrix, Boston Consulting Group matrix, etc.) track two parameters when choosing a particular

strategic position for a company. These models are not able to provide an effective decision on the choice of strategy in crisis conditions, that is, taking into account the global financial crisis.

Methodology

An adaptive strategy for managing high-tech enterprises in crisis conditions is expressed in the formulation of the content of the competence of the crisis and its constituent factors. The novelty and uniqueness of this model is in the fact that the characteristics of the impact of the crisis on the industry (competencies) are included in the three-dimensional model as a parameter and affect the choice of strategy. This is the main difference between proposed mechanism of three competencies and classic combined portfolio model (Robert and Lajtha, 2002).

Three-dimensional method combined with a combination of matrices has been used for strategic planning and management for a long time and successfully. However, as some researchers note, its use is significantly complicated by the choice of factors in the formation of the model and the lack of methods for determining the numerical values of the specified system of factors. In this case, the model of the three-dimensional method or three competencies is capable of solving the problem of strategic management, as well as solving the problem of determining the specific value of the set of factors used. The presented model of three competencies primarily affects high-tech enterprises. The model is shown graphically in the Figure 1 (Popova et al., 2015).

Parameter $K-1$ (axis $K-1$) is the “Internal competencies”. $K-1$ characterizes certain internal strengths and weaknesses of a high-tech enterprise. It is possible to evaluate this parameter based on a balanced scorecard. Thus, four groups can be distinguished for

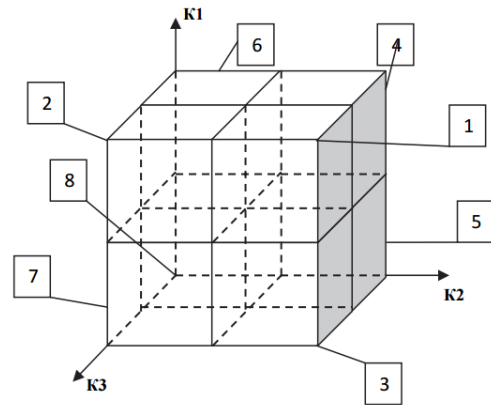


Fig. 1. Graphical representation of three competency model

assessing $K-1$ parameter:

- financial condition of the enterprise in question;
- market position of an organization;
- internal processes occurring at the enterprise;
- intangible assets of an enterprise.

Method for calculating parameter $K-1$ is presented in Table 1 (Sidorin and Sidorin, 2016).

“Group weight” is filled in by sequentially distributing 10 points among the groups of indicators listed in the second column, according to how the priority goals for these groups are assigned at a particular enterprise. Then, “Assessment” opposite the value corresponding to the organization in question, the mark obtained by the expert method is put. In “Result” the value of the product of the group’s weight and the estimate is entered. The sum of the values in “Result” lines is the total value of $K-1$, which is fixed on $K-1$ axis of the graphical three-dimensional model.

Parameter $K-2$ (axis $K-2$) is the “External competencies”. The horizontal axis $K-2$ reflects the opportunities and threats that the external environment for the enterprise contains. Opportunities and threats

Table 1
Calculation of the parameter $K-1$ “Internal competencies”

Indicator group	Group weight ($\sum = 10$)	Assessment										Result
		1	2	3	4	5	6	7	8	9	10	
Financial condition of the enterprise in question												
Market position of the enterprise												
Internal processes												
Intangible assets												
Total	10											$\sum = K-1$

are, in a sense, the result of the natural interaction between the organization and the system in which the organization operates. The assessment of this interaction is projected onto the $K-2$ axis. The author of the model proposes to identify four main groups of factors that fully characterize the external competence of the enterprise: influence of the economic and political situation in the country, region, district; opportunities for the development of the product sales market and level of competition; technological superiority and presence of unique innovative developments; influence of social and environmental factors. The calculation of $K-2$ parameter is carried out using the same methodology as the calculation of $K-1$: using a 10-point rating scale. "Group weight" is filled in accordance with the significance of this group for the entire industry, and estimates are made for each group of indicators for a particular enterprise. The result is calculated similarly to $K-1$. Thus, by summing up the values of the results for each group of indicators, the value of $K-2$ is obtained.

Parameter $K-3$ (axis $K-3$) is the "Competence of the crisis". $K-3$ axis shows the impact of crisis factors on the industry. The calculation of $K-3$ is similar to the calculation of $K-1$ and $K-2$. Thus, after calculating all three parameters, the values of which are marked on the corresponding axes of the proposed model, the projection of the parameters falls into one of the eight parts of the cube, or a three-dimensional matrix (the model of three competencies is shown in the Figure 1).

