

BASIC METHODS FOR IDENTIFYING AND MANAGING RISK IN PUBLIC AND PRIVATE SECTOR ORGANIZATIONS

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Abstract: The manager must see the most significant risks that threaten the organization. In this way, covering its entire activity, it is possible to create a detailed list of risks related to the achievement of the set goals. In the identification process, the type of risk, the probability of its occurrence, spatial localization, possible damage and other parameters are revealed. In this way, covering the entire activity of the enterprise, it is possible to create a detailed list of risks related to it and to the achievement of the set goals. Given the breadth of the issues under consideration, in this article the focus is placed on the main methods for identifying and managing risk in organizations.

The purpose of the article is to explore and present the main methods for identifying and managing risk in organizations.

Research method: For the purposes of the present study, combined methods of analysis and synthesis of information, as well as theoretical analysis, were used. The article applies a systematic analysis of a database of publications in specialized journals and sites on the main methods of identifying and managing risk in organizations.

Results: Choosing the best method depends on the specific business and its risks. The responsible risk manager must assess the business and provide the most appropriate methods. The choice also implies a good knowledge of all methods, as researchers should argue both the chosen methods and the rejected ones. In this way, the responsibility of the choice made is emphasized.

Keywords: basic methods, risk identification and management, organizations, public and private sector

1. INTRODUCTION

The purpose of risk management is to create and protect value. It improves productivity, encourages innovation and helps achieve goals. (ISO, 2018). Therefore, by identifying and responding effectively to risks, risk management should support the achievement of development impact. However, in practice, the focus in development cooperation is often on minimizing selected risks, particularly reputational risks. This affects the effectiveness of development cooperation, in particular ownership, and ultimately the beneficial impact. (OECD, 2023) In addition, during the development and implementation of the construction and investment projects, optimization of the consumption of materials and energy and minimization of the negative impact of man on the environment should be foreseen. (Ivanova, 2021, p. 115)

Looking at the risk management process according to ISO 31000, it mainly goes through several stages that are directly dependent on the formulated risk management framework. We distinguish the following stages: scope, context and criteria; risk identification; risk analysis; Risk Assessment; impact on risk; documentation and reporting; exchange of information consulting; monitoring and review. Risk identification is a fundamental stage of risk management. This step uncovers and defines the potential risks that are occurring. Risk is examined by looking at the activities of the organizations. (ISO 31000) Key to this step is a consistent approach and systematic documentation of findings, as once risks have been identified they must be periodically reassessed to ensure they have been appropriately addressed. (LogicGate, 2024) When the organization is in a state of disequilibrium and disequilibrium, employees are in search of a new point of balance related to changing their views and actions. Positive results will come as a result of their knowledge, skills and efforts. (Penchev, 2008, p. 13) There are many different tools and techniques to support the different steps of risk assessment process. More detailed information on these tools can be found in ISO standard 31010:2019 "Risk management – Risk assessment techniques. (IEC 31010:2019) Risk identification is the process of determining potential risks to the business. This can include anything from a natural disaster that can damage property to a disgruntled employee. Some are bigger than others, but they all have the potential to affect profits. This is why it is important to have a risk identification system in place. Risk identification is a critical part of a sound risk management system and a key tool for running a successful company. (SafetyCulture Content Team, 2023)

2. METHODS

For the purposes of the present study, combined methods of analysis and synthesis of information, as well as theoretical analysis, were used. The article applies a systematic analysis of a database of publications in specialized journals and sites on the main methods of identifying and managing risk in organizations.

3. RESULTS

Choosing the best method depends on the specific business and its risks. The responsible risk manager must assess the business and provide the most appropriate methods. The choice also implies a good knowledge of all methods, as researchers should argue both the chosen methods and the rejected ones. In this way, the responsibility of the choice made is emphasized.

