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ANTICIPATORY CONCEPT OF UKRAINIAN TRANSPORT SECTOR ENTERPRISES MANAGEMENT

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Abstract. The article studies the main points of the anticipatory concept of transport enterprises management; explains the necessity of creating a specific targeted subsystem, the subsystem of anti-crisis management; defines the connection between the anti-crisis management of transport sector enterprises and key areas of enterprise management; develops the algorithm for implementation of the anticipatory anti-crisis management at transport enterprises; investigates the sequence of implementing the early warning and response system at Ukrainian transport sector enterprises.

Keywords: anticipatory concept; enterprise management; Ukrainian transport sector; anti-crisis management; risk management; early warning and response system.

Introduction

Current economic crisis in Ukraine has brought to the fore the problem of formation and development of anti-crisis management both at the state and the enterprise level. Mainly low-level management, particularly the absence of anti-crisis management, caused financial crisis at many Ukrainian transport sector enterprises. Leading transport companies of Western Europe, USA, Japan and other developed countries have quite effective anti-crisis management systems. The presence of the crisis at the enterprise level adversely affects the welfare of the population, employees and partners, as well as the state.

Under these conditions, management at the Ukrainian transport sector enterprises should be anti-crisis-oriented or rather consider the risks and hazards of crises. It is offered to identify the following subtypes of anti-crisis management: pre-crisis management aimed at timely problem detection and solving (decision-making) in order to prevent a crisis; management in crisis conditions aimed at stabilizing unstable states and preserving systems manageability; crisis recovery management aimed at minimizing losses and missed opportunities occurred while steering the company out of crisis.

Methods of Studying the Anticipatory Concept of Ukrainian Transport Sector Enterprises Management

The anticipatory concept of transport enterprises management prevails in determining the main points of

anti-crisis management by leading economists, who determine this term as the system of management activities and solutions aimed at diagnosing, preventing, neutralizing and overcoming crises and their causes. These activities may help to prevent crises in production and business activities; and in case of crisis occurrence, to mitigate its effects, maintain an enterprise business the survival mode and steer the enterprise out of crisis with minimal losses. The anti-crisis management process is cyclical. It comprises the following stages: internal and external environment monitoring; diagnosing the state of the enterprise; planning (developing an anti-crisis policy); making anti-crisis management decisions; ensuring implementation of those decisions; motivating implementation of decisions; recording the results; monitoring implementation of decisions.

We believe the argument that anti-crisis management activities should be carried out only when there are problems in enterprise operations is incorrect. However, there are other concepts. In particular Negashev defines the anti-crisis management as managing enterprises in a state close to changing its structural quality, which should be considered in a broad and narrow sense. In a broad sense, the anti-crisis management means general enterprise management activity aimed at ensuring transition of the enterprise from the imbalanced state into the balanced one. Such management is characterized by extremely high degree of uncertainty of the enterprise's internal and external environments. In a narrow sense, the anti-crisis management means short-term management actions

across the organization or one of its units, which is in a transition state or tends to change its quality.

Study of the Subsystem of Anti-Crisis Management of Ukrainian Transport Sector Enterprises

The theory and practice of anti-crisis management substantiated the creation of a specific target subsystem, the anti-crisis management subsystem, which is a temporary or permanent enterprises management subsystem designed for targeted planning; organizing and institutionalization of actions and resources; motivating effective anti-crisis activities and supervision that are essential for preventive crisis and post-crisis activities aimed at minimizing the impact of crises and connected losses. Anti-crisis management of the transport sector enterprises is closely connected with other functional areas of enterprise management; it complements them and improves the operational and developmental stability (Fig. 1) (Герашев 2014).

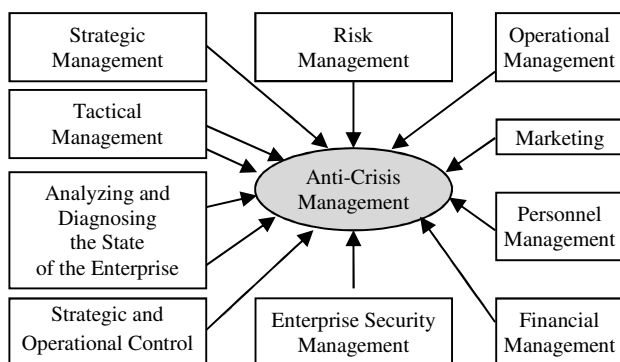


Fig. 1. Connection between the anti-crisis management of transport sector enterprises and key areas of enterprise management

Since many Ukrainian transport sector enterprises are in a crisis or pre-crisis state, the system of anti-crisis management should focus on their financial and production rehabilitation, as well as optimal development. Anti-crisis management activities should be carried out step-by-step. Rapid restoration of business's solvency and sufficient level of enterprise financial stability in order to avoid bankruptcy is the main purpose of financial anti-crisis management (Ивасенко 2016).

