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ENTERPRISE CRISIS MANAGEMENT

521.03 ECONOMY AND MANAGEMENT IN THE FIELD

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1 CONCEPTUAL FOUNDATION OF THE RESEARCH

The importance of the subject. For decades, the business education has avoided discussing business crises. Nobody wanted to experience such events as everybody regarded them as clear signs of management failures. Only lately, practitioners and academics alike have come to view business crises as somehow normal in the life of any company. Such situations force decision-makers to „*think the unthinkable*", to approach issues that are not normally debated in the corporate boardrooms and university classes alike.

Companies around the world are facing, at certain moments in their evolution, difficult situations which, in some cases, turn into crises. A study conducted in 2011 by speaking to business leaders in Asia Pacific, Latin America and EU, showed that 59% of business leaders had experienced a crisis in their current or previous company, 79% of the respondents felt that they were only 12 months away from a potential crisis, 37% of them mentioned that the level of crisis affecting companies has only increased in recent times.

The causes of organizational failures have led to a long-running debate in the business literature, as crises can be generated by causes that might or might not be associated with the companies' current operations.

Based on the principle better prevent than treat, the best way to cope with crises is to avoid them, so managers should have the ability to identify and prevent crises. Business practice showed that the companies are dealing more with the prevention of financial failure, as they are paying more attention to the financial management that to the operational management when assessing the company's health and stability. But, as it was mentioned before, crisis can be caused by other factors which are not always reflected in the financial and business situation of the companies. In the condition of changing environment most exposed to risks are small and medium enterprises, fact confirmed by the pandemic situation, started in 2020.

As conclusion, the subject of organizational crisis management is a very actual one, there is a need to study the causes of organizational crisis, to evaluate the impact of causes and to establish a plan of managing the crisis.

State of Art. In 1921, Knight F. in Risk, Uncertainty and Profit, the twentieth century's most influential economics texts, considered a revolutionary one at that stage, taught how to distinguish between risk and

uncertainty in order to accurately and properly ascertain a venture's potential profitability.

Most of all studies, as mentioned by Deverell, referring to risk and crisis management, dated from early ‘80s, gravitated around the causes of crisis, and less on managerial process driven by organizational members during crises. To those authors we can refer Mitroff I., Shrivastava P., Coombs P., James E., Darling J.R, Shelton C.K., Paun C. V., Musetescu R. First attempt to predict some crisis in the companies have made by Altman E. at the end of ‘70s and is referring to financial failure.

The review of literature showed that the concept of organizational crisis management is based on the analysis of the causes of organizational failures. Organizational crisis management should be the one to provide the business entity with a systematic, orderly response to crisis situations. But many crises can be prevented, or at least coped with more effectively through early detection. The real challenge for organizations is not just to recognize the signals of a crisis, but to recognize them in time and with the knowledge to address the issues they represent. Recognizing the symptoms and dealing with them effectively, gives the business manager an important edge in addressing the risks that may cause a crisis of importance to the organization. In order to be able to set up a strong organizational structure, a business organization needs reliable, efficient tools in order to identify the symptoms and prevent the crisis. At the moment, existing risk management models and prevention tools, as Altman model or COSO model, try to respond to this need of the organizations, but they are only able to provide a guideline or a map that managers can follow in their attempt to keep their organizations safe from risks and crises, that lives a lot of room for subjectivity and human error.

Looking to Moldavian doctoral researches we found three theses, made during last decade, that are studying different aspects of the „crisis”. These researches are referring to aspects of predicting pre-crisis financial situation of enterprises – Levandovschi V., managing of financial crisis – Mihalachi R., managerial methods and techniques for sustainable development of enterprises in crisis condition – Taranenco L. As well, there are a lot of researchers, which are studying aspects of crisis management, as Burlacu N., Patrașcu D. – anti-crises management, Manole T. – financial crisis, Gorobievschi S. – communication crisis, Cruceresсu C., Gheorghiţă M., Bugaian L., Timco C., Covas L., Perciun R. – entrepreneurship and crisis, sustainable development.

The thesis aim is to study the meaning of crisis management and to develop a business tool that can help any enterprise identify challenging areas of its operation and elaborate action plans aimed to prevent potential crisis.

Objectives of the thesis: are to study the state of art on crisis management; to study existing methods of early identification of crisis; to develop a tool, mostly for small and medium enterprises, which will allow to identify correctly the risks it is exposed to in order to prevent operational crises in due time; to apply the elaborated tool in order to propose measures to overcome identified risks; to make a comparative analysis on the state of the companies before and after applying the elaborated tool.

Research assumption: The model we developed makes two key assumptions: the first one is that the financial indicators of a company are relevant for the state of the operation of the company. Irrespective of the type of challenges the company is facing, its problems will be reflected in the accounting data. The second assumption is that key inside decision-makers, eliminating moral hazard and agency costs, are the best positioned in order to assess the challenges of the company and take the right decisions in order to overcome the challenges in the operation of the company.

The research methods and tools used. In order to reach the purpose of the paperwork, there have been used the following methods: documentation, analytical method, synthetizing method, comparing method, qualitative and quantitative analysis. As a tool, there has been used the SHIModel Algorithm, a software application, developed by the author and registered as an invention patent with ORDA, Bucharest, in June 2017.

Scientific novelty and originality: the paper brings following novelties: new definition of risk management, based on literature review; critical analysis of existing risk management models from practical perspective; elaboration of a new mathematical algorithm to identify the level of exposure to risk and help preventing operational crisis – SHIModel and developing of the Software SHIModel; applying the SHIModel for identifying operational risks for real companies and development of actions plans to enhance companies' activity; applying the SHIModel at-post restructuring phase, after taking measures

The importance of the economic problem solved. Business practice showed that crises can really be prevented and avoided. With the right prevention actions and a proper organizational structure, any company can identify and manage in due time any possible risks that can generate a crisis. The biggest challenge for the management is to correctly assess the exposure to risk of the company and identify the key points to focus on in order to avoid any possible crisis. Practical experience showed that there is a pattern which appears every time a company faces a crisis. Based on this finding, the need of a practical tool was identified, a tool that makes a bridge between the risk management and crisis management practices with the purpose of simplifying the job of the managers in assessing risks and, thus, preventing crises.

The scientific problem solved is the scientific and methodological justification of an open tool, the use of which allows the identification and prevention of risk exposure in order to ensure an efficient development for enterprises.

The theoretical significance: in the theoretical field, the paper is bringing new definition of risk management, based on literature review, as well the framework for a new model of a tool that can be used in order to identify and mitigate the exposure to operational risk.

Applicative value: the algorithm presented – SHIModel is a useful tool that can be used in order to identify and mitigate the exposure to operational risks of organizations and to prevent organizational crises. The mathematical algorithm is transposed into a software application that can process all the data collected from the field into precise numerical calculations of the exposure to risk of the companies that are being analysed. It is particularly valuable for small and medium sized enterprises that lack the resources to hire professional teams of business consultants.

The results of the research have been presented in 7 papers: 4 as unique author and 3 as co-author, 5 papers were published in indexed journals, and 2 in proceedings of international conferences.