4. DISCUSSIONS

The purpose of risk identification is to produce a list of the most significant risks to the supply chain, and this list is often described as a 'risk register' or 'risk portfolio'. This is a document - or more commonly a risk database entry that records the characteristics of risks. This usually concentrates on: description of risk; probable impact of the risk, probability; possible and actual mitigation, consequences, ownership, source; probable impact of the risk; possible and actual mitigation, consequences, follow-up actions, etc. (Waters, 2011, p. 105) In the identification process, the type of risk, the probability of its occurrence, spatial localization, possible damage and other parameters are revealed. There are various psychological traps that prevent the correct perception and assessment of risk, such as: excessive optimism, underestimation of risks due to great benefits, insufficient qualification and experience, etc. These can be circumvented by using a range of measures to identify risks: (Ginosyan, 2018, pp. 42-44)

- Business structuring. A structuring of the organization's goals is carried out. In this way, critical areas are identified in all activities of the organization and the risks for each activity are derived accordingly.

- Using the risk classification. It is necessary to analyze situations that reduce income or increase costs, dividing initially into external and internal risks for the organization.

- Financial reporting analysis. Risks can also be identified by examining the organization's internal and external reporting. For example, receivables, delivery times, liquidity indicators, etc.

- Using the expertise of internal experts and employees. Communication with the organization's employees makes it possible to identify risks that are often not obvious to management. Questionnaires, group workshops or interviews can be used to obtain risk data.

- Exchange of experience with specialists in the field of risk management. When identifying risks, it is important to take into account the opinions, risk management measures implemented by other organizations, as well as communication with bank employees, insurance brokers, etc.

5. BASIC METHODS FOR IDENTIFYING RISK

Risk management tools and techniques are critical to identifying, assessing, and mitigating risks in any project or organization. Risk management tools are methodologies, software applications and practices designed to identify, assess and prioritize risks. They are followed by the coordinated application of resources to minimize, monitor and control the likelihood or impact of unfortunate events. (Simplilearn, 2024)

Brainstorming method (brainstorming, method of collective generation of ideas)

A commonly used approach to identifying risks in organizations is expert level and brainstorming. It presents a "quick answer" type group session where informed people are asked to give their opinion in response to some common question or idea. (Moeller, 2011, p. 35-36) The method is an intuitive method for forming new ideas, for solving specific problems through the collective work of experts. In terms of the results that can be achieved, there are the following several types of sessions: (Pavlov, 2007; Tanev, 2008)

- sessions to obtain final answers to the questions posed;
- sessions to detect inaccuracies and other weaknesses to solve the given problem;
- sessions to reveal new aspects of the problem under consideration or new problems.

The brainstorming method is successfully applied to:

- tasks, the solution of which implies options, one of which is the most expedient;
- tasks, the solution of which requires a set of factors that should be taken into account when determining options for solving tasks in the specific problem.
- tasks related to object studies and drawing up a model of the object for interpretation of the studied process.

The disadvantages of this method can be mentioned: the low coefficient of use of brainstorming time, the significant level of information noise; influence by authoritative specialists on the thinking of other participants; the spontaneous nature of the idea generation process.

Delphi method

It is a method of analyzing and evaluating problems by studying the information-intuitive judgments of a specially selected group of experts. They are subsequently summarized and used to forecast and prepare strategic decisions.

The individual opinions of the experts are collected through a written survey in several rounds with the help of a previously developed toolkit (questionnaires, surveys, maps). Characteristic features of the "Delphi" method are:

- absence of collective discussions and personal contacts between experts;
- anonymity of the evaluations and opinions presented by a given expert compared to other participants;
- multi-stage of the consultation procedure;
- integrativeness of the procedure - implementation of feedback between the individual stages;
- providing the experts with the information they need about the solved problem;
- justification of the assessment made by the experts;
- quantitative processing of individual responses and obtaining statistical characteristics.

The "Delphi" method also has some disadvantages, such as the following:

- difficulties in developing the reasons for a given assessment, as well as the facts for its argumentation;
- possible feedback complications due to wording inaccuracies or technical errors;
- problem limitation caused by the fact that the method is oriented towards independent evaluations, that is, the parameters of the studied problem, process or event are determined as independent quantities (relative to other events).

