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**MANAGEMENTUL ÎNTREPRINDERILOR AFLATE ÎN  
SITUAȚII DE CRIZĂ**

**521.03 ECONOMIE ȘI MANAGEMENT ÎN DOMENIU DE  
ACTIVITATE**

**Teză de doctor în științe economice**

**Conducător științific**

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**ENTERPRISE CRISIS MANAGEMENT**

**521.03 ECONOMY AND MANAGEMENT IN THE FIELD**

**Doctoral thesis in economic sciences**

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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 managementului 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 SHIModel 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 unui 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 organizațiilor 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 profesionale 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 предприятиях, 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 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 исследование 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 организаций и для предотвращения организационных кризисов. Математический алгоритм переносится в программное приложение, которое может обрабатывать все собранные данные и выдать результаты, характеризующие 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. Chişinău, 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 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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## **List of abbreviations**

EU – European Union

COSO – Committee of Sponsoring Organizations

ERM – Enterprise Risk Management

EPPM – Extended parallel process model

CERC – Crisis and Emergency Risk Communication

KRI - Key Risk Indicators

ISO – International Organisation of Standardization

OL – Operational leasing

RAC – Rent a car

SH – Second-hand cