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IMPROVEMENT OF THE CONCEPTUAL APPARATUS OF SCIENCE AND CULTURE RISK MANAGEMENT

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Abstract

Research objectives are to distinguish the pragmatic and cultural aspects of the concepts of "risk management" and "risk level control". Design/methodology/approach – The paper builds upon the operational theory of risk level control. The tools needed to describe the risk management culture complement this theory. Findings – Based on operational theory of risk level control, differences between the concepts of "risk management" and "risk level control" are identified in the activities of socio-economic ecosystems. In relation to the culture of risk management, this difference is highlighted at the level of stable forms of human activity, without which it can not be reproduced, and therefore-to exist. The contribution of the operational theory of risk level control to the explanation of these differences is determined at the level of characteristics of these concepts. Limitations - The paper does not provide step-by-step algorithms for assessing the culture of risk management in socio-economic systems. Originality/value – The paper considers the phenomenon of risk in the ontological space as an artificial entity in the activity of socio-economic ecosystems. This phenomenon can be seen as a specific form of social communication associated with the desire to calculate uncertain future in the present time. The analysis of this phenomenon is performed in combination with the main provisions of the operational theory of risk level control.

Keywords: Risk management, risk level control, phenomenon of risk, of socio-economic ecosystems, economic risk factors,

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1. Introduction

The words “risk”, “safety”, and “security” are frequent in ordinary language, for example, in media reporting (Boholm, Möller, & Hansson, 2016). Ideas about risk management can look complex and ambiguously, seemingly unrelated to life in the social world. “The risk society" term reviews the ways in which business is organised around responses to the risks introduced by modernisation of society (Beck, 1992; Kerr & Cunningham-Burley, 2000), and how the public have responded to risk events (Fellenor et al., 2020). Specialists can made recommendations for improving process in order to mitigate perceptions of risk, and first step is clearly stated purposes of activity (La Brooy, Pratt, & Kelaher, 2019). Thus risk is understood as a generalizing category, reflecting not only a deviation from the goals of the economic agent or the socio-economic ecosystem, but also all the undesirable consequences of such a deviation from the goals (Kachalov, 2012). Risk factors for an economic agent's activity can be stable mental characteristics, the specifics of traditional culture, and cultural transformation processes. In order to achieve the set goals, the role of systematic activities to identify risk factors is increasing (Zio, 2018). Identification of a risk factor is about activities aimed at identifying the possibility of implementing adverse events, changes in the conditions of functioning of socio-economic ecosystems, and making incorrect management decisions that can lead to losses or damage. One obvious type of occasion in which risk factors become relevant in practice arises when their identification rest on empirical opinions of enterprise managers that are supported by their own experience or accumulated scientific knowledge (Wangen, Hallstensen, & Snekkenes, 2018).

In order to accomplish goals of activity, it is desirable to develop anti-risk managerial impacts aimed at reducing the possibility of losses in the implementation of the risk situation. Anti-risk managerial impacts distinguishes itself from other managerial decisions in terms of its holistic nature (Aven, 2016).

The use of international risk management standards in Russian practice is preferable since the Russian market is still very young. Therefore, the study of the experience of mature markets seems important for predicting possible problems in the activities of enterprises using all possible optimization tools.

2. Problem Statement

Risk level control is maintaining a level of risk acceptable to the director or owners of the enterprise. Risk management includes the entire range of anti-risk managerial impacts at the enterprise and the established culture of risk management. As a rule, the structure and list of anti-risk managerial impacts formed after determining an acceptable level of risk for the head of the enterprise or organization in socio-economic ecosystem. The hypothesis of this study is that the reasons for the gap between the director's expectations for achieving an acceptable level of risk and the volume of anti-risk managerial impacts are complicated and varied in communication disorders at the enterprise or socio-economic ecosystem level.

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3. Research Questions

Can enterprise implement risk management informal practices aimed at reducing the possibility of undesirable consequences? Does this depend on enterprise's communication policy?

4. Purpose of the Study

The purpose of this work is to distinguish the pragmatic and cultural aspects of the concepts of "risk management" and "risk level control".

5. Research Methods

Operational theory of risk management offered a complete and self-sufficient set of operational characteristics of risk in the enterprise's activities: risk factors, risk level, risk level indicators and anti-risk managerial impacts. Based on the application of this set of operational characteristics of the risk phenomenon, applied methods of enterprise management developed and this has significantly enriched the culture of risk management.

Some recommendations for the modernization of the enterprise's organizational culture can formulated as follows:

- Managers of enterprises should promote the wider application of insurance contracts in the practice of enterprises in accordance with the current legislation.
- Enterprises should introduce such type of activity as risk management as a mandatory part of the strategic management system and coordinated operational management in the regulatory acts and guidelines. This activity includes the preparation and updating of the risk factor register, the development of a range of anti-risk managerial impacts, and the internal control system at the enterprise.
- The enterprise's manager should consider the concept of risk management a mandatory part of the organizational culture. In accordance with this concept, management should form the business processes of the enterprise, as well as create a system for monitoring the level of risk in the enterprise, train staff to work in conditions of risk factors, etc.
- Managers should use of digital technologies when identifying current risk factors, developing ways to select adequate risk level indicators, and determining methods for evaluating them in real time.

