

UDC 33

DOI: 10.34670/AR.2021.42.83.046

Assessment of the capabilities of the Russian industrial enterprise management system in a new type of crisis

Veronika A. Zolotova

PhD in Economics,

Reporting Officer in Joint-Stock Company "NTC "Atlas",

Senior Lecturer,

Moscow Aviation Institute (National Research University),
125993, 4, Volokolamskoye h., Moscow, Russian Federation;

e-mail: veragrey@yandex.ru

Abstract

Russian industrial enterprises faced the influence of a factor that led to the emergence of a crisis situation. The modern regulatory framework does not apply to functioning during the epidemic. As a result, Russian industrial enterprises have not prepared programs for specialized management in such conditions in an automatic mode. Most of the control systems for industrial enterprises in Russia have been transferred to the state of "manual" control. There is the analysis of the first financial and economic data on the performance of an industrial enterprise in Russia under restrictions on the spread of coronavirus infection. The possibilities of the company's management to stop the emerging crisis manifestations and prospects for the use of preventive anti-crisis management are evaluated. It is possible to make initial conclusions about the acceptable results of the functioning of the selected example of Russian industrial enterprise in the short-term management period. Such operating results were obtained as a result of the application of "manual" control mode. It is inexpedient to maintain such a management regime for the future. For a promising automated control mode, it is advisable to use the organizational and economic mechanism of specialized anti-crisis management. The use of such a mechanism first of all will require adaptation at the enterprise of the Russian industry in terms of determining the permissible values of state indicators and management influences.

For citation

Zolotova V.A. (2021) Assessment of the capabilities of the Russian industrial enterprise management system in a new type of crisis. *Ekonomika: vchera, segodnya, zavtra* [Economics: Yesterday, Today and Tomorrow], 11 (11A), pp. 392-399. DOI: 10.34670/AR.2021.42.83.046

Keywords

Assessment, capabilities, industrial enterprise, management system, crisis.

Introduction

Russian industrial enterprises faced the influence of a factor that led to the emergence of a crisis situation. The modern regulatory framework (Federal Law No. 68 of December 21, 1994 “On the Protection of the Population and Territories from Emergency Situations of Natural and Technogenic Nature”) does not apply to functioning during the epidemic. As a result, Russian industrial enterprises have not prepared programs for specialized management in such conditions in an automatic mode. Most of the control systems for industrial enterprises in Russia have been transferred to the state of “manual” control. In this mode, the directorate of the Russian industrial enterprise independently determines the composition of the components of the enterprise functioning system, which must be stopped, must not be stopped or must be transformed into other functioning formats.

The first results of the functioning of Russian industrial enterprises in such conditions make it possible to analyze the success of the introduced management and assess the prospects of using the program of preventive anti-crisis management and also to determine the components of a specialized mechanism, which must be adapted to the conditions under consideration.

Theoretical Basis

For the theoretical basis of the study, the author selected the following things:

- systems theory and systems analysis in management;
- organization theory;
- financial analysis of the economic activity of the enterprise;
- civil law in terms of property relations;
- optimization theory.

Methodology

The analysis used a group of following methods:

- methods of designing management systems for industrial enterprises in Russia [Dmitriev, 2005; Dmitriev et al., 2007; Dubovik, 2011; Demchenko, Dmitriev, Minaev, 2011];
- methods of anti-crisis management of Russian industrial enterprises in terms of risk management [Badalova, Minaev, 2016], management in the event of bankruptcy [Lapenkov, 2001], management through controlling and extended audit [Danilochkina, 2001; Falko, 2019];
- methods of management innovation in Russian industrial enterprise [Dmitriev, Novikov, 2019; Novikov, 2019; Zolotova, Dmitriev, 2018].

Results and Discussion

Figure 1 shows a structural representation of the results of the functioning in one Russian industrial enterprise [Zolotova, Dmitriev, 2018]. We choose an example of a typed object, Russian industrial enterprise, created on the basis of the property of the Russian Federation (not less than 50%). We reduce its typification to the consideration of the most essential types of manufactured products (if within three years there is no rejection of production and zero revenue from sales of this product). For the described object, we will consider the general trends of behavior for the same considered period of time: revenue, accrual of costs and write-off of costs against revenue. Despite the difference in the methodological assessment of the results of the development of an emergency [Chebotarev, Golubev, 2020], the analysis of such data will allow us to see the behavior of production at the enterprise, the amount of

completed work against the proceeds and the amount of proceeds.