The Delphi method is particularly useful in identifying risks that are strategic to the organization's activities, as expert opinions are the only available source of information. The negative effect of the method is that it can be laborious and time-consuming.

Method of relative priority

When assessing risks in the organization, it is necessary to classify them according to the probability of their occurrence and the degree of their impact on achieving the goals. (Risk Management Standard AIRMIC, ALARM, IRM: 2002) Probability characterizes the assumed frequency of occurrence of the adverse event, and impact indicates the consequences of the occurrence of the event. Risks can be valued by calculating the considered vulnerability to risk (V), expressed as the product of the probability of occurrence of a given event (P) and the consequences of the event (S) using the formula: $V = P \times S$. The relative priority method can use as input the risks identified by the Brainstorming method. The working group involved in the identification of risks through brainstorming can also carry out an assessment of these risks. In the relative priority method, the risk vulnerability (V) is assessed by multiplying the risk's probability of occurrence (P) and its perceived impact (S) on the target or activity ($V = P \times S$). Risk assessment technology requires risks to be grouped by probability and effect on a two-dimensional tabular scale through qualitative assessment - low, medium and high.

Method of absolute determination

This is one of the most common and at the same time more accurate method than the relative priority. This method can be used as input the risks identified by the Delphi method. Risk assessment in this method can be presented as a process that includes several stages: (Ivanov, 2013, c. 83-87)

First stage. Final analysis and classification of the identified risks according to specific control objectives in relation to the processes and activities in the organization. The control objectives can be of the following nature: probability of making mistakes; probability of non-fulfillment of requirements; likelihood of uneconomical, inefficient or ineffective performance; probability of destruction of assets; likelihood of fraud. *Second stage.* Determination of the so-called "key risk indicators". The development of key risk indicators should be appropriate for the specific risks identified and approved by the organization's management. Management should update these risk indicators annually to respond to changes in the environment, processes and activities. Such risk indicators can be, for example: loss of...; destruction of...; inappropriate behavior of...; inconsistency with...; ineffective, inefficient uneconomic performance of... and others with a similar direction.

Third stage. Determining the probability of an incident (P) or adverse event. The probability size of incidents is determined by calculating their expected size. The determination of the expected amount of incidents is calculated as the product of the probability of the occurrence of the risk and the amount of anticipated work on the process, measured in the appropriate units of measure.

Fourth stage. Determining the magnitude of the consequences (S) of the occurrence of the risk. The magnitude of the consequences of the risk's realization can be determined by the amount of expected losses, harm or damage to the organization from the realized incidents in the processes or activities. They are evaluated by the amount of additional costs or lost benefits for the organization.

Fifth stage. Determining vulnerability or exposure to risk (V). Vulnerability/exposure to risk is related to the amount of total loss, harm or damage (magnitude of consequences) and is calculated by multiplying the amount of the incident by the amount of loss, harm or damage per unit or: $V = P \times S$.

Decision Tree Analysis Method

In practice, rarely does a single risk, if it occurs, have an impact on its own. It often causes other risks to arise, resulting in a cumulative effect. Decision Tree analysis is a graphical technique by which multiple risk combinations are considered to make some estimate of the realization of various risks. The analysis can be effective in assessing the cumulative effect of the probability of occurrence and degrees of impact of a small number of risks in organizations. The analysis is particularly useful when looking at related risks. A risk event in a small unit may have an impact on other units or activities if these risks are assessed together.

Method Monte Carlo Simulation

The "Monte Carlo" simulation gets its name from the beginning of the last century. (Moeller, 2011, p. 48) Its name is associated with gambling games played in large, official casinos. Since in these games the risks associated with the outcome (win or loss) and the probability of its occurrence are always uncertain, many people, including mathematicians, have tried to develop models by which to achieve a certain profit in gambling. This is how the "Monte Carlo" simulation was born, which is an analysis of the probability distribution of multiple possible outcomes. It is a technique that uses random numbers to generate possible values of potential effects of identified risks based on probability of occurrence and degree of impact. The simulation allows different scenarios to be created. This in turn can be used to understand and assess multiple risks. The purpose of the Monte Carlo simulation idea is to build a series of models describing the various identified risks and evaluate them through computer simulation.