The theoretical and practical value of results are confirmed by 6 implementations acts: real economy – New Kopel Romania SRL (Romania), ABMC Management & Investment LTD (Israel), Union Motors Car Sales SRL (Romania), Speak Simple. The book Method Grp. (Israel), JBS Pro Consulting SRL (Romania); academic field –

Department of International Business and Economics, The academy of economic studies in Bucharest (Romania).

Structure of the thesis: introduction, three chapters, general conclusions and recommendations, bibliography – 133 sources, 122 pages of main content, 12 tables, 13 annexes, 28 figures, and one formula. The results of thesis have been published in 7 scientific papers.

Key words: Risk management, Crisis management, Operational risk management, Crisis prevention, Assessing risk exposure algorithm.

2 SYNTHESIS OF CHAPTERS

Chapter one "*An overview of crisis management within the enterprises".* In the first chapter are presented existing theories in the field of crisis management and risk management.

Organizational crisis has been described in many ways in the academic literature. The vast corpus of definition maybe highlights the above-mentioned difficulty in its definition. Studying different authors, we can conclude that:

- Key terms used in the definition of crisis – „transformation", „disruption" and so on – imply a form of change, a form of variability in the occurrence of some natural or social phenomena (Hermann, Traverso, Venette, Barton, Poole & Van deVen). But this is a very important point to highlight: variability by itself does not necessary leads to crisis;
- Furthermore, crisis is usually described as a low-probability, high-impact event that threatens the viability of the organization. Crises are sometimes characterized by ambiguity of cause, effect and means of resolution, as well as by belief that decisions must be made swiftly [86, pg.60]. From other authors' point of view, such as Roux-Dufort, crises are often seen as major events and are traditionally perceived as "exceptional situations"; or the crisis situation is a threatening phenomenon, surprising, according to Hermann, because it is non-planned. Moreover, Roux-Dufort consider that a crisis is "a situation which creates an abrupt change on one or more variable keys of the system".
- There is also another perspective on crisis that needs to be mentioned. Starting from the fact that the Chinese symbol of crisis is composed of two words, one of them meaning "danger" and the other meaning "opportunity", Fink argued that a crisis has both a negative and a positive aspect. It doesn't necessarily need to be seen only as a negative event; it can also bring an opportunity to change for the better.
- Generally, as recognized by Venette S., it has been established that there are four elements common to any organizational crisis: a threat to the organization, the element of surprise, short decision time,the need for change.

- According to Davis, Noel Griese, Tyler, L., Witte, K a special attention should be paied to the communication process within the organisation during the crisis.

There are multiple ways of organisational crisis classification, given and described by such authors as Shrivastava, Mitroff, Stern E, Stout, Elash, Zuzak R. According to Shrivastava and Mitroff, crises can differentiate by crises that arise from within the organization and those that arise from outside, at the intersection of the four types of causes, it can be: Internal, technical/economic crises; External, technical/ economic/ political crises, Internal, people/ social/ organizational crises and External, people/social/organizational crises. At Stern E, Stout, Elash, Zuzak R. we can find arguments in order to explain the charachteristics of each tipe of crises. Lerbinger defined eight types of crises, based on their source, as following: natural, technological, confrontation, of malevolence, of organizational misdeeds, due to workplace violence, due to rumours, man-made disasters. At Davidow, DuHamel, Weick, Sutcliffe, Lapointe, Rivard, Kilmann, Nasi J, Bruce T. Blythe we can find more detailed description of mentioned types of crisis, and even more detailed classification of it. Erika James defined two types of organizational crises, based on the way they emerge: sudden crises and smouldering crises. In our opinion, mentioned classification are not practical from the point of view of managing crises. We consider that when we talk about organizational crises, two relevant distinctions should be made: in terms of predictability and in terms of localization within the organization. This distinction offers the managers the guidelines to create a system in order to prevent as much as possible the occurrence of a crisis by making the right assessment, taking the right measures and implementing the proper prevention tools.

The study of crisis management originated with the large-scale industrial and environmental disasters that took place in the 1980s. Over the years, empirical observations resulted into theories which are the fundamental formalized grounds of the steps a crisis situation follows.

In managing crises, in our opinion is critic to pay atention to all involved stekeholders, as Alpaslan, Green and Mitroff mention that „the stakeholder model allows managers to prepare for a wide variety of crises, enjoy access to the resources of a broad set of stakeholders, and facilitate the flow of critical resources or information among stakeholders". Such a conclusion was taken into consideration by us, when the new model was designed further, by including in it the opinion of employees of the

company, mainly of them were at positions of decision. Also, when speaking about organizational crisis management, the first issue to address is how to know when a crisis is coming and why. The management that is able to predict and foresee situations that can disrupt the functioning of the organization will have much better chance to deal with them and make the best of the opportunities that they may bring than any other management that is taken by surprise and faces crisis unprepared. Looking to the evolution of crisis mamnagement we can conclude that *crisis management is, an art of removing much of the risk in the initial stage, under uncertainty, thereby allowing those concerned with the fate of an organization to have more control over it.*

Two of the most prominent models in organizational crisis management are: Mitroff's Five Stages of Crisis Management and Gonzalez-Herrero and Pratt's Crisis Management. Mitroff's model, Five Stages of Crisis Management, is more a guide than a crisis management system, giving general directions for every stage of the crisis, rather than specific instructions and practical support mechanism. Gonzalez-Herrero and Pratt proposed a Crisis Management Model which identifies three different stages of crisis management: Diagnosis of Crisis, Planning, Adjusting to Changes. This model, as the previous one, also describes the steps to be taken when dealing with a crisis, but remains in the area of general directions, without a practical approach in terms of specific value targets and detailed actions focused on immediate results.

In our opinion, crisis management should not only describe the steps and actions to be carried out when a crisis occurs. It must offer a practical mechanism that can be applied in order to prevent or resolve a crisis. To successfully fight against the many crises that today's world is bringing, organization leaders need practical tools that have specific value targets and are adapted to the specific of business organizations as systems made and run by humans that are naturally predisposed to mistakes and subjectivity. Crisis realm is a world that is objective and subjective, logical and irrational, linear and nonlinear, orderly and chaotic. [6].

Another aspect discussed in the thesis is the difference between risk management and crisis management. We conclude that crisis management can be associate with uncertainty, with more diffuse and more complex situation, while risk management is dealing with quantitative approach to measure and assess the exposure to known events and probabilities. Another issue is that risk can lead to crisis but not all risks automatically lead to a crisis, from this perspective risk management

may be perceived as a subset of crisis management. Meanwhile, there may also be valid the perspective that risk management and crisis management are the two sides of the coin, with the same relevance but with differentiated area of interest. Risk management deals with risks while crisis management deals with uncertainty.