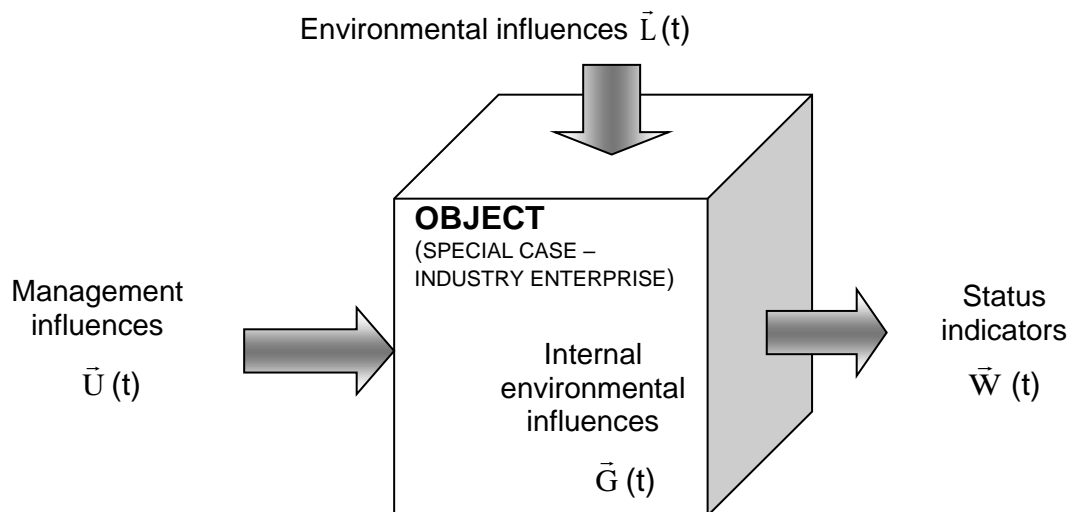


Figure 1 - Structural presentation of impacts and their results

The action of a powerful factor (epidemic) in the external environment of Russian industrial enterprise led to the development of a crisis situation of varying degrees of intensity. The legal and regulatory framework required in such a situation [Dmitriev, Novikov, 2019; Chebotarev et al., 2019] will take some time to adapt.

The nontriviality of a crisis situation can be characterized by:

- equally negative effect on all employees of the enterprise (increased risk to health and life of all employees, with a few exceptions);
- lack of a developed mechanism for automatic control of the enterprise in the conditions of the onset and development of a crisis situation, lack of a regulated need for the development and application of such regulations at the enterprise.

The features of the result of the enterprise's activity were manifested in two directions:

- Growth in revenues and closings of remote work contracts. Due to the forced redistribution of work at the enterprise for the loading of workers, a redistribution of work takes place and faster execution and delivery to the customer.
- Decrease in revenue from contracts and planned postponement of work closure (does not apply to work under the state defense contracts). The limitation of the number of employees accompanying the contract hinders not only its implementation, but also the documentary completion and transfer of documents.
- Emergence of mixed dynamics in the closure of works, appearance of delayed effects, which are difficult to analyze and to identify.

For this study, an analysis of general trends is carried out for seven types of manufactured products, which are referred to the main types of activity and not the main ones for an industrial enterprise (rent, provision of heat supply services, electricity).

Behavior before the crisis period (up to the first quarter of 2020) showed a multidirectional trend: for three of seven types of products, there was a decline in revenue in the first quarter, in two cases, revenue growth for the same period, and in two cases without significant fluctuations. If we compare the behavior of proceeds during the period with the crisis phenomenon, in three cases there is an

increase in revenue, in three cases there is stable behavior and in one case there is drop in revenue. Taking into account the possibility of the management of an industrial enterprise in Russia to transfer workers to remote work and call workers to production with their consent: short-term results at the investigated object in short-term time interval did not show a sharp drop in indicators. At the same time, in the three leading areas of production activity, there is a significant decrease in the volume of charges (from 3 to 33%), which are a consequence of the decrease in business activity of the enterprise during the period of self-isolation of workers. Depending on the severity of the consequences for the customers, it is possible to make a preliminary assessment that according to these areas the enterprise risks receiving less revenue in the current calendar year.

Another trend is an increase in the volume of accruals compared to the two previous similar periods (from 6 to 16%) for two divisions. This growth is ensured by the transition to a remote mode of work (and its fundamental possibility), as well as strong-willed decision of the management to call workers to the workplace during the period of the current restrictions. At the same time, there is a decrease in the accrued costs for noncore areas of activity, which indicates the primary concentration of efforts to maintain the leading areas of production and the implementation of existing contracts.