Most successful transport enterprises focus on anticipatory management, when the management actions precede occurrence of problems, rather than on reactive management, when the crises are being addressed only after they are completely manifested. Timely problem recognition is a permanent characteristic of successful enterprise management, the lack of which makes it impossible to implement the principle of continuous improvement of organizational and production system.

Mechanism of Anticipatory Anti-Crisis Management Implementation at Transport Enterprises

Effectively developed anticipatory anti-crisis management system notifies the management of potential

threats and risks for the enterprise, as well as of additional opportunities to increase the efficiency of financial and economic activities. Anticipatory anti-crisis management is a part of the anti-crisis management and is aimed at preventing crises and reacting to the occurrence of a financial crisis. Practically, it is advisable to implement anticipatory anti-crisis management in six stages (Fig. 2) (Арутюнов 2016).

However, when the diagnostics shows that there are signs of crisis situation development at the transport enterprise, there is an urgent need for the use of reactive management measures. After the diagnostics of crisis and bankruptcy risk, it is possible to determine the depth of the crisis, as well as the goal and objectives of the anti-crisis management.

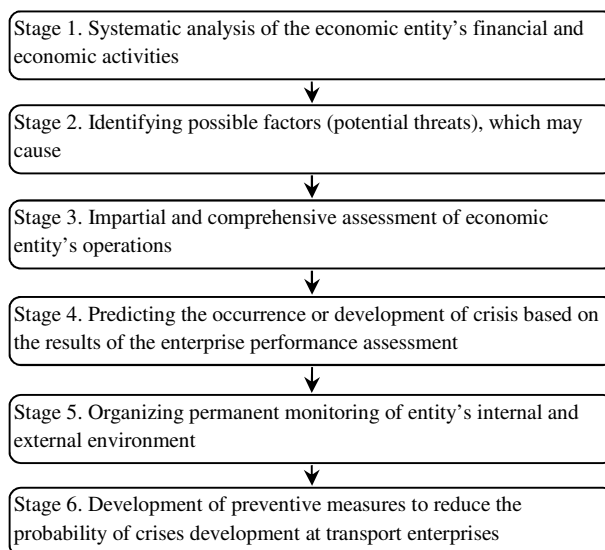


Fig. 2. Algorithm for Anticipatory Anti-Crisis Management Implementation at Transport Businesses

Early Warning and Response System Development at the Ukrainian Transport Sector Enterprises

Crisis-free operation of business entities in an uncertain market situation requires immediate response from the management in case of any adverse symptoms in their financial condition. For this purpose, it is advisable to have a bank of preventive measures that can prevent or alleviate crisis, and mobilize all available resources. Such measures may include innovative reforms; skilful strategic and financial management; factoring; development of an effective transport enterprise management system; introduction of advanced standards, regulations, resource-saving technologies, the use of recycled materials; continuous training of employees of the company; restructuring of the business; improvement of product competitiveness; development of methods for diagnosing operations; inventory management system that requires minimum working capital; adoption of good practices; development of forms of economic cooperation in the business world; reducing the production cycle; and computerizing the business (Гуцьков 2016).

Recently, many business entities have faced a problem of ineffective risk management, which may result in the occurrence of crises in future. Therefore, to ensure early identification of factors that indicate the dynamics of individual parameters of the Ukrainian transport sector business, it is advisable to adopt an early warning and response system, which is a special information system that notifies the enterprise management of potential threats and risks, as well as of additional opportunities to increase the efficiency of financial and economic activities. Main stages of organizing early warning and response system are given in the Fig. 3 (Кульчий 2016).

In case if there is a bankruptcy risk, the system of financial protection mechanisms will depend on the scale of the crisis. For example, in case of a minor financial crisis, it will be enough to normalize the current financial condition, balance and synchronize cash inflow and outflow. A deep financial crisis requires the use of all the external and internal financial stabilization mechanisms. A complete financial disaster assumes searching for effective forms of rehabilitation (Глебова 2015). Internal mechanisms of financial stabilization of a transport enterprise primarily should be aimed at restoring its solvency.