As Mitroff argued, "the field of crisis management has shown repeatedly that those organizations that are prepared for crises not only experience fewer of them, but are substantially more profitable" In consequence, the quest for a structured approach to crisis management – some models or algorithms – has been a challenging enterprise for any company contemplating performance, including us. We start by analysing the most commonly used risk management models that have been formalized and frequently used by practitioners, at international level – ISO 31000 and COSO ERM Model. Those are not models, that attempt to quantify or assess risk, but models for risk-governance, that is, how business leaders should approach the problem of risk. As result, we concluded that ISO 31000 is designed to suit any kind of organization, from any industry, and it contains a set of principles for creating a risk management framework. Even though, it is intended to apply to any kind of risks, and be very practical in providing an effective guide for an enterprise risk management, this model lacks specific detailed instructions on how to identify and manage risks and fails to offer a complete risk management process. Also, despite being a very important concept in risk management, the risk appetite of an organization is not included in the framework provided by this model. Referring to the COSO ERM model, we concluded that it has provided a foundation for organizations to assess the risks and then manage them more efficiently. It is a more practical tool that can be used by managers in order to avoid possible crises. It builds key concepts, fundamental for defining an organizational risk management system, providing a basis for application across organizations, industries, and sectors. COSO ERM model is designed to identify potential harmful events across the organization, to define risk appetite according to the general strategy of the entity and to project objectives in one and also in more but overlapping categories. As result of made research, these models are only able to provide a guideline

or a general map that managers can follow in their attempt to keep their organizations safe from risks and crises, which lives a lot of room for subjectivity and human error due to the fact that they are rather theoretical models, not based on a mathematical algorithm. Both of the models ignore somehow the experience and the knowledge existing in the organization at the level of management (top and middle), a failure that we will attempt to correct in our approach. Also, in our approach we will use Key risk indicators (KRI) as they can help companies to evaluate and manage risks at all levels of an organization – entity or sub-division level, and also on its main functions – financial, operational, legal, marketing, or sales.

Chapter two "*Methodology of assessing risks and preventing crises - The Mathematical Algorithm for Company's Risks Exposure Assessment".* The chapter two describes the methodology of mathematical algorithm for company's risks exposure assessment, based on COSO ERM theoretical model. The new elaborated model besides the cube designed by the COSO ERM model, which is measuring the level of operational risk, include another two cubes that help draw a more complete image of the company by assessing its business and financial situation.

While the conceptual framework of risk and crisis management is clear, the implementation of such a framework is obviously a challenging enterprise. Business decision makers have always needed a practical tool in order to take decisions. Even when they are aware of the limits of certain tools, they employ in their management process, such tools are needed. And they should be not only theoretically sound but also operational, that is, as simple as possible in order to allow decisions to be taken in a smooth and efficient process. Among the most frequently analysed tools in the process of crisis management, based on the Key Risk Indicators approach, has been the model proposed by Altman in 1968, aimed to anticipate the bankruptcy of a company. The index was employed later in a myriad of financial analysis and confirmed its usefulness, as is mentioned by Basovnikova M., Konecny M., Dubovy R. & Masarova A. But the model employed by Altman, has been considered obviously limited by its core and only focus on financial data of the

companies taken into analysis. In fact, a lot of companies that are approaching the biggest challenges in their operation have recorded excellent financial results. The overall literature, approaching crisis management issues and methods of dealing with it, as Hiatt, Jaques, Kolek, Pollard, Hotho, Robert, Lajtha, Smith, Ulmer, Sellnow and Seeger, offers a large scale of examples and circumstances under which specific ideas are described and proposed, but the final result is not ready to be generalized or formalized. As was mentioned already, the only available tools in practice, used by companies in order to prevent crises, are the risk management models, the most common used are ISO 31000 and COSO ERM.

Based on our research, we identified a lack in assessing risks and preventing crises, as these models are only able to provide a guideline or a general map that managers can follow in their attempt to keep their organizations safe from risks and crises, which lives a lot of room for subjectivity and human error due to the fact that they are rather theoretical models, not based on a mathematical algorithm.

As result of made researches we decided to create a practical tool that enable companies to eliminate operational risks and reduce the exposure to risks and possible crises with a specific mechanism. The model we advance in this thesis starts from these conclusions drawn by the complex systems approach in filling all the requirements in order to perceive the organization as a complex system and implement the theory related to the generation and implementation of knowledge. An important aspect of the operation of the proposed model is the appeal to the internal knowledge of the company, attained by the inclusion of employees in the identification of potential risks and potential solutions to the challenges face by the company. So, we decided that the survey and questions that reveal the exposure be applied to the critical / key employees in the company. They are the ones called to identify the problems of the company but also are the ones which are critical for a successful implementation of the reorganization and especially, as Reynold and Seeger pointed, to communicate the restructuring process to the internal audience of the company, that is, its stakeholders.

In consequence, SHIModel is a risk assessment tool developed to assess the exposure to risk for companies activating in any field and industry, developed on the base of COSO ERM theoretical model, as it provides a framework for undertaking ERM. Following, we have further developed an algorithm based on a matrix which, by taking into consideration the three-dimensional vectors presented on the cube, assesses the level of exposure to risk of a company and identifies the key operational stressed points that can generate possible crises within the organization. The exposure to risk is determined by three important perspectives: general business wise, financial indicators and operational risks. The risk assessment under SHIModel approach refers measuring the organization's risks, determines if all the indicators are in compliance with the overall business strategy and is aware of measures to manage associated risks (figure 1).

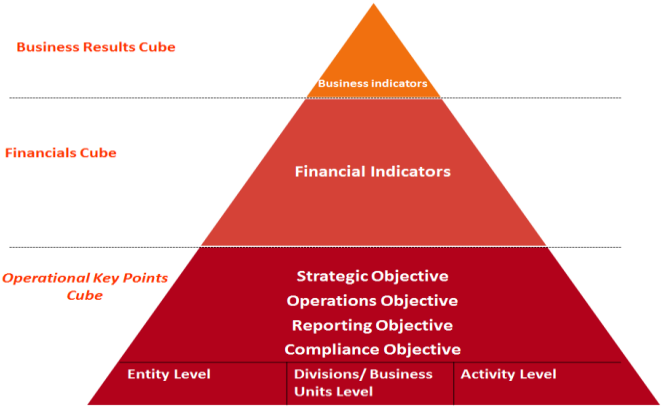

Figure 1 SHIModel Framework

Source: developed by the author

The assessment shall be structures as follows:

- Procedure for implementing of Business Results Cube (BRC),
- Procedure for implementing of Financial Results cube (FRC),
- Procedure for implementing of Operational Key Points Status (OKPS) Cube.

Business Results Cube is a matrix which helps the analysis of the evolution of the most important six business indicators, as identified below, both at Entity Level and Business units' level (a – n), categorized in pre-defined stages [1]. The results of this cube will give the auditors an idea about the business aspects of the company that is under assessment and will help put in the broader context the operational risk exposure [3] (figure 2.).

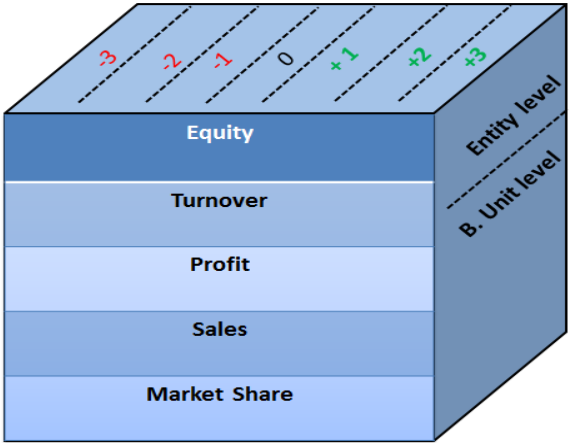

Figure 2. Business Results Cube (BRC)

Source: developed by the author [5]

Financial Status Results Cube is a matrix that helps us to analyse the evolution of the most important financial ratios at Entity Level, categorized in pre-defined stages [1]. The results of this cube will give the auditors an idea about the financial performance of the company that is under assessment and will help put in the broader context the operational risk exposure [2] (figure 3).