Two trends were revealed in management system:

- inventory and verification of all innovations that allow automating the production process and the implementation of auxiliary and service functions;
- transition to “manual” type of control, cancellation or ignoring or transformation of most of the existing regulations (except for the main production process).

Apparently, the indicated crisis situation will be repeated in the future, then the transition from the “manual control” system to program control is possible [Bloschenko, 2009; Moroz, 2008]. Such management is applicable in the context of the action of the organizational and economic mechanism for the formation of a specialized management program [Zolotova, Dmitriev, 2020]. The system of goals of an industrial enterprise in Russia is transferred to the form characteristic of anti-crisis preventive management.

So, the formalized management task of optimizing the program under consideration will take the form applicable to the specified crisis situation:

$$W_1(t_i) \xrightarrow{U(t_i), i=[2; Q-1]} \max; i=[2; Q]; \quad (1)$$

if

$$W_1(t_i) \geq W_{1perm}(t_i); i=[2; Q]; \quad (2)$$

$$W_2(t_i) \geq W_{2perm}(t_i); i=[2; Q]; \quad (3)$$

$$W_3(t_i) \geq W_{3perm}(t_i); i=[2; Q]; \quad (4)$$

$$W_4(t_i) \geq W_{4perm}(t_i); i=[2; Q]; \quad (5)$$

$$\bar{U}(t_i) \in \bar{U}^{perm}(t_i); i=[2; Q-1]. \quad (6)$$

The initial state of the control object is fixed at the point t_1 , and the final state is fixed at the point t_Q .

$W_1(t_i)$ is the value of the cash balance of a high-tech enterprise of the Russian industry at the moment t_i , where $i = [2; Q]$;

$W_2(t_i)$ is the value of the net assets of a high-tech industrial enterprise in Russia at the moment t_i , where $i = [2; Q]$;

$W_3(t_i)$ is the value of the total effective taxation rate for a high-tech industrial enterprise in Russia at the moment t_i , where $i = [2; Q]$;

$W_4(t_i)$ is the value of the total net profit of high-tech industrial enterprise in Russia for the entire management period t_1, \dots, t_Q .

The set of management decisions of the anti-crisis management innovation program, corresponding to the directions of management innovation, can be represented as a generalized vector $\vec{U}(t_i)$, where $i = [1; Q-1]$.

Where $W_1^{\text{perm}}(t)$ is the minimum permissible value of the indicator $W_1(t_i); i = [2; Q]$;

$W_2^{\text{perm}}(t_i)$ is the minimum permissible value of the indicator $W_2(t_i); i = [2; Q]$;

$W_3^{\text{perm}}(t_i)$ is the minimum permissible value of the indicator $W_3(t_i); i = [2; Q]$;

$W_4^{\text{perm}}(t_i)$ is the minimum permissible value of the indicator $W_4(t_i); i = [2; Q]$;

$\vec{U}^{\text{perm}}(t_i)$ is the permissible management influences at the time $t_i; i = [1; Q-1]$.

The system of goals of the enterprise can remain unchanged (in terms of achieving state indicators), characteristic of preventive anti-crisis management [Zolotova, 2017]. However, together with this, the permissible values of other indicators of the state can also be revised and reduced by the operating parties, which establish their importance for an industrial enterprise in Russia. Determination of the boundaries of the interval of admissible values of management influences and admissible values of state indicators in relation to the crisis situation under consideration should be obtained as a result of additional research.

Conclusions

It is possible to make initial conclusions about the acceptable results of the functioning of the selected example of Russian industrial enterprise in the short-term management period. Such operating results were obtained as a result of the application of "manual" control mode. It is inexpedient to maintain such a management regime for the future. For a promising automated control mode, it is advisable to use the organizational and economic mechanism of specialized anti-crisis management. The use of such a mechanism first of all will require adaptation at the enterprise of the Russian industry in terms of determining the permissible values of state indicators and management influences.

