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## MANAGEMENT OF ORGANISATION IN CONDITIONS OF UNCERTAINTY

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In the modern market, Ukrainian enterprises are faced with a relatively high uncertainty in the external environment caused by a complex of macroeconomic, sectorial, political and other factors. Effective organization management in modern conditions is focused on innovation management, and, as you know, any change introduces a risk to the organization's activities. To minimize possible losses in the course of organizational changes, the reformation risks that may affect the quality of products and services provided must be identified and assessed. For the most effective result, all possible threats to the organization must be taken into account when designing and implementing the general management system of the company. Uncertainty is an objective phenomenon, which, on the one hand, is a component of both the external and internal environment of any organization, on the other hand, it is the cause of the constant "headache" of any manager. The complete elimination of uncertainty, that is, the creation of unambiguous conditions for the flow of business is as desirable for each entrepreneur as it is impossible.

The first to investigate the problem of uncertainty in the framework of economic theory was the American economist Frank Knight (1885-1974). One of the innovations proposed by the scientist is the distinction between the concepts of "uncertainty" and "risk". The risk arises in a situation when all possible outcomes of events and the probability of their occurrence are known, i.e. risk is a probability assessed in any way. Uncertainty is understood as the case when the probability of the occurrence of an event cannot be established. Thus, in the study of risk and uncertainty, the concept of "probability" is of key importance (Knight & Frank, 2012).

Uncertainty can be assessed in different ways:

1. In the form of probability distributions (the distribution of the random variable is known exactly, but it is not known what specific value the random variable will take).

2. In the form of subjective probabilities (the distribution of random variables is unknown, but the probabilities of individual events, determined by an expert method, are known).

3. In the form of interval uncertainty (the distribution of a random variable is unknown, but it is known that it can take any value in a certain interval).

4. In addition, it is known that the nature of uncertainty is shaped by various factors.

5. Temporal uncertainty is due to the fact that it is impossible to predict the

significance of one factor or another in the future with an accuracy of one.

6. The uncertainty of the exact values of the parameters of the market system can be characterized as the uncertainty of the market situation (the ratio of supply and demand).

7. The unpredictability of the behavior of participants in a situation of detection of a conflict of interest also generates uncertainty, etc. (Constantoglou, 2020; Obeid et al., 2020).

Kravchenko T.K., Babkin A.E. and Golov N.I. Uncertainty is classified according to its origins and its nature (Kravchenko et al., 2012).

1) According to the source of uncertainty, the following factors are distinguished.

- Uncertainty of the environment may arise due to a lack of information about the state of the internal or external environment of the organization of the decision maker, about the phenomena in respect of which the decision should be implemented due to the actions of other economic agents.

- Personal uncertainty arises in the event of contradictions in the actions of a decision-maker. It may be due to the fact that different people perceive different phenomena differently or have discrepancies in the formulation of goals and objectives. As a result, decisions made can be unclear and ambiguous.

2) The second classification given by the authors mentioned above is based on the nature of uncertainty. On the basis of the nature of uncertainty, probabilistic uncertainty and uncertainty of confidence are distinguished.

When conducting a risk analysis, uncertainty negatively affects the reliability of the results obtained and the validity of the resulting conclusions and decisions. Because of this, the effectiveness of measures to protect and manage risk decreases, and the total costs of organizations operating in conditions of uncertainty increase (Thomas, 2020).

Evaluation of the effectiveness of managerial decisions is one of the most crucial stages in the implementation of a number of strategic objectives that are characteristic of the stage of implementation of the organization's strategy. The validity of the decision made directly depends on how objectively and comprehensively this assessment is carried out. The assessment of the effectiveness of a management decision is based on a system of indicators that measure the effect obtained from the implementation of the decision with its costs. The key issue is the impossibility of expressing uncertainty in a numerical indicator, but the following methods can be applied to analyze situations associated with uncertainty.

- Scenario analysis. This method is used for the strategic management of processes with a high level of uncertainty. The scenario analysis should provide a set of detailed descriptions of the sequence of events that, with a predicted probability, can lead to the desired or planned end state or to possible outcomes, given the scenarios of development. Three development options are often developed:

optimistic, pessimistic, and medium-probability. The optimistic and pessimistic variants should, as it were, form a trajectory tube, within which the real variant is located (Halil et al., 2020; Leśniewski, 2019).