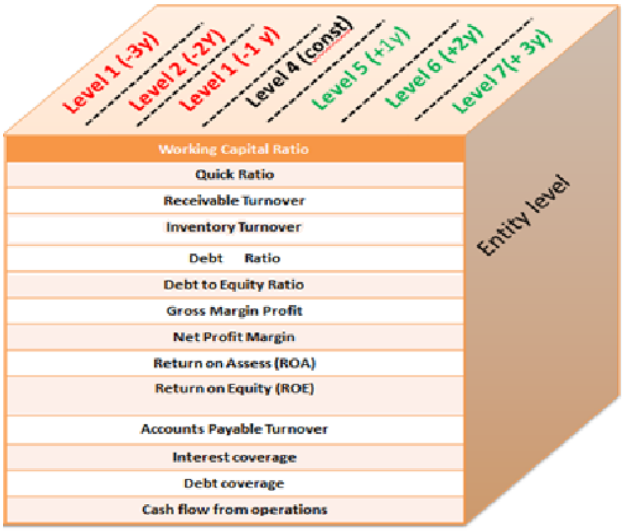

Figure 3 Financial Results Cube (FRC*)*

Source: developed by the author [2]

All the business and financial indicators are interconnected and can influence each other. They are calculated on a yearly basis. The relevant period for analyzing the evolution of these indicators is considered to be the last 3 years previous to the moment of analysis. The evolution of these indicators, which shows how they decreased or increased over the 3 years period, is measured according to the direction (increasing or decreasing) and the constancy of the changes they experienced, and expressed by six stages, used for the Business Results Cube (BRC) and Financial Results Cube:

- Stage 1 – decreasing over the past 3 years;
- Stage 2 - decreasing over the past 2 years;
- Stage 3 - decreasing over the past 1 year;
- Stage 4 – constant - not decreasing, nor increasing;
- Stage 5 - increasing over the past 1 year;
- Stage 6 - increasing over the past 2 years;
- Stage 7 - increasing over the past 3 years.

The values of business and financial indicators/ratios are collected through the BRC and FRC set of questions, listed in the annexes of thesis.

Operational Key Points Status Cube is a matrix which helps assess the level of exposure to operational risks of a company, taking into consideration the three-dimensional vectors presented on the cube [1].

The components of the cube can be explained as follows: there are four objectives (the top side of the cube), eight perspectives (the front side of the cube) and three organizational levels (the right side of the cube) that interact together in order to make the assessment (figure 4).

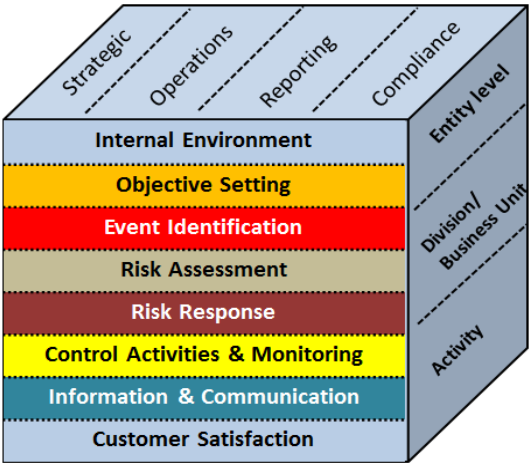

Figure 4 Operational Key Points Status Cube (OKPSC)

Source: developed by the author [1]

Within the context of a business entity's established mission or vision, management establishes strategic objectives, selects the strategy, and sets aligned objectives. The entity's objectives can be set in four categories:

- Strategic – high-level goals, aligned with and supporting the company's mission and strategic guidelines;
- Operations – effective and efficient use of the resources;
- Reporting – accuracy and reliability of reporting process and tools;
- Compliance – compliance with applicable laws and regulations (internal and external) and company's procedures.

Every type of objective must be reflected at every level of the organization – entity level, division level or activity level, from the following perspectives: internal environment, objective setting, event identification, risk assessment, risk response, control activities & monitoring, information and communication, customer satisfaction.

Based on the elements of the Operational Key Points Status Cube, we created a mathematical algorithm. The applicable algorithm is based on:

1. Yes/no key questions project. Relevant questions (based on OKRC) are addressed regarding the existing situation of the company. Each and every question represents a point of potential risk (if the answer is "no"). The set of questions for OKPC is presented in Annex 1 of thesis.

2. Weighting the significance of the questions [2]. In order to determine the weight of every question within a company, we need to assess every vector of the algorithm (X1-X4; Z1-Z4; A-H) from the most significant to the least. A selected number of key persons in the company should evaluate these vectors. The average of their evaluation creates the weight.

3. Mathematical calculation. The mathematical algorithm calculates the company's exposure to operational risk and maps this exposure in certain activities and levels [1].

The mathematical algorithm has the formula (1):

$$V=W/(Y1+Y2+Y3+Y4)*100 \quad (1),$$

where

$$Y1=Z1*(X1*(A1+B1+C1+D1+E1+F1+G1+H1)+ X2*(A2+B2+C2+D2+E2+F2+G2+H2)+ X3*(A3+B3+C3+D3+E3+F3+G3+H3)+ X4*(A4+B4+C4+D4+E4+F4+G4+H4))$$

$$Y2=Z2*(X1*(A1+B1+C1+D1+E1+F1+G1+H1)+ X2*(A2+B2+C2+D2+E2+F2+G2+H2)+ X3*(A3+B3+C3+D3+E3+F3+G3+H3)+ X4*(A4+B4+C4+D4+E4+F4+G4+H4))$$

$$Y3=Z3*(X1*(A1+B1+C1+D1+E1+F1+G1+H1)+ X2*(A2+B2+C2+D2+E2+F2+G2+H2)+ X3*(A3+B3+C3+D3+E3+F3+G3+H3)+$$

X4*(A4+B4+C4+D4+E4+F4+G4+H4))

Y4=Z4*(X1*(A1+B1+C1+D1+E1+F1+G1+H1)+
X2*(A2+B2+C2+D2+E2+F2+G2+H2)+
X3*(A3+B3+C3+D3+E3+F3+G3+H3)+
X4*(A4+B4+C4+D4+E4+F4+G4+H4))

Legend:

Qn – answer value of the question (0 or 1 values),

Rn – weighted average in the cube given by the responders,

Obviously, we have An = Qn * Rn

Z – company level in the cube,

X – weighted average in the objective in the cube,

W – the sum of all weighted answers of the algorithm granted with value 1,

V – result of the company's health and stability.

For every assessed organizational level, there is set of 39 yes/no questions that are addressed by the algorithm, that are a combination of the four objectives and eight perspectives of the cube.

For every "yes" answer, the algorithm is giving 1 value point to each perspective. Every value point is multiplied by the average weight granted to every perspective (An-Hn).

The result is then multiplied by the average weight granted to every objective (X), then it is multiplied by the average weight granted to every organizational level (Z).