Eight sectors of the cube are a set of eight unique strategies for a high-tech enterprise in crisis:

- sector No. 1 – activation and stabilization strategy;
- sector No. 2 – strategy of concentration and differentiation;
- sector No. 3 – modernization and optimization strategy;
- sector No. 4 – strategy aimed at consolidation;
- sectors No. 5, No. 6, No. 7 – strategies related to restructuring;
- sector No. 8 – liquidation strategy.

Thus, the use of the model of three competencies allows high-tech enterprises to choose the most promising development strategy in the context of the global crisis, taking into account all significant factors.

Results

On the basis of the research carried out in the article, the mandatory specific characteristics of the enterprise strategy in the context of the economic cri-

sis are formulated. First, the strategy should be as flexible and adaptive to changes in the external environment as possible. At the same time, the management of the enterprise must be aware that the dynamics of the market can be so sharp and unexpected that the strategy will have to be changed almost completely (Zakrzewska-Bielawska, 2016). Therefore (secondly), when developing an enterprise risk map (as an integral part of the strategy), the values of the most probable risks should be considered critical. The third characteristic also follows from the first and is a characteristic not so much of a strategy as of an enterprise's activity in a crisis in principle. We are talking about almost constant monitoring of new opportunities for the enterprise that appear in the external environment. New perspectives are a positive "downside" of any crisis, compensation for the fact that, due to a number of factors, whole areas of economic activity are no longer relevant and in demand (Wadhwa and Rao, 2000). It is advisable to attract specialists who will research the current state of the market, identify new promising niches, monitor the "leading players": competitors and potential partners of the enterprise, support and develop mutually beneficial contacts with representatives of the business environment of the enterprise aimed at cooperation. The position of an organization that wants not only to survive, but also to develop in a crisis should be open to cooperation, innovation and fundamentally new types of activity. The main components of the adaptive mechanism for achieving competitive advantages in the strategic management of small and medium-sized industrial enterprises are the following elements (Novikov, 2019):

1. Creation and development of a system for monitoring the external and internal environment within the framework of small and medium industrial business.

Monitoring is the continuous verification of changes in certain indicators that are determined in advance. In modern conditions, the monitoring system is the prerogative of large businesses, because it requires certain financial and organizational investments, which small and medium-sized businesses usually do not have. However, in a situation where a small enterprise adopted the adaptive management development strategy as a guide to action, the creation of such a system becomes necessary, despite the fact that the formation of such a structure requires significant financial investments from a small and medium-sized industrial enterprise (Boin, 2009).

Monitoring business processes in small and medium-sized industrial businesses allows providing an approach to doing business in real time from the

point of view of monitoring business operations, tracking situations such as delays in business processes, lost profit, etc.

Modern monitoring methods make it possible to present business processes in a clear and understandable form, to correlate business processes among themselves, to trace their joint implementation and impact on the enterprise. These methods allow tracking key performance indicators of business processes (KPI), determining the level of accessibility and quality of work (Service Level Agreement-SLA), recording delays, downtime, lost profit and visualizing business processes in accordance with organizational roles (Puzhayev, 2005).

Constant monitoring of changing parameters will allow timely identification of emerging threats, and then make the necessary efforts to counter this threat.

Measures to monitor threats arising during the activities of a small and medium-sized industrial enterprise require the creation of a separate unit within the enterprise carrying out this activity. If it is impossible to create such an organizational unit, control functions should be transferred to the head of the enterprise or his authorized deputy.

2. Using of significant financial resources for the needs of adaptive management.

Small and medium-sized industrial enterprises are usually more limited in their “free” financial resources than large ones. Their managers spend their profits on meeting current, but not strategic development needs. However, the development of the enterprise is impossible without medium and long-term investments.

The owners of the Russian small and medium-sized industrial business usually cannot overcome the psychological barrier that prevents them from saving money for the future. This is due to the fact that the Russian economic situation is characterized by instability, when any long-term planning does not seem reliable even to business owners.

Overcoming this psychological barrier is necessary for the practical implementation of the adaptation mechanism, since any adaptation requires the creation of a financial “airbag” that allows for effective measures in case of force majeure situations that require immediate response, and in case of unexpected short-term changes that cannot be attributed to force majeure circumstances.

The creation of an “airbag” does not mean that the reserve funds should be completely “non-working”, but the company should always be able to free up funds for adaptation measures.