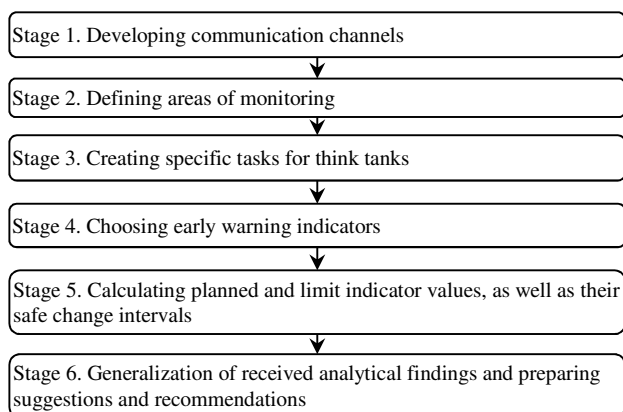


Fig. 3. Sequence of the Early Warning and Response System Implementation at Ukrainian Transport Sector Enterprises

The use of cognitive approach for semistructured economic systems modelling

Interrelatedness of problem situations in enterprises necessitates the development of complex, multi-level models, development of which is quite time-consuming process. The effective method of overcoming these difficulties is using cognitive models.

The pre-condition to apply the cognitive approach in enterprise management is the complexity of analysis of processes and managerial decisions' making. In management performance it is required to use the methodology considering the variability of the environment and enabling forecasts of problem situation's occurrence, taking measures to reduce the level of risk and uncertainty. In cognitive analysis and modelling technologies' basis there are methods of cognitive structuring of knowledge about the subject (Bryman 2003).

The analysis of the complex social and economic systems' functioning, development of strategies for their sustainable improvement and assessment of the impact of managerial decisions it is reasonable to perform using methods, models and mechanisms of economic diagnostics such as cognitive technology, which involves modern technologies of system analysis enabling experts' knowledge structuring, formalizing the processes of qualitative and quantitative modelling of complex systems' (e. g. social and economic system) behavior. Cognitive modelling's technology is a modern informational technology of system analysis including methods of expert assessment, methods of set-theoretic and statistical description of the object, methods of graph theory, decision making theory, stability theory and methods of scenario modelling on cognitive charts.

This system type includes systems, which parameters and laws of behavior are described mainly on a qualitative level, and changes of system parameters may result into unpredictable changes in its structure (Roux-Dufort 2013). Thus, modelling of such systems and their management using traditional approaches based on analytical description or statistical surveying of dependencies between the input and output parameters is complicated and often impossible. Therefore it is necessary to access the subjective models based on information obtained from experts and processed base on thinking, intuition and heuristics.

The economic system are featured with a large number of elements, relations between them and the external environment, presence of various uncertainties including the deficit of complete information on the mechanism of their functioning, inaccuracy of quantitative and qualitative appraisals, uneven development. Therefore, considering the problem of forecasting of complex systems' development and their management these systems are usually defined as semistructured. Simultaneously the need to study processes in complex systems requires clear scientific and research methodology. Integration processes in science and up-to date tendency of interdisciplinary approach determine necessity of integral methodological system's development. In recent years there appeared a number of theoretical and practical studies based on the cognitive approach (Erickson 2015).

Cognitive analysis and modelling are essentially new elements in the structure of systems supporting decision making. Today there is sufficient number of projects developed in different operating areas based on cognitive technologies. Using cognitive technologies in the economic area enables prompt development and justifying of economic development strategy for a company considering changes of the external environment. Using cognitive modelling technology allows feed-forward control, preventing potentially dangerous situations' transformation into threatening and conflict, and when they occur, to make substantiated decisions.

For semistructured economic systems modelling it is appropriate to apply to the cognitive approach aimed to enhance the intellectual processes of a person, who makes decisions, and support him/her in fixing his / her vision of the problem situation in a formal model. Cognitive chart

of situation is such a formal model. Multifaceted process, their interrelationship disabling detailed study of certain issues and requiring their analysis in the aggregate, lack of sufficient quantitative information about the dynamics of processes resulting in switching to qualitative analysis, and variability of the processes' nature in the course of time are the preconditions for cognitive approach application to complex economic systems.

Reasonable alternative to the traditional approach in this situation may be cognitive modelling as a set of methods for obtaining, analyzing subjective expert judgments of the processes of semistructured situations' functioning and methods of management strategies for such situations.