Then, the sum of weighted average of all the responses (Y1 + Y2 + Y3 + Y4) is divided by the sum of all weighted answers of the algorithm granted with 1 value and multiplied by 100 in order to obtain the percentage that shows the company's health and stability.

Based on the result obtained through the algorithm, the company receives a percentage of exposure to risk, which is illustrated in colored alerts, as follow: [2]

- Red alerts – high exposure, immediate actions for implementation required,
- Yellow alerts – medium exposure, actions for improvement required,

• Green alerts – no exposure, actions for maintaining required.

In the same time, it is obvious that operational processes and procedures should be defined and appropriately documented and updated as necessary. It is important that the organization should clearly define the various types of documents which establish and specify effective operational procedures and control.

Chapter three "*Restructuring Companies under Crisis Based on the Mathematical Algorithm*". This chapter presents the results of applying the new methodology. The algorithm was applied on 3 companies, of different sizes, from different industries and with different types of business activity, that showed the exposure to operational risk and highlighted the points within the organization that were the weakest in terms of risk exposure and need to be restructured.

Three companies, of different sizes, from different industries and with different types of business activity, working on Romanian market, have been evaluated using the risk assessment process provided by the algorithm of SHIModel. [5] The assessment was aimed to develop actions plans for each company, which should be adapted to their own needs.

To exemplify we will present the using of the algorithm for company A.

First assessment. The profile of the company. Company A is a leading company that delivers premium services in the local automotive industry. The company is providing services in the following fields: Rent a car (Business Unit A), Operational leasing (Business Unit B) and Automotive second-hand cars retail (Business Unit C).

In 2016 the company's equity was Euro 5.5 mil., the turnover was about Euro 15 mil., the profit Euro 620,000 and the number of employees - 74 persons.

In the particular period, 2014-2016, the company went through a turn-around process on the occasion of which it was implemented an internal restructuring program with the purpose of improving the performance of the business and increase of the market share. The activity of the company is structured as showed in figure 5.

The CEO has under his direct subordination three business units: Operational leasing (OL), Rent a car (RAC) and Second-hand cars retail (SH); and, also, the two divisions that comprise the other operational,

administrative and management activities: Finance Division and Operations Division

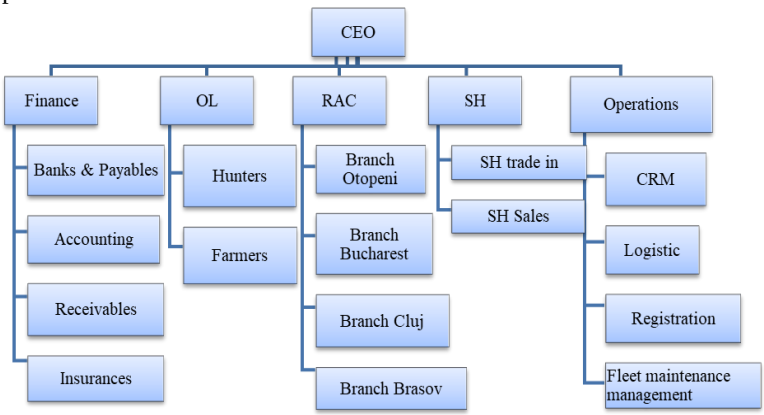

Figure 5. The organisational chart of company A

Source: developed by the author

The assessment. According to the methodology, the assessment was made, based on the year-end results of the company registered during 2014-2016, using business result cub (BRC), financial result cub (FRC) and operational result cub (ORC).

BRC applied to company A, revealed the overview of the business activity over the last three years, showing the evolution of each indicator assessed both, at entity level and at the level of each of the three activities of the company: Operational Leasing (Business Unit A), Rent a Car (Business Unit B) and Second-Hand Cars Sales (Business Unit C) and showed that the business situation is improving at all levels, in the past three years. The FRC was applied only at Entity level. The analysis was made based on the year-end financial results of the company registered during 2014 – 2016 and have shown that the financial situation is improving in the above-mentioned period. The OKPC of Company A was assessed at 6 organizational levels and 16 activity levels. Based on the answers provided by Company A to the questions required by OKPC assessment (figure 6), the following conclusions were drawn [5]:

- Out of the total of 768 questions, with a total weight of 19,655 points, 60.32% were answered "Yes", weighting 11,856 points and 39.68% were answered "No", weighting 7,799 points;

• Compliance area gained the least number of points, resulting a capacity to manage the risks of 38.34% - signalled in red colour;

• The organizational level that summed up the least number of points, with a capacity to manage risks of 58.44% was the Business Unit/Division level - signalled in yellow colour;

• The areas that gained the least number of points were Event Identification, with a capacity to manage risks of 43.3% and Risk Assessment, with a capacity to manage risks of 22.04% - both signalled in red colour.

Figure 6. Operational Risk assessment result for Company A

Source: developed by the author

The areas that summed up more points, but still remained under the 60% threshold, were Internal environment, with a capacity to manage risks of 54.65% and Customer satisfaction, with a capacity to manage risks of 54.39% - both signalled in yellow colour. The company has an overall exposure to risk of 39.68%. Analysed from the perspective of crisis prevention, the company has a capacity to manage risks and prevent crises of 60.32%. The risk exposure is mainly concentrated on the Compliance level, Event identification (risk or opportunities) and Risk assessment. These levels are all below the threshold of 45%, which makes them highly exposed to operational risk, and they are all signalled in red colour in figure 6. Compliance objective has a high exposure to risk, especially on the Business unit/Division level. Other areas that are exposed to risk are Internal environment and Customer satisfaction. These perspectives are in the medium range in terms of exposure to operational

risk and they are signalled in yellow colour in figure 6. At the Business unit/ Division level, risk assessment procedures poorly exist in the company's environment, although the practically response to risk is an area very well covered.

As regarding to the broader context in which the operational exposure of the company was assessed, the business and financial performance of the company registered a positive evolution over the analysed period of three years, which gives the management the proper context to focus on improving the operational situation of the business by approving and implementing the necessary measures for reducing the existing operational risk exposure.

Based on the results, the Action Plan for Company A was elaborated, which are presented, along with the timetable and the progress done using the algorithm, in thesis Annexes 3-5.

Second assessment. After eleven weeks, time allocated for the company to implement the recommendations resulted from the first operational risk assessment, a second assessment was conducted, in order to determine how the situation of the company improved as a result of applying the action plan established by the algorithm.

After the second assessment of the company's situation, the following improvements could be observed (figure 7) [5]:

- The overall risk exposure reduced from 39.68% to 15.42%;
- Compliance and Event identification areas went from red alert range of high exposure to green, stable range;
- Risk assessment area went from red alert range of high exposure to yellow, moderate risk range;
- Internal environment and Customer satisfaction areas went from yellow alert range of medium exposure to green, stable range;
- Business unit/Division level went from yellow alert range of medium exposure to green, stable range.

Due to the measures taken as a result of applying the algorithm in assessing the exposure to operational risk of the company, Company A was able to improve its overall situation in terms of crisis prevention with more than 24%. This improvement was possible by taking the exact and specific instructions based on the weak points identified by the algorithm and was reflected in specific areas of the company.