Scenario method

Essentially, a scenario is a logically bound set of chronologically sequenced events established by previous research and predictions. It represents a description of various aspects of the future state of the relevant political or socio-economic system. Often the "Scenario" method is combined with the "Delphi" method, especially in the field of foreign policy analysis. In its content, a scenario is an alignment of a goal with logically dependent probable events to reveal how the future will unfold under given conditions. The method is successfully used for creative discussion and assessment by experts of the possible so-called "game situations" in politics, economics, science and technology, military affairs, culture, etc. it is an extremely useful method, especially for the study of processes for which it is not possible or appropriate to experiment in a real setting, in real objects and processes, and the whole continuous possible process is modeled by successive actions of the participating experts, according to the development of the situation.

Forecast graph method

The predictive graph method combines the ideas of the Delphi method with network planning methods. The resulting graphic network "goals-events", together with the probabilistic estimates determined by the experts, is primarily used to determine the probability of occurrence of one or other events, as well as to estimate the time of their occurrence. The main advantages of the method are:

- ensuring unity of decisions on the same problem at different levels of management in a given sphere;
- supporting the strategic decision-making process in accordance with the "goals-resources-results" principle;
- continuity of forecasting;
- possibility of permanent provision of information to interested managers and specialists, attracted as permanent experts;
- possibility for experts to work in dialog mode through a computer network in order to establish and verify given hypotheses, to model different situations, to study the consequences of different situations.

A known weakness of this method is its insufficiently efficient application for separate, relatively independent tasks.

Communication analysis method

The method is built on the basis of system analysis and is implemented by experts in dialogue mode with computer technology. This relatively new method is based on the analysis of the dynamic relationships of a given studied event, process or phenomenon with other processes or phenomena. The method can be successfully used to implement tasks such as:

- structuring current political, socio-economic, legal and other situations on a given event or topic;
- causal analysis of events and situations with the disclosure of the most significant causes or consequences;
- analysis of different variants of the development of events;
- formation of logical chains of events and situations.

As a result, specific conclusions, forecasts and recommendations are formed for the most appropriate decisions and actions, ensuring a favorable development of the situation.

Focus group method

The focus group is one of the many frequently used and especially reliable expert methods for creating information when the ready one is deficient in some respect, as well as for its processing, analysis, restructuring and adaptation.

(Tanev, 2008, p. 314) Focus groups also serve as a forum for expressing personal opinions, concerns and concerns, for discussing conflicting interests among participants, and for identifying potential fields of joint action. The key success factors for group discussions are as follows: discussion script, selection of participants, effective discussion management, analysis and interpretation of the results.

Method "Structured analogies"

Structured analogies also often find a place among the group expert methods used to "produce" information. And this method is applied when the available data are fragmentary, disorganized, inconsistent with the searches in the specific field of research, through which the decision-makers plan to acquire that knowledge on which to build their reasoned decision. The method suggests that the experts discover enough situations within their personal experience, to evaluate their degree of proximity to the sought-after and problematic situation; explore and evaluate the consequences of these most similar situations and transfer the described consequences of familiar situations to the target situation. Thus, a prediction of its output or an estimate of its parameters is provided. (Tanev, 2008, p.326) All of this relies on the analogies between known situations and the target situation, and the approximate accuracy of the results can be determined based on their degree of similarity to the known situations.