3. Increase in the share of variable costs in the structure of production costs.

As it is known, fixed costs are costs that do not change in the short term with an increase or decrease in production. Fixed costs in small business include the same costs as in other types of business, that is, the costs associated with the use of buildings and structures, machinery and production equipment, rental, major repairs and administrative expenses (Abouzeedan, 2013).

Variable costs, in turn, are costs, the size of which changes as the volume of production increases or decreases. Variable costs include raw materials, electricity, auxiliary materials and labor costs.

In industrial enterprises of “small forms”, the ratio of variable and fixed costs in total production costs usually varies depending on the specifics of a particular enterprise.

Cost structure, among other factors, illustrates the flexibility of product policy of small and medium-sized industrial businesses. High level of fixed costs does not allow reducing the quality of products, while reducing its cost, while products with a high proportion of variable costs allow performing this operation. For example, manufacturers of homogeneous fittings (bolts, nuts) in unfavorable market conditions will not be able to significantly reduce the price of their products due to a change in technology, since material and manufacturing technology of the fittings are unchanged. On the other hand, manufacturers of power sensors will be able to reduce costs and prices through replacing metal elements with cheaper plastic ones (Novikov, 2019).

4. Achieving the ability to effectively reengineer business processes in a short time.

According to the well-known definition of business process reengineering (BPR), reengineering is defined as “fundamental rethinking and radical redesign of business processes (BP) in order to achieve fundamental improvements in the basic indicators of the enterprise” (Khan, 2007).

The purpose of business process reengineering is a holistic and systematic modeling and reorganization of material, financial and information flows aimed at simplifying the organizational structure, redistributing and minimizing the use of various resources, reducing the timeframe for realizing customer needs and improving the quality of their service (Stansill et al., 2007).

The reengineering of business processes can reduce costs by optimizing the number of employees, improving the organizational structure of the enterprise, increasing manageability, reducing the duration of resource flows and time it takes to complete operations. The reengineered structure of the enterprise has a

higher level of adaptability than before the start of this process (Tikhonov, 2019).

Small and medium-sized industrial businesses, regularly reengineering their activities (for example, once every five years), are able to respond more reasonably and less costly to changes in the external and internal environment. As a part of the adaptive management development strategy, regular reengineering of business processes is expected, which becomes a competitive advantage of the enterprise.

In fact, Russian small and medium-sized industrial businesses usually do not pay enough attention to reengineering processes, citing a lack of financial resources. However, the effective reengineering of business processes, as it was already noted, can give the company special competitive advantages, inaccessible to similar enterprises, more conservative in the design of business processes.

5. Development of the ability to quickly change the nature and working conditions of managers and specialists of the company.

Discussion

Personnel reengineering is a process that usually takes from one to several years. In conditions of unstable market conditions, there is often a need for a much faster response when a management decision must be made within a few days or even hours. In this case, the management of a small and medium-sized industrial enterprise must be able to quickly make important decisions, and company employees must be able to implement them.

Many modern economists believe that the speed of decision-making depends on the form of communication within the company. Linear and functional systems do not facilitate rapid decision-making within the small and medium industrial business.

If we consider the linear organizational structure, the middle manager will always spend time coordinating his actions with senior management, and the higher the importance of decisions made and the responsibility for making them, the more time will be spent on coordinating decisions.

Within the framework of the functional structure, the necessary speed of decision-making is also not always achieved, since each functional manager is only responsible for his field, not having a complete picture of the state of the enterprise and effective leverage to quickly influence other functional departments of the company. As a result, there is inconsistency and red tape at a certain scale of the solution.

In connection with the above-described problems, for small and medium-sized industrial enterprises that have adopted the adaptation mechanism, a matrix organization system is more appropriate, where not only vertical but also horizontal connections are widely developed, where a significant number of employees of various hierarchical levels communicate directly when making decisions (Novikov and Tikhonov, 2018). Given the relatively small number of workers in small and medium industrial businesses, such an organization of production seems quite real.

Having described the main features of the adaptive mechanism for achieving competitive advantages, it is necessary to consider it in line with the strategies generally accepted in the scientific and practical environment, divided into several groups. This will make it possible to identify the place of the adaptation mechanism in each strategy, focusing on the specifics of the considered adaptation mechanism in relation to each one (Ershova, 2015).

The first of these groups combines concentrated growth strategies. These strategies are related to changes in the product and/or market and do not affect other three elements.

Subject to these strategies, enterprises carry out one of two types of production activities (Grimashevich and Skasyrskiy, 2016):

- to improve product quality;
- to develop the production without changing industry affiliation.