One, the most probable scenario, is usually considered as the baseline, on the basis of which decisions on the choice of a development strategy are made. Others, considered as alternative ones, are launched into implementation if reality begins to correspond to their content to a greater extent, and not to the basic version of the scenario.

- A decision tree is a method that is used to make decisions under conditions of uncertainty and risk. This method is used when you need to make a series of sequential decisions. A decision tree is a graphical method that allows you to coordinate the elements of decision making, probable strategies, their consequences with probabilistic conditions and environmental factors of influence.

The construction of the decision tree begins with the earliest decision, then the possible results and consequences of each of the actions (events) are developed, after that the choice of the direction of action is again determined (a decision is made) and so on until all the consequences of the decision results are determined (Greenwood & White, 2006).

The decision tree is based on 5 consecutive elements:

- 1) The moment of making a decision;
- 2) Point of occurrence of the event;
- 3) The relationship between decisions and events;
- 4) The probability of the occurrence of the event;
- 5) Expected value (consequences) - a quantitative expression of each alternative located at the end of the branch.

The most effective solution for analyzing risks and uncertainty is the use of methods in a complex, which will minimize the influence of inaccuracies characteristic of each of them, and in the analysis process it is necessary to take into account the influence of as many factors as possible. The most comprehensive detailed analysis in conditions of a large number of influencing factors will increase the efficiency and competitiveness of enterprises and avoid financial losses.

## References

Berzin, P., Shyshkina, O., Kuzmenko, O., & Yarovenko, H. (2018). Innovations in the Risk Management of the Business Activity of Economic Agents. *Marketing and Management of Innovations*, 4, 221-233. <http://doi.org/10.21272/mmi.2018.4-20>

Brown, E., Kasztelnik, K.(2020). The Observational Microeconomics Study of the Phenomenon of Entrepreneur Resilience and Collaborative Innovative Financial Leadership in the United States. *Financial Markets, Institutions and Risks*,

4(3), 24-41. [https://doi.org/10.21272/fmir.4\(3\).24-41.2020](https://doi.org/10.21272/fmir.4(3).24-41.2020)

Chygryn, O. Y., & Krasniak, V. S. (2015). Theoretical and applied aspects of the development of environmental investment in Ukraine. *Marketing and management of innovations*, (3), 226-234.

Constantoglou, M. (2020). Destination Management in Lesvos, Greece. Characteristics, Preferences, Images, Satisfaction and Overall Experience. *Business Ethics and Leadership*, 4(3), 81-106. [https://doi.org/10.21272/bel.4\(3\).81-106.2020](https://doi.org/10.21272/bel.4(3).81-106.2020)

Dave, H. (2019). The X-ray report of “Economic growth”. *Financial Markets, Institutions and Risks*, 3(4), 89-93. [http://doi.org/10.21272/fmir.3\(4\).89-93.2019](http://doi.org/10.21272/fmir.3(4).89-93.2019).

Dkhili, H. (2018). Environmental performance and institutions quality: evidence from developed and developing countries. *Marketing and Management of Innovations*, (3), 333-344. <http://doi.org/10.21272/mmi.2018.3-30>

Greenwood R., White L. (2006). *Decision trees*. Harvard business school.

Halil D. Kaya, Julia S. Kwok (2020). An Application Of Stock-Trak In ‘Investments’: What Common Mistakes Do Students Make While Studying Socioeconomic Processes? *SocioEconomic Challenges*, 4(1), 5-16. [http://doi.org/10.21272/sec.4\(1\).5-16.2020](http://doi.org/10.21272/sec.4(1).5-16.2020).

Kasztelnik, K. Gaines, V. W. (2019). Correlational Study: Internal Auditing and Management Control Environment Innovation within Public Sector in the United States. *Financial Markets, Institutions and Risks*, 3(4), 5-15. [http://doi.org/10.21272/fmir.3\(4\).5-15.2019](http://doi.org/10.21272/fmir.3(4).5-15.2019).

Knight, Frank H. (2012) *Risk, Uncertainty, and Profit*. Houghton Mifflin Company. 330.