Technology of cognitive analysis of economic systems enables direct including of cognitive theory models and methods into the process of development and decision making on system's management; it provides new opportunities for studying the processes in the given system in case of uncertainty and risk inhering in the system's functioning (Pinnington 2007). Using the technology of cognitive modelling in the study of economic systems requires the following conditions:

- ensure the collection of data necessary and sufficient for development of the structure of cognitive model, with experts involved;
- selection of key concepts (parameters), both quantitatively and qualitatively specifying the subject of a study in the subject area;
- definition of relations and connections between the defined key concepts, as well as vectors of parameters specifying the subject of a study;
- ensuring the development of the structure of the cognitive model based on one of the formal (informal) data and knowledge specifying models;
- analysis of relations and correlation dependencies between the selected concepts (parameters);
- sets of parameters should not be contradictory, and the resulting structure of the cognitive model shall meet the purposes, requirements and restrictions developed with respect to the subject of a study;
- implementation of the practical use of the cognitive model, filling the resulting structure with the parameter values;

References

- Bryman, A. E. 2003. *Business research methods*. Oxford Press Publishers: Oxford. 786 p.
- Erickson, P. A. 2015. *The World the Game theorists Made*. Burlington, MA: Elsevier, Inc. 345 p.
- Groom, S. A.; Fritz, J. H. 2011. *Communication ethics and crisis: Negotiating differences in public and private spheres*. Madison, New Jersey: Fairleigh Dickinson University Press. 217 p.
- Mitroff, I. I. 2005. *Why Some Companies Emerge Stronger And Better From a Crisis: Seven Essential Lessons For Surviving Disaster*. New York: AMACOM. 180 p.
- Pinnington, A. H. 2007. *Human Resource Management*. Oxford University Press. 347 p.
- Roux-Dufort, C. 2013. Editorial Exploring the Theoretical Foundations of Crisis Management, *Journal of Contingencies and Crisis Management* 21: 1–3.
- Ulmer, R. R.; Sellnow, T. L.; Seeger, M. W. 2006. *Effective crisis communication: Moving from crisis to opportunity*. Thousand Oaks, CA: Sage Publications. 230 p.

- accumulation of information about the subject of research as an integrated system and its elements, the analysis of the adequacy and interaction parameters describing dynamics of the subject's functioning;

- processing of aposterior statistical data of modelling and developing conclusions about the effectiveness of the subject of a study generally and particularly;

- formulation of objective conclusions based on data obtained from various subject areas' perspective;

- definition of tasks on cognitive model's structure improvement considering the results of subject interpretation and study of dynamics of researched situation.

Conclusions

The financial stabilization can be achieved only if the transport enterprise has ensured continued financial stability. Therefore, a strategic mechanism of protective measures must be designed to support the long-term financial stability of the transport enterprise.

Currently, insufficient attention is paid to early recognition of crisis situations. Business entities begin to take any measures only when they are already in the crisis. Taking into consideration the above, there is a need to address an issue of forming the anti-crisis management system at the Ukrainian transport sector enterprises with the application of anticipatory management concept.

To overcome the crisis it is necessary to combine forces and resources within the enterprise, as well as to engage partners and other groups that have interest in the enterprise operation, including foreign shareholders and local authorities in anti-crisis activities. The practice of anti-crisis activities has proved that it is needed to involve consultants, who will help to study the causes of the crisis and justify alternative anti-crisis activities.

Lack of timely response and adequate measures to influence the development of the crisis may cause disastrous consequences when the crisis becomes inevitable. The ideology of crisis management is based on active behaviour in the crisis, i.e., on the viewpoint that the crisis is manageable and there is a need and the ability to change the course of the crisis at transport enterprises.

- Арутюнов, Ю. А. 2016. *Антикризисное управление: учебник* [Arutunov, U. A. Anti-Crisis Management]. М.: ЮНИТИ. 416 с.
- Глебова, А. О. 2015. Формування системи антикризового управління на підприємстві, *Молодий вчений* 11(26): 35–40.
- Гуськов, Ю. С. 2016. *Основы менеджмента: учебник* [Guskov, U. S. Fundamentals of Management]. К.: Цифра-М. 264 с.
- Ивасенко, Я. И. 2016. *Антикризисное управление: учебное пособие* [Ivasenko Y. I. Crisis management]. М.: КНОРУС. 504 с.
- Кульчій, І. О. 2016. *Антикризове управління: навчальний посібник* [Kulchij, I. O. Anti-Crisis Management]. Полтава: ПолтНТУ. 120 с.
- Негашев, Е. В. 2014. *Аналитическое моделирование финансового состояния компании: монография*. [Negashev, E. V. Analytical modeling of a financial condition of the company]. М.: ИНФРА-М. 186 с.