The concept of concentrated growth seeks additional market opportunities to go beyond the existing framework. Their source is the strengthening of positions in the occupied market (in particular, by increasing competitive advantages by improving the quality of products) or entering a new market, the capacity of which allows implementing strategic plans.

The group of concentrated growth strategies includes the following areas (Gorfinkel, 2003):

1. Strategy to strengthen market positions, which requires the intensive use of marketing mechanisms for successful implementation. It requires the following actions:
 - active promotion of improved products;
 - establishment of formal and informal relations with competing business entities and a decrease in the level of competition on this basis;
 - application of the principles of social and ethical marketing, taking into account the communicative component of the positioning process.

As a part of this strategy, the adaptation mechanism should be focused primarily on the analysis of the competitive environment in order to respond

to changes in their market behavior. In addition, the adaptive management mechanism must analyze the consumer market so that the business entity can respond to changes in consumer preferences.

2. Market development strategy, which is based on the increment of market opportunities by acquiring new markets for which goods can be presented, or new market segments in the already developed territorial market.

The activity of the adaptation mechanism as a part of the market development strategy involves a reaction to the difficulties of entering new market segments, usually caused by errors in the analysis of the specifics of the markets that the company is trying to enter. A new market segment for an economic entity trying to cover it is always associated with uncertainty, because there is no necessary experience accumulated over time. The main objective of the adaptive management mechanism is the quality monitoring of foreign markets, as well as the prompt identification and elimination of negative consequences when covering a new market segment.

3. Product development strategy, consisting in a radical improvement of the product, consideration of its nomenclature by introducing a number of modifications or launching new products that best meets the needs of the target segment.

Conclusions

The final concretization of the chosen variant of structure formation is carried out on the basis of studying the peculiarities of management organization. This includes the presence of leaders, personnel qualifications, management style, etc. The use of particular indicator is determined based on the goals set by the enterprise management. To assess the level of efficiency of changes in the structure, we can use capitalization, profit growth and cost reduction. But these are general indicators that are influenced by many factors, including external ones. Therefore, along with general indicators, individual private indicators can also be used. The following ones can be recommended as private ones:

- growth of productivity of managerial labor;
- coefficient of coverage of management functions;
- level of controllability;
- coefficient of reliability of the control system;
- quality factor of performance of managerial functions and a number of others.

Anti-crisis management is a set of tools for external and internal influences on enterprises, which reveals weak signs of a crisis state or already in a crisis state. Anti-crisis management should be aimed, on the one hand, at anticipating and mitigating the crisis, and on the other, at preventing adverse events for business, developing and implementing a special strategic program at the enterprise that would eliminate temporary difficulties, maintain and increase market positions under any circumstances. It should be noted that crises arise at various stages, they can also arise directly in the very processes of enterprise functioning. The crisis is a turning point in the development of the socio-economic system, which has a negative impact on its further normal functioning. Practice shows that crises are not the same not only in their causes and consequences, but also in their essence. Insolvency and subsequent bankruptcy of enterprises are increasingly becoming the subject of judicial review. Therefore, anti-crisis management should mainly anticipate, prevent and take measures to identify crisis situations. Anti-crisis management should provide for a long period of time such a competitive advantage, which will allow having products in demand on the market and sufficient cash flow to pay for their obligations. Thus, the following conclusions can be drawn:

1. In a dynamic external environment, if the structure is not adaptive, it is ineffective. Consequently, in modern conditions it is necessary to consider the issue of the quality of adaptation, that is, adaptive characteristics of the structure and their consistency with the level and quality of adaptation of other elements of the enterprise. Also, the issue of the necessary and acceptable rate of changes must be resolved.
2. Adaptation mechanism should be developed, including, among other things, determining the current level of centralization/decentralization, form of division of managerial labor and coordination mechanism.
3. In the process of developing an adaptation mechanism, sustainability test should be carried out. Special emphasis should be placed on ensuring stability under conditions of phase transitions.
4. The adaptation process should be innovative and ensure effective innovative and technological development of the enterprise.
5. As criteria for the effectiveness of adaptation, it is proposed to use, along with general indicators of the enterprise, a set of private indicators characterizing the quality of managerial work.