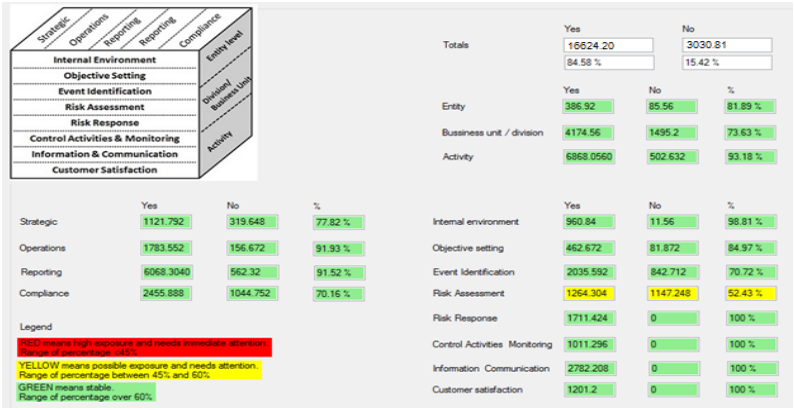

Figure 7 Second Operational Risk assessment result for Company A
Source: developed by the author

In retrospective, two years after the process, Company A is stronger, functioning in a healthier environment, more profitable, with a better image in front of the customers - trust and quality wise - and more valuable from assets points if view.

After the assessment process, every company received a diagnostic that showed the exposure to operational risk and highlighted the points within the organization that were the weakest in terms of risk exposure. In conclusion, the findings of the first risk exposure assessment were as follows:

- Company A has a moderate exposure to operational risk, registered a positive evolution of the business and financial situation over the past two years and generated a positive business result;
- Company B has a moderate exposure to operational risk, registered a positive evolution of the business and financial situation over the past one year and generated a negative business result;
- Company C has a moderate to high exposure to operational risk, registered a negative evolution of the business and financial situation over the past one year and generated a negative business result.

Based on this diagnostic, a customized action plan was drawn for each of the three companies, designed to reduce the exposure and strengthen the organizational structure in the face of any possible crisis. The implementation of the customized crisis prevention action plan remained in the duty of the management of each company that was in charge with following the exact instructions. After all the remedy actions were

implemented, the exposure to operational risk was assessed again, in order to analyse the results of applying the crisis prevention action plan and compare them with the initial results.

Considering the issues found in the analysed companies, the proposed measures are presented in the table 1.

Table 1 Measures proposed as a result of the algorithm application

If risks are found at Company's Level:	Measures proposed
Entity level	Actions to be taken and developed at management level in correspondence to the all objectives (Strategy, Operations, Reporting, Compliance)
Business Unit/ Division Level	Actions to be taken focusing on business units/ divisions in relation to the objective found by the algorithm as being in risk
Activity Level	Actions to be taken focusing analysing and restructuring the work flow of activities in the departments
If risks are found at Company's Objectives	Measures proposed
Strategic	✓ Establish strategy according to companies will to further develop in each area ✓ Agree and implement strategy and targets for each component, focusing on the component found by the algorithm as risky ✓ Inform each relevant personnel about the new targets approved by high level management
Operations	✓ Create flow chart of working flow and processes for each business unit/ division ✓ Create Overall flow chart for all company and understand the correlation and between departments
Reporting	✓ Analyse existing reports and decide which one is relevant ✓ Create frame and templates of reports for each business unit's/ division's activity ✓ Allocate responsible personnel for each report ✓ Establish a frequency of reporting and monitoring ✓ Analyse reports and compare to the targets established by the strategy ✓ Set timetable

Compliance	✓ Allocate responsible personnel in charge with the monitoring ✓ Set thresholds and alert system
If risks are found at Company's Components	Measures proposed
Internal environment	✓ Define internal environment's VALUES ✓ Improve the strategy of transmitting these values and beliefs of the company internally and externally ✓ Develop and create opportunities to expose the values of the company
Objective setting	✓ Create overall budget and scenarios of the company for a specific period (1 year) ✓ Establish quarterly/monthly/weekly targets according to the budget and the strategy ✓ Establish targets of increasing in no of sales, frequency, efficiency, productivity, targets related to commitment and deadlines
Event identification & Risk Assessment	✓ Set a strategy for event identification and risk assessment for each department ✓ Create procedures and regulations for event identification (ability to identify opportunities and threats) and risk assessment (ability to evaluate the risks) at business unit/division level; ✓ Communicate to each department the strategy, the procedure and establish personnel responsible for event identification and risk assessment ✓ Create template formats of reports & tools for events identification and risk assessment – to be used by the responsible personnel ✓ Develop monitoring and checking reports - To be checked periodically, validated, discussed and compared to strategy set at the beginning in meetings check the reports of risk assessment
Risk Response	✓ Create a procedure for risk response ✓ Allocate responsible personnel to analyse and gather solutions in accordance all the aspects of the problem (legal advisor, logistic/operations, finance) ✓ Approve the solution for the problem found with the decision makers

Control activities & Monitoring	✓ Create "checking points" – responsible personnel to check according to timetable the accuracy of the activity and reporting ✓ Set a strategy for monitoring by creating timetable of meetings ✓ Create frame and template of tools and for monitoring (system) ✓ Create flow chart of all the controls in the company and in each department ✓ Improve or create additional control points ✓ Create a procedure of ad-hoc and unannounced internal audit
Information & Communication	✓ Set a procedure according to the internal work flow chart of communication – each activity should follow gradual and specific steps ✓ Create a structure of communication: high level management – middle management – all employees ✓ Create channels of internal communication ✓ Set a strategy for external communication ✓ Allocate responsibility to specialized personnel for external communication
Customer Satisfaction	✓ Create tools to understand the customer satisfaction situation: complains dedicated e-mail, alerts, personnel to respond to all complains ✓ Understand the customers complains and create reports for further transmitting of the issue ✓ Compensate the customer immediately – if the case ✓ Apply periodical enquiry to customers ✓ Maintain the relationship with existing customers by periodical contact

Source: developed by the author

After completing the second operational risk exposure assessment, the risk exposure of the analysed companies was very low.

As conclusion the testing of the algorithm showed that it can be applied to any company, in order to determine the level of risk exposure.

3 GENERAL CONCLUSIONS AND RECOMMENDATIONS

Based on the made research following conclusions can be made:

1. The study of crisis management originated with the large-scale industrial and environmental disasters that took place in the 1980s. It should be noted that a large body of literature focus more on the communication problem and impact on organization and environment than on the real causes and approached in dealing with the roots of the crises. The definition of crisis management should cover the gap between the planned actions and attempted results by the management of the company and actual performance in this respect. As all organizations with a professional management operate based on planning, such plans may be contradicted by the registered results so the organization crisis emerges. From this perspective, organization crises are much more encompassing and widespread than the actual situations and outlooks that are "objectively" identified by third-parties. (chapter 1, subchapter 1.1 and 1.2) [1, 2, 6, 7]

2. The only available tools in practice, used by companies in order to prevent crises, are the risk management models. The most common used ones are ISO 31000 and COSO ERM. These models are only able to provide a guideline or a general map that managers can follow in their attempt to keep their organizations safe from risks and crises, which lives a lot of room for subjectivity and human error due to the fact that they are rather theoretical models, not based on a mathematical algorithm. Both of the models ignore somehow the experience and the knowledge existing in the organization at the level of management (top and middle), a failure that we had attempted to correct in our approach. (chapter 1, subchapter 1.3, chapter 2, subchapter 2.1) [3, 4]