Method "problem wheel (problem circle)"

The problem wheel allows the clarification of the real reasons for the emergence of difficulties in society and individual development, the understanding of the possibilities for their solution, the identification of measures for the prevention of social anomalies. The technology of this method is characterized by the clarification of various quantitative and qualitative methods for collecting and analyzing information and drawing schemes of problems. This method goes through five stages:

- 1) The first stage: it has a preliminary, preparatory character. It implies studying the content, character and acuteness of the problems existing before the studied group of people. These issues can be revealed by survey, telephone, expert or other inquiry, focus group or other qualitative method.
- 2) Second stage: it consists of several consecutive steps: clarification and ranking of people's answers to the question "Why did this problem appear, which seems important and difficult to solve?". The given task is solved in some cases with the method of interviewing or focus group discussion; the question "why?" is asked again, but already in relation to each of the reasons stated in the first round, understood as separate problems; establishing the third round of problems of the studied micro-community.
- 3) Third stage: the assessment of problems from all circles in the context of reality for their solution.
- 4) Fourth stage: development of a cartogram with circles of problems and ways to solve them.
- 5) Fifth stage: development of a system of practical recommendations for solving problems.

Benchmarking method

By its nature, benchmarking is "a tool for evaluating the organization's activity and for facilitating the transfer of management practices and the borrowing from the units and organizations with which we compare". In the developments of many Bulgarian researchers such as P. Salchev (2008), P. Pavlov (2003), G. Manliev (2006), M. Gramatikov (2003) etc., the thesis is advocated that, "the benchmarking tool provides great opportunities to increase the trust of citizens in public organizations, to reduce the administrative burden on business and to increase transparency and accountability in the actions of the administration."

The successful application of benchmarking as a means of improving the activity of the public administration is largely determined by the specific features of each specific case, but the observance of a certain sequence in the actions to implement the benchmarking applies to both public and private organizations. The main steps implying the introduction of benchmarking refer to: detailed understanding of internal processes; identification of performance gaps; analysis of the processes of others; regular comparison of own processes with those of others; implementing the necessary actions to achieve better performance; ongoing monitoring of results and review of benefits. Benchmarking is applicable in the public administration in Bulgaria, but its mastery and successful application as a management tool requires not only a change in management attitudes and methods, but also strong support from senior administrative managers.

DEA (Data Envelopment Analysis) method for evaluating the effectiveness of activities in public administration

In 1978, the DEA method was developed to evaluate the efficiency (bank branches, healthcare organizations, etc.) that have common inputs to generate common outputs. DEA methodology is becoming increasingly popular for institutional planning and budgeting through the use of data on public sector organizations. (Salchev, 2008) The model was used in Bulgarian conditions only to evaluate the efficiency in hospitals. To assess efficiency, the relationship between input and output resources is tracked. The analysis requires only that we have empirical data at the input and output by using mathematical models from the realm of linear programming. The analysis can be procedurally described as follows:

- collecting data on a set of units (decision-making units) whose performance we compare;
- defining part of the data as incoming and the others as outgoing resources;
- applying a calculation procedure for the analysis of the marginal efficiency. Decision-making units are ranked according to their effectiveness. Scores can be between 0 and 1 in the performance limit. In this way, the exact quantities that would cause the efficiency frontier to shift can be calculated.

Good practices show that: (Riskmate)

- The Delphi technique, SWOT analysis, data analysis, scenario planning are effective methods for risk assessment and identification.
- Brainstorming and idea generation techniques encourage collaborative problem solving and creativity in identifying risks.
- Creative risk assessment involves using brainstorming techniques to identify and assess risks in a comprehensive and innovative way.
- Checklists and questionnaires provide structured approaches to assess risks and ensure comprehensive coverage, while technology-driven solutions improve risk assessment through automation, data integration, predictive analytics and real-time monitoring.

6. CONCLUSIONS

Choosing the best method depends on the specific business and its risks. The responsible risk manager must assess the business and provide the most appropriate methods. In the absence of experience in risk management and to get an overview, brainstorming with a SWOT analysis is recommended. Once completed, the risks are reviewed for further identification using a different method. (GetRiskManager)

The choice also implies a good knowledge of all methods, as the researchers should argue both the chosen methods and the rejected ones. In this way, the responsibility of the choice made is emphasized.

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