6. Findings

Managing the level of risk within the framework of codified norms, such as the existing corpus of texts of Russian laws, bylaws, etc., implies regular implementation of prescribed procedures. At the same time, international risk management standards are set out in a form that is referred to as guidelines. The difference is in the modality of the proposed rules.

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6.1. The identification of risk factors

In the operational theory of risk management, such a procedure as identification of risk factors is highlighted. The main methods of identifying economic risk factors include expert assessment; questionnaires; drawing up structural or time charts; building maps of cash and technological flows; analysis of financial and economic activities and relevant reports of the enterprise.

1. Expert assessment is used in the scenario method of identifying risk factors and when using the Delphi method (for examples, Hartl & Hess, 2017). It assumed that the specialists involved are well aware of the main aspects related to the causes of risks. They form an expert group that interaction relies on inferences to a high degree (Deppermann, 2018). The basis of the experts ' work will be information that has both qualitative and quantitative characteristics. For this purpose, data is collected, systematized and analysed, conclusions and forecasts made. Thus, primary information allocated, the reliability of which is not in doubt, and the expert group should get free access to it, while the collected information may differ in fragmentary nature, lack of processing and systematization.

2. When using the scenario method, the group of experts draws up a possible scenario for the development of the enterprise, formulates both specially prepared and questions that arise during the discussion and knowledge co-construction (Balaman & Sert, 2017). Questions and answers summarized in a common table that allows you to visualize the results. Based on the processed information, the experts give an opinion on the identified risk factors for achieving the enterprise's goal.

3. When choosing the Delphi method, experts are isolated, that is, they do not enter into personal contact, are asked a set of questions about a specific problem. The survey procedure conducted in several rounds, with the results of the survey processed at each round and the experts notified of these results. In practice, three or four rounds of surveys conducted.

At the first stage, experts are not required to justify their responses. The questionnaires processed with the purpose of allocation of middle and extreme views. This information brought to the attention of specialists who take part in the survey. Then a second round held, during which they can review and adjust their responses given in the first round. At this stage, the experts must justify their decision. The new average and extreme opinions received after the second round, as well as all the arguments with anonymity, are reported to the experts and the third stage of the survey is conducted, during which the experts again review and explain their answers. Subsequent tours are similar. When the experts ' responses stop changing significantly, the survey ends. This procedure allows experts to take into account circumstances that they have neglected or were not aware. Questions for the questionnaire formulated in a form that requires both quantitative and qualitative assessments.

4. Filling out special questionnaires by key departments allows you to identify risk factors and potential consequences of a possible management decision (Sidnell, 2017). Questionnaires are anonymous. Universal questionnaires used in almost any enterprise. Specialized questionnaires are contain an extended list of questions related to the activities of this enterprise. Professionally posed questions in the questionnaire can help get information from an employee who is not associated with risk management. There may be risk factors outside the survey that are significant for the department where the employee works.

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5. When building time diagrams, for example, based on the life cycle model (Adizes, Cudanov, & Rodic, 2017), the enterprise will have different main sets of threats and weaknesses, depending on the stage of the life cycle. These details are important to consider when implementing an innovation project. The life cycle of an enterprise related to the life cycle of the implemented innovations. Some innovations may correspond to the current state of the enterprise or contradict it.

6. The method of structural diagrams used to analyse the characteristics of the enterprise and the resulting risk factors. To do this, we consider the type of management, the size of the enterprise, and the legal form. The principle of separation of powers and functional responsibilities of the company's employees determines the specific type of structural diagrams. With their help, it is possible to identify mainly risk factors related to the quality of management of the enterprise, with duplication of functions and responsibilities. For a large enterprise, the diagram can have several levels, first, a diagram of the enterprise as a whole, and then diagrams of divisions.

7. The essence of the method for constructing a map of technological flows reduced to a graphical representation of individual technological processes and their relationships. A specific process can fix a certain type of enterprise activity or a separate technological chain. Specialized flow maps can used to identify risk factors for the operation of the process as a whole or its elements. It is important to identify the elements, since when implementing a risk factor in one of them, the entire process may interrupted, which may lead to losses for the enterprise as a whole. The method allows you to identify critical elements of the technological process, assess the scale of the expected failure and offer anti-risk managerial impacts. Using the flow map, you can identify different ways to allocate resources between process elements, thereby reducing the level of risk and possible damage.

8. Analysis of financial statements also involves the study of contracts and agreements, including land lease agreements, insurance policies and guarantee agreements. This process helps identify risk factors associated with the enterprise's assets.