An enterprise is successful only if it is in a state of consistent and steady development. Therefore, a full-fledged anti-crisis management strategy is a strategy

of creating, capturing and retaining a certain market niche, a strategy of competitive advantage in the long term. The survival strategy is being implemented in a short time. New decisions are deliberately implemented in a non-democratic way. Management is concentrated in the hands of a few individuals who are endowed with all the necessary legitimate power to vigorously and quickly carry out the planned changes. Strategy is the principle of effective adaptation to environmental changes. The external conditions of the environment are changing rapidly, so it is very important to receive prompt feedback from the outside world in the form of indicators that would characterize the future (for example, indicators of growth in market share, growth in customer satisfaction). After all, pre-emptive action is much more effective than action to eliminate the consequences. Development and implementation of anti-crisis strategic enterprise management are the key problems of stabilizing the Russian economy. Anti-crisis management strategy makes it possible to recognize the crisis in time and, taking into account its peculiarity, to reduce its severity.

The practical significance of the developed model lies in the possibility of its application in the development of a flexible, adaptive strategy of enterprises and organizations, regardless of their size, type of activity, developed, manufactured or serviced products and services performed. As a result of a well-grounded analytical comprehensive approach through selection from a variety of strategy options, the organization's management gives preference to the most optimal one according to one criterion or another, with the possibility of turning to "reserve" options in changed circumstances.

References

- Abouzeedan, A., Klofsten, M., and Hedner, T. (2013). *Internetization management as a facilitator for managing innovation in high-technology smaller firms*, Global Business Review, 14, 1, 121–136.
- Antonov, V.G., Rumyantseva, I.A., Krotenko, T.Yu., and Kazeeva, O.G. (2019). *Methodical approaches to the formation of adaptive management structures*, University Bulletin, 9, 5–12.
- Boin, A. (2009). *The new world of crises and crisis management: Implications for policymaking and research*, Review of Policy research, 26, 4, 367–377.
- Booth, S.A. (2015). *Crisis management strategy: Competition and change in modern enterprises*, London: Routledge.
- Ershova, I.V. (2015). *Entrepreneurship: legal problems of increasing efficiency: legislative and regulatory framework*, Moscow: Russian newspaper.
- Fasser, Y. and Brettner, D. (2002). *Management for Quality in High Technology Enterprises*, New York: John Wiley & Sons, Inc.
- Gorfinkel, V.Ya. (2003). *Small Business: Organization, Economics, Management: Textbook for High Schools*, Moscow: Unity-Dana.
- Grimashevich, O.N. and Skasyrskiy, N.S. (2016). *Methods of strategic analysis in conditions of uncertainty of the external environment*, Bulletin of the Saratov State Social and Economic University, 4, 63, 19–22.
- Khan, P. (2007). *100 brilliant careers: They also started from scratch: first steps*, Moscow: Eksmo, 2007.
- Laws, E. and Prideaux, B. (2006). *Crisis management: A suggested typology*, Journal of Travel & Tourism Marketing, 19, 2–3, 1–8.
- Merkulova, E.Yu. (2017). *Technological and methodological base of strategic analysis*, Socio-economic phenomena and processes, 3, 131–138.
- Novikov, S.V. and Tikhonov G.V. (2018). *Cyber money as an alternative to banking products*, Innovative development of the economy, 1, 254–258.
- Novikov, S.V. (2019). *Problems of the Russian Economy Integration in the Sphere of High-tech Global Space*, TEM Journal, 8, 1, 207–210.
- Popova, Yu.N., Usova, Yu.P., Proskurina, I.Yu., and Sukhova, V.E. (2015). *Enterprise management in an unstable external environment*, Socio-economic phenomena and processes, 12, 66–70.
- Puzhayev, A.V. (2005). *About outsourcing and other concepts in management*, Vestnik INJEKON, 2.
- Robert, B. and Lajtha, C. (2002). *A new approach to crisis management*, Journal of contingencies and crisis management, 10, 4, 181–191.
- Sidorin, A.V. and Sidorin, V.V. (2016). *Process approach to the development of an adaptive strategy of the organization based on the analysis of its external and internal environment*, Production organizer, 3, 70, 28–42.
- Stansill D.M., Bheid A., Zalman U., Block Z., Macmillan I., and Rock A., *Entrepreneurship*, Moscow: Alpina Business Books.
- Tikhonov, G.V. (2019). *Operational Production Management Model of Competitive Products in Mechanical Engineering*, TEM Journal, 8, 4, 1137–1142.
- Volberda, H.W. (2004). *Crisis in strategy: fragmentation, integration or synthesis*, European Management Review, 1, 1, 35–42.

Wadhwa, S. and Rao, K.S. (2000). *Flexibility: an emerging meta-competence for managing high technology*, International Journal of Technology Management, 19, 7–8, 820–845.

Zakrzewska-Bielawska, A. (2016). *Perceived mutual impact of strategy and organizational structure: Findings from the high-technology enterprises*, Journal of Management & Organization, 22, 5, 599–622.