3. There is a need to have a model to prevent organizational crisis, aimed to support managers in decision-taking process. Key Risk Indicators is very important for the optimal functioning of an operation and can help companies to evaluate and manage risks. The positive impact of the implementation of a KRIs system could be identified on all the level of an organization – entity or sub-division level, and also on its main

functions – financial, operational, legal, marketing, sales. First model, based on the Key Risk Indicators approach, has been developed by Altman. It represents a way to forecast the economic performance of a company by analysing a function based on 5 financial indicators of a company. The model has been considered obviously limited by its core and only focus on financial data of the companies taken into analysis, that is not enough, as crisis can be caused by other non-financial causes. (chapter 1, subchapter 1.3, chapter 2, subchapter 2.1) [5]

4. The system of KRIs was used to develop the SHIModel. SHIModel – allows the implementation of deeper and broader conceptual framework in order to allow the small and medium sized companies to successfully navigate through difficult contexts. SHIModel has been proposed as a result of 30 years of business experience at the chief executive level. The added value of the SHIModel, throughout its three cubes (Business Results Cube, Financial Results Cube, Operational Key Points Cube – OKPC) was developed and projected in an user-friendly software, which provides a risk assessment tool in order to assess the exposure to risk for companies activating in different domains and, moreover, the exposure to risk is determined by the most important three perspectives: general business wise, financial indicators and operational risks. (chapter 2, subchapter 2.2, subchapter 2.3) [4, 5]

5. The algorithm provides a simple, objective and transparent tool for organizational risk management. Compared to the existing risk management models used by companies at this moment, it is a much practical alternative, due to its easy use, simple risk management process, explicit results and precise treatment actions recommended. It is not offering just a map or a guide for how to manage risks, but a practical mechanism that can be applied as such, directly on the existing situation of the company. (chapter 2, subchapter 2.3) [2]

6. The SHIModel was used to diagnose the exposure to operational risk. For each company subject to the test, a set of questions used in the algorithm, for the three cubes was applied. Following the model's flowchart, the significance of the questions for each company was weighted. Practically, the software combined this information and, under

the mathematical formula used, underlined the existing risk in each company at every company level, objective level and components level. This adjustment operation makes the algorithm capable to fit the specifics of any company, by making the weight of every analysed aspect match the importance it has within the company. The different weight applied to every question changes the final result of the algorithm from one company to another, by granting each investigated aspect its real value, according to the practical experience within every company, not by using a general unitary measuring system. (chapter 3, subchapter 3.1, 3.2, 3.3) [4, 5]

7. After completing the diagnosis, the following main conclusions have been drawn: all companies participating in the research could be analysed from the perspective of exposure to operational risk with the mathematical algorithm; all analysed companies were exposed to operational risk no matter the business activity of the company, its dimension or the industry it operates in; all organizational structures analysed were exposed, even to a low degree, to the operational risk, due to lack of strictness in terms of controlling tools and procedures; the operational risk exposure can be present within the company no matter of its financial and business situation. (chapter 3, subchapter 3.3) [4]

8. After applying the restructuring plan proposed by the algorithm, the management of the companies observed an improvement of the operational performance of the business activity and an increase in the efficiency of the operational tasks performed by the employees. The second evaluation of the exposure to the operational risk of analysed companies showed the considerably reduction of operational risk. (chapter 3, subchapter 3.1, 3.2, 3.3) [4]

Based on the research conducted and the results obtained, we will submit the following recommendations:

1. Managers must pay more attention to operational aspects of company's activity. Even though the quantitative analysis of the business and financial situation of a company gives the auditors the measure of the general health and stability of the business, this diagnostic is not relevant for the analysis of the operational stability of a company. (chapter 2, subchapter 2.1)

2. A high operational risk can coexist with a healthy financial situation, or vice versa, a poor financial situation can exist even though the operational risk is low. This is possible due to the fact that financial management and operational management are two different internal processes, inter-connected, but independent. (chapter 2, subchapter 2.1)

3. The use of the SHIM model to measure operational risk based on the evaluation of the algorithm must be followed by the design of a specific action plan, which will contain exact instructions aimed at reducing the organization's exposure to specific risks. (chapter 2, subchapter 2.1)

4. Even though the algorithm uses a unique mathematical formula in order to calculate the exposure to operational risk, it can be used for wide spectrum of companies. Indeed, it has the capacity to be a general instrument for calculating the exposure to crises. The novelty of the applicable software sets the grounds and the strategy for an algorithm which adds value in mitigating and preventing crisis, and it should be taken into consideration the possibility of further developments and fine tunings according to specific activities, companies, sectors. This capacity to be a universal instrument for calculating the exposure to crises is possible due to the process of ranking of the questions within the algorithm. (chapter 3, subchapter 3.1-3.3)

5. The process of identifying, assessing and mitigating potential threats must be seen as part of the larger crisis management process, called crisis prevention. Implemented within an organization as a continuous process, crisis prevention or risk management will diminish considerably the probability for the organization to face a crisis. The exposure to crises will not decrease to zero, as there is always a certain percentage of risks that can never be completely eliminated, but the chances of avoiding a crisis and recovering after a crisis will be much higher when the organization is adopting a crisis prevention/risk management approach. (chapter 1, subchapter 1.2)

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Adnotare
Nume, prenume: Hezi Aviram SHAYB. Tema tezei: Managementul întreprinderilor aflate în situații de criză,
Titlu științific solicitat: doctor în științe economice, domeniul 521.03 Economie și management în domeniu. Chișinău, 2021