Kravchenko T.K., Babkin A.E., Golov N.I. (2011) Types of uncertainty in the process of making economic decisions. *Topical issues of modern science: collection of scientific papers 20*. 255–262

Kulagovskaya T.A. (2014). Management of logistics risks of industrial enterprises. *Economics, Management and Investment*, 1 (3).

Leśniewski, M.A. (2019). Humanistic – Behavioral – Cultural Competitive Advantage of the Enterprises – Concept Models. *Business Ethics and Leadership*, 3(1), 34-43. [http://doi.org/10.21272/bel.3\(1\).34-43.2019](http://doi.org/10.21272/bel.3(1).34-43.2019)

Lopez, B.S., Alcaide, A.V. (2020). Blockchain, AI and IoT to Improve Governance, Financial Management and Control of Crisis: Case Study COVID-19. *SocioEconomic Challenges*, 4(2), 78-89. [https://doi.org/10.21272/sec.4\(2\).78-89.2020](https://doi.org/10.21272/sec.4(2).78-89.2020).

Obeid, H., Hillani, F, Fakh, R., Mozannar, K.(2020). Artificial Intelligence: Serving American Security and Chinese Ambitions. *Financial Markets, Institutions and Risks*, 4(3), 42-52. [https://doi.org/10.21272/fmir.4\(3\).42-52.2020](https://doi.org/10.21272/fmir.4(3).42-52.2020)

Pukala, R., Sira, E., & Vavrek, R. (2018). Risk management and financing among Start-ups. *Marketing and Management of Innovations*, (3), 153-161. <http://doi.org/10.21272/mmi.2018.3-13>

Shkarupa, O. (2020). Monograph review: Tetyana Pimonenko (2020). Marketing and Management of Green Investment: Theoretical Foundations, Current Challenges and Development Prospects. *SocioEconomic Challenges*, 4(2), 108-109. [https://doi.org/10.21272/sec.4\(2\).108-109.2020](https://doi.org/10.21272/sec.4(2).108-109.2020).

Smith, M. (2018). A Real Options Approach To Evaluating Agricultural Investments Under Uncertainty: When To Get In And Out Of Sugarcane Production. *SocioEconomic Challenges*, 2(1), 21-34. DOI: 10.21272/sec.2(1).21-34.2018

T. Bachoo, N. S. M. Ahmad. (2018). Exploring the Organizational Benefits and Implementation Challenges of Preparing an Integrated Report in Mauritius. *Financial Markets, Institutions and Risks*, 2(4), 101-109. DOI: [http://doi.org/10.21272/fmir.2\(4\).101-109.2018](http://doi.org/10.21272/fmir.2(4).101-109.2018)

Thomas, G. (2020). Leadership Models and Leadership Styles as Success Factors in Small and Medium-sized Enterprises. *Business Ethics and Leadership*, 4(1), 35-42. [http://doi.org/10.21272/bel.4\(1\).35-42.2020](http://doi.org/10.21272/bel.4(1).35-42.2020)

Tkachenko, V., Kwilinski, A., Tkachenko, I., & Puzyrova, P. (2019). Theoretical and Methodical Approaches to the Definition of Marketing Risks Management Concept at Industrial Enterprises. *Marketing and Management of Innovations*, 2, 228-238. <http://doi.org/10.21272/mmi.2019.2-20>

Tran, C. T. H., Tran, H. T. M., Nguyen, H. T. N., Mach, D.N., Phan, H. S. P., Mujtaba, B. G. (2020). Stress Management in the Modern Workplace and the Role of Human Resource Professionals. *Business Ethics and Leadership*, 4(2), 26-40. [https://doi.org/10.21272/bel.4\(2\).26-40.2020](https://doi.org/10.21272/bel.4(2).26-40.2020)

Trifu, A. (2019). The Leadership's Fairness and Social Skills – the Very Foundation of the Management and Functionality of an Entity. *Business Ethics and Leadership*, 3(3), 19-24. [http://doi.org/10.21272/bel.3\(3\).19-24.2019](http://doi.org/10.21272/bel.3(3).19-24.2019)

Zwerenz, D. (2020). Performance Incentives To Increase Motivation; Potentials Of Meaningful Activities In Project Management. *SocioEconomic Challenges*, 4(4), 95-118. [https://doi.org/10.21272/sec.4\(4\).95-118.2020](https://doi.org/10.21272/sec.4(4).95-118.2020)