Identification of risk factors is only possible at a specific time, and the information received may become irrelevant in the near future due to changes in the situation. In conditions of uncertainty, the main thing is to detect the risk factor in a timely manner, and then minimize possible negative consequences to an acceptable level.

6.2. Anti-risk managerial impacts

The problem of analysing and evaluating the phenomenon of risk in the activities of industrial enterprises is still poorly structured and almost not formalized.

When implementing a risk factor, there is a deviation from the purpose of the company's activities, risk is the possible damage that may result from own decisions (Luhmann, 1990). It should note that the undesirable development of events caused not by one, but by several reasons at once, for example, the implementation of several risk factors at the same time. Undesirable consequences can amplified by the domino effect, that is, due to the implementation of a chain of risk factors (Raymond & White, 2017). It is important to note the duality of the concept of "event" used in this context, namely, it is necessary to distinguish between "event-cause" and "event-consequence". The difference is clear from the name itself. In the first case, the event caused the implementation of the risk factor. In the second case, the event is the

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result of the manifestation of the implementation of the risk factor (Villa, Paltrinieri, Khan, & Cozzani, 2016).

Local anti-risk managerial impact designed to reduce the influence of a single risk factor. Complex anti-risk managerial impact eliminate the negative consequences of several risk factors at once.

Risk characterized in two ways, on the one hand, this is a possibility of risk factors, and on the other hand, this is the size of the possible damage of realization of the risk factor. Different types of anti-risk managerial impacts allocated:

- anti-risk managerial impacts aimed at reducing the possibility of a risk factor, these will be called preventive.
- anti-risk managerial impacts aimed at reducing the amount of losses (negative consequences) as a result of the risk factor, such will be called compensatory.

To develop an optimal program of anti-risk management actions, a formalization based on the tools of theory of probability, mathematical statistics, fuzzy logic, and expert evaluation procedures can used (Aven, 2012).

6.3. The culture of risk management

Culture as a social phenomenon designed structural organization the environment (Burgess, Wardman, & Mythen, 2018), includes the non-inherited memory of the collective and translates the life experience of people into cultural "texts". Thus, it provides the necessary stability of the enterprise (Seuren, 2018).

Analysis of business practices shows that risk management still not considered as one of the most important components of organizational culture. Risk management culture considered as the awareness of the enterprise's employees of the need to follow a set of sustainable forms of human activity. Without these forms, the company cannot exist and improve. It is necessary to take into account the system of preferences that exists in the Board of Directors or among the enterprise's management. In other words, it is necessary to understand how the definition of an acceptable level of risk for an enterprise related to the risk propensity of its management and can use various indexes that characterize the riskiness of human activity.

For example, the Aumann-Serrano risk index introduced through the concept of risk aversion (for instance, Li, 2014). The value of this index is calculated using mathematical game theory. Gambling assumes that a player risks a certain amount of money in order to win. Such assumptions well describe the manner of an economic agent in situations with specific economic institutions, such as the stock market, insurance, banking, or auctions. These institutions characterized by clearly formalized rules. However, the enterprise's activities must also take into account many factors (equipment, personnel, contractors, and the institutional environment) that do not allow you to describe the activities of a particular enterprise in general in the language of clear rules of the game.

The choice of risk management method can associated with the Uncertainty Avoidance Index (UAI) G. Hofstede, which characterizes the management's response to unfamiliar situations, unforeseen events, and the pressure of change (Sabel, Herrigel, & Kristensen, 2018). UAI is one of the five most important factors identified in the survey of more than one hundred thousand people from different

countries (Kristjánsdóttir, Guðlaugsson, Guðmundsdóttir, & Aðalsteinsson, 2017). It should note that Hofstede's research reflects trends, not absolute concepts accepted in a particular organizational culture.

The types of organizational culture for which this index is high are less tolerant of change and tend to avoid the anxiety that comes with uncertainty, and set strict rules, regulations, and laws. Low-index societies are more open to change and use fewer restrictive rules and laws, and their customs are less strict. In the practice of enterprise, special tools used to reduce uncertainty: planning, development of employee competencies, multilateral cooperation with external partners, etc.

Identifying the preferences of business leaders when choosing a risk management method can bring significant practical benefits to the enterprise. Risk management methods include risk avoidance methods, risk localization methods, risk dissipation methods, risk compensation methods and opportunities that emerged for more nuanced and complex visions of the realities of anthropogenic environmental change (Jacobs, Abbott, Urquhart, & Price, 2019).

7. Conclusion

This study shows that a necessary condition for effective risk management in the production of goods, works and services at various enterprises is the formation of a positive culture of risk management. To create and implement advanced risk management systems using modern digital technologies, it is necessary to cooperate with leading scientific organizations, cooperate and exchange knowledge between research, development and engineering departments.

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