References

1. Badalova A.G., Minaev E.S. (2016) *Strategicheskoe upravlenie riskami predpriyatii aviatsionno-promyshlennogo kompleksa* [Strategic risk management of enterprises of the aviation-industrial complex]. Moscow.
2. Bloshenko A.A. (2009) *Tekhnologiya integral'nogo otsenivaniya ustoichivosti finansovo-ekonomicheskogo sostoyaniya predpriyatiya rossiiskoi promyshlennosti. Doct. Dis.* [The technology of integral assessment of the stability of the financial and economic state of the enterprise of the Russian industry]. Moscow.
3. Chebotarev V.S., Golubev S.S. (2010) Economics of Emergencies: Methodological Approach to Assessing the Economic Consequences of Emergencies. In: *Materials of the IV International Scientific and Practical Conference dedicated to the World Civil Defense Day "Civil defense guarding peace and security"*. Moscow.
4. Chebotarev V.S. et al. (2019) Rol' gosudarstva v upravlenii funktsionirovaniem i razvitiem predpriyatii oboronno-

- promyshlennogo kompleksa [The role of the state in the military-industrial complex]. *Ekonomika i predprinimatel'stvo* [Economy and entrepreneurship], 4, pp. 41-45.
5. Danilochkina N.G. (2002) *Kontrolling kak instrument upravleniya predpriyatiem* [Controlling as an enterprise management tool]. Moscow: YuNITI Publ.
 6. Demchenko O.F., Dmitriev O.N., Minaev E.S. (2011) *Metodologiya identifikatsii organizatsionnykh struktur v aviatsionno-promyshlennom komplekse* [Methodology for identifying organizational structures in the aviation industry]. Moscow.
 7. Dmitriev O.N., Novikov S.V. (2019) Concept of State Management Doctrine. *Revista Amazonia Investiga*, 8, 22, pp. 238-246.
 8. Dmitriev O.N., Novikov S.V. (2019) Organizational and economic polystructure of innovative projects implementation. *Amazonia Investiga*, 8(20), pp. 180-187.
 9. Dmitriev O.N. (2005) *Sistemnyi analiz v upravlenii* [System analysis in management]. Moscow.
 10. Dmitriev O.N. et al. (2007) *Strategicheskoe upravlenie aviatsionno-promyshlennoi korporatsiei Rossii* [Strategic management of the industrial-industrial corporation of Russia]. Moscow: KnoRus Publ.
 11. Dubovik M.V. (2011) *Metodologiya formirovaniya strategii upravleniya kontragentskoi konkurentosposobnost'yu promyshlennogo kompleksa goroda na mezourovne* [Methodology for the formation of a strategy for managing the counterparty competitiveness of the city's industrial complex at the meso-level]. Moscow.
 12. Fal'ko S.G., Volochienko V.A., Vasil'ev S.V. (2019) *Kontrolling: podgotovka upravlencheskikh reshenii v real'nom masshtabe vremeni* [Controlling: preparation of management decisions in real time]. Moscow.
 13. Lapenkov V.I. (2001) *Metodologiya upravleniya tekushchei likvidnost'yu proizvodstvennogo predpriyatiya* [Methodology for managing the current liquidity of a manufacturing enterprise]. Moscow.
 14. Moroz O.A. (2008) *Monitoring ustoichivogo razvitiya promyshlennogo predpriyatiya. Doct. Dis.* [Monitoring of sustainable development of an industrial enterprise. Doct. Dis.]. Moscow.
 15. Novikov S.V. (2019) Clusters in modern innovations of the economy of the Russian Federation. *Revista ESPACIOS*, 40, 25, p. 7.
 16. Zolotova V.A., Dmitriev O.N. (2018) Conceptual Interpretation of First and Second Kinds of Errors at Management Mode Selection under Conditions of Its Possible Crisis State. *Russ. Engin. Res.*, 38, pp. 291-294.
 17. Zolotova V., Dmitriev O. (2020) Formalized conceptual rule to interpret crisis state of organizational and economic separation for micro-level and meso-level. *Amazonia Investiga*, 9(25), pp. 327-336.
 18. Zolotova V.A. (2017) *Upravlencheskie problemy i zadachi formirovaniya programmy antikrizisnogo upravlencheskogo innovirovaniya v vysokotekhnologichnoe predpriyatie promyshlennosti Rossii* [Management problems and tasks of forming a program of anti-crisis management implementation in a high-tech enterprise of Russian industry]. Moscow.