Structura tezei: introducere, trei capitole, concluzii generale și recomandări, bibliografie - 133 de surse, 115 pagini de conținut de bază, 12 tabele, 13 anexe, 28 de figuri și o formulă. Rezultatele tezei au fost publicate în 7 lucrări științifice.
Cuvinte cheie: Managementul riscului, Managementul crizelor, Managementul riscului operațional, Prevenirea crizelor, Evaluarea algoritmului expunerii la risc
Scopul tezei este de a studia semnificația managementului crizelor și de a dezvolta un instrument care ar permite întreprinderilor să identifice domeniile de risc ale activității sale și să elaboreze planuri de acțiune care să prevină o potențială criză.
Obiectivele tezei: studierea bibliografică a noțiunilor asociate managementul crizei; studierea metodelor existente de identificare timpurie a crizei; dezvoltarea unui instrument care poate fi aplicat la întreprindere, preponderent la cele mici și mijlocii, în vederea identificării corecte a riscurilor la care este expusă pentru a preveni crizele operaționale în timp util; a aplica instrumentul elaborat pentru a propune măsuri pentru depășirea riscurilor identificate; a face o analiză comparativă a stării companiilor înainte și după aplicarea instrumentului elaborat.
Noutate și originalitatea științific: Cercetarea aduce următoarele noutăți: o nouă definiție a managementului riscurilor, în baza studiului bibliografic; analiza critică a modelelor existente de gestionare a riscurilor din perspectivă practică; elaborarea unui nou algoritm matematic pentru identificarea nivelului de expunere la risc și pentru a ajuta la prevenirea crizei operaționale - SHIModel și dezvoltarea software-ului SHIModel; aplicarea modelului SHIM pentru identificarea riscurilor operaționale pentru companiile reale și dezvoltarea planurilor de acțiuni pentru îmbunătățirea activității companiilor; aplicarea SHIMode la faza post-restructurare, după luarea măsurilor.
Problemă științifică importantă rezolvată: Problema științifică soluționată constă în fundamentarea din punct de vedere științific și metodologic a uni instrument deschis, utilizarea căruia permite identificarea și prevenirea expunerii la risc în vederea asigurării unei dezvoltări eficiente a întreprinderilor.
Semnificația teoretică: în domeniul teoretic, lucrarea aduce o nouă definiție a managementului riscurilor, bazată pe revizuirea literaturii, precum și cadrul pentru un nou model de instrument care poate fi utilizat pentru a identifica și a reduce expunerea la riscul operațional.
Valoare aplicativă: algoritmul prezentat - SHIMmodel este un instrument util care poate fi utilizat pentru a identifica și a reduce expunerea la riscuri operaționale a tuturor tipurilor de organizații și pentru a preveni crizele organizaționale. Algoritmul matematic este transpus într-o aplicație software care poate procesa toate datele colectate în calcule numerice precise ale expunerii la risc ale companiilor care sunt analizate. Este în special valoros pentru întreprinderile mici și mijlocii care nu dispun de resursele necesare pentru a angaja echipe profesioniste de consultanți în afaceri.
Implementarea rezultatelor științifice: Rezultatele cercetării au fost prezentate la 2 conferințe internaționale și confirmate de 6 acte de implementare, emise de întreprinderi din economia reală și de profesioniști din domeniul academic.

Аннотация
Имя, фамилия: Хези Авирам ШАЙБ. Тема диссертации: Антикризисное управление предприятиями.
Научное звание: доктор экономических наук, специальность: 521.03 Экономика и управление в отрасли. Кишинев, 2021 г.

Структура диссертации: введение, три главы, общие выводы и рекомендации, библиография - 133 источника, 115 страниц основного текста, 12 таблиц, 13 приложений, 28 рисунков, одна формула. Результаты диссертации опубликованы в 7 научных статьях.
Ключевые слова: управление рисками, антикризисное управление, операционное управление рисками, предотвращение кризисов, алгоритм оценки подверженности риску.
Целью исследования является изучение значения антикризисного управления и разработка бизнес-инструмента, который может помочь предприятию определить слабые области его деятельности и разработать планы действий, направленных на предотвращение потенциального кризиса.
Задачи исследования: изучить понятия в области антикризисного управления; изучить существующие методы раннего выявления возможного кризиса; разработать инструмент, который можно применить на предприятии, преимущественно на малых и средних, для правильного определения рисков, которым оно подвержено, с целью своевременно предупреждения операционного кризиса; применять разработанный инструмент для последующего предложения мер по преодолению выявленных рисков; провести сравнительный анализ состояния компаний до и после применения разработанного инструмента.
Научная новизна и оригинальность: диссертация привносит следующие новшества: новое определение термину управление рисками, основанное на обзоре литературы; критический анализ существующих моделей управления рисками с практической точки зрения; разработка нового математического алгоритма для определения уровня подверженности риску и предотвращения операционного кризиса - SHIModel и разработка программного обеспечения SHIModel; применение модели SHIModel для выявления операционных рисков реальных компаний и разработки планов действий по улучшению деятельности компаний; применение SHIModel на этапе пост-реструктуризации после принятия мер.
Полученные результаты для решения важной научной проблемы: Решенная научная задача состоит в научном и методологическом обосновании открытого инструмента, использование которого позволяет выявлять и предотвращать подверженность рискам с целью обеспечения эффективного развития предприятий.
Теоретическая значимость: в теоретической области иследование предлагает новое определение термину управление рисками, основанное на обзоре литературы, а также основу для нового инструмента, который можно использовать для выявления и снижения подверженности операционному риску.
Практическая ценность: представленный алгоритм - SHIModel является полезным инструментом, который можно использовать для выявления и снижения подверженности операционным рискам всех типов организаций и для предотвращения организационных кризисов. Математический алгоритм переносится в программное приложение, которое может обрабатывать все собранные данные и выдать результаты, характеризирующие подверженность риску анализируемых компаний. Это особенно ценно для малых и средних предприятий, которым не хватает ресурсов для найма профессиональных групп бизнес-консультантов.
Внедрение научных результатов: Результаты исследования были представлены на 2 международных конференциях и подтверждены 6 актами о практическом применении как в реальной экономике, так и в академической сфере.

Annotation

Name, surname: Hezi Aviram SHAYB. Thesis theme: Enterprise crisis management, Required scientific title: Doctor of philosophy in economic sciences, field 521.03 Economy and management in the field. Chișinău, 2021

Structure of the thesis: introduction, three chapters, general conclusions and recommendations, bibliography – 133 sources, 115 pages of main content, 12 tables, 13 annexes, 28 figures, and one formula. The results of thesis have been published in 7 scientific papers.

Key words: Risk management, Crisis management, Operational risk management, Crisis prevention, Assessing risk exposure algorithm

The thesis aim is to study the meaning of crisis management and to develop a business tool that can help enterprises to identify challenging areas of its operation and elaborate action plans aimed to prevent potential crisis.

Objectives of the thesis are: to study the state of art on crisis management, to study existing methods of early identification of crisis, to develop a tool, mostly for small and medium enterprises, which will allow to identify correctly the risks it is exposed to in order to prevent operational crises in due time, to apply the elaborated tool in order to propose measures to overcome identified risks, to make a comparative analysis on the state of the companies before and after applying the elaborated tool.

Scientific novelty and originality: the paper brings following novelties: new definition of risk management, based on literature review; critical analysis of existing risk management models from practical perspective; elaboration of a new mathematical algorithm to identify the level of exposure to risk and help preventing operational crisis – SHIModel and developing of the Software SHIModel; applying the SHIModel for identifying operational risks for real companies and development of actions plans to enhance companies' activity; applying the SHIModel at-post restructuring phase, after taking measures.

Important scientific issue solved: The scientific problem solved is the scientific and methodological justification of an open tool, the use of which allows the identification and prevention of risk exposure in order to ensure an efficient development of enterprises.

The theoretical significance: in the theoretical field, the paper is bringing new definition of risk management, based on literature review, as well the framework for a new model of a tool that can be used in order to identify and mitigate the exposure to operational risk.

Applicative value: the algorithm presented – SHIMmodel is a useful tool that can be used in order to identify and mitigate the exposure to operational risks of all kinds of organizations and to prevent organizational crises. The mathematical algorithm is transposed into a software application that can process all the data collected from the field into precise numerical calculations of the exposure to risk of the companies that are being analysed. It is particularly valuable for small and medium sized enterprises that lack the resources to hire professional teams of business consultants.

Implementation of scientific results: The results of the research have been presented in 2 international conferences and confirmed by 6 implementations acts, coming from real economy and academic field.

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ENTERPRISE CRISIS MANAGEMENT

521.03 ECONOMY AND MANAGEMENT IN THE FIELD

Summary of the doctoral thesis in economic sciences

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