Оценка возможностей системы управления промышленными предприятиями России в условиях кризиса нового типа

Золотова Вероника Анатольевна

Кандидат экономических наук,
специалист АО «НТЦ «Атлас»,
старший преподаватель кафедры экономической теории,
Московский авиационный институт
(национальный исследовательский университет),
125993, Российская Федерация, Москва, Волоколамское ш., 4;
e-mail: veragrey@yandex.ru

Аннотация

Российские промышленные предприятия столкнулись с влиянием непредвиденного фактора, приведшего к возникновению кризисной ситуации. Современная нормативно-правовая база неприменима к функционированию во время эпидемии. В результате российские промышленные предприятия имеют программ для автоматического управления

в таких условиях. Большинство систем управления промышленными предприятиями в России переведены на режим «ручного» управления. В статье анализируются первые финансово-экономические данные о деятельности промышленного предприятия в России в условиях ограничений, связанных с распространением коронавирусной инфекции. Оцениваются возможности менеджмента компании по пресечению кризиса и перспективы использования превентивного антикризисного управления. Можно сделать первоначальные выводы о приемлемых результатах функционирования российского промышленного предприятия, послужившего примером, в краткосрочной перспективе управления. Такие результаты были получены в результате применения «ручного» режима управления. Сохранять такой режим управления на будущее нецелесообразно. Для перспективного автоматизированного режима управления целесообразно использовать организационно-экономический механизм специализированного антикризисного управления. Использование такого механизма в первую очередь потребует адаптации в части определения допустимых значений показателей состояния и управленческих воздействий.

Для цитирования в научных исследованиях

Золотова В.А. Assessment of the capabilities of the Russian industrial enterprise management system in a new type of crisis. // Экономика: вчера, сегодня, завтра. 2021. Том 11. № 11А. С. 392-399. DOI: 10.34670/AR.2021.42.83.046

Ключевые слова

Оценка, возможности, промышленное предприятие, система управления, кризис.

Библиография

1. Бадалова А.Г., Минаев Э.С. Стратегическое управление рисками предприятий авиационно-промышленного комплекса. М., 2016. 164 с.
2. Блошенко А.А. Технология интегрального оценивания устойчивости финансово-экономического состояния предприятия российской промышленности: дис. ... канд. экон. наук. М., 2009. 193 с.
3. Данилочкина Н.Г. Контроллинг как инструмент управления предприятием. М.: ЮНИТИ, 2002. 279 с.
4. Демченко О.Ф., Дмитриев О.Н., Минаев Э.С. Методология идентификации организационных структур в авиационно-промышленном комплексе. М., 2011. 466 с.
5. Дмитриев О.Н. Системный анализ в управлении. М., 2005. 211 с.
6. Дмитриев О.Н. и др. Стратегическое управление авиационно-промышленной корпорацией России. М.: КноРус, 2007. 565 с.
7. Дубовик М.В. Методология формирования стратегии управления контрагентской конкурентоспособностью промышленного комплекса города на мезоуровне. М., 2011. 563 с.
8. Золотова В.А. Управленческие проблемы и задачи формирования программы антикризисного управленческого инновирования в высокотехнологичное предприятие промышленности России. М., 2017. 212 с.
9. Лапенков В.И. Методология управления текущей ликвидностью производственного предприятия. М., 2001. 144 с.
10. Мороз О.А. Мониторинг устойчивого развития промышленного предприятия: дис. ... канд. экон. наук. М., 2008. 227 с.
11. Фалько С.Г., Волочиенко В.А., Васильев С.В. Контроллинг: подготовка управленческих решений в реальном масштабе времени. М., 2019. 200 с.
12. Чеботарев В.С. и др. Роль государства в управлении функционированием и развитием предприятий оборонно-промышленного комплекса // Экономика и предпринимательство. 2019. № 4. С. 41-45.
13. Chebotarev V.S., Golubev S.S. Economics of Emergencies: Methodological Approach to Assessing the Economic Consequences of Emergencies // Materials of the IV International Scientific and Practical Conference dedicated to the World Civil Defense Day "Civil defense guarding peace and security". Moscow, 2020.
14. Dmitriev O.N., Novikov S.V. Concept of State Management Doctrine // Revista Amazonia Investiga. 2019. Vol 8. № 22. P. 238-246.

-
15. Dmitriev O.N., Novikov S.V. Organizational and economic polystructure of innovative projects implementation // Amazonia Investiga. 2019. 8(20). P. 180-187.
 16. Novikov S.V. Clusters in modern innovations of the economy of the Russian Federation // Revista ESPACIOS. 2019. Vol. 40. № 25. P. 7.
 17. Zolotova V.A., Dmitriev O.N. Conceptual Interpretation of First and Second Kinds of Errors at Management Mode Selection under Conditions of Its Possible Crisis State // Russ. Engin. Res. 2018. 38. P. 291-294.
 18. Zolotova V., Dmitriev O. Formalized conceptual rule to interpret crisis state of organizational and economic separation for micro-level and meso-level // Amazonia Investiga. 2020. 9(25). P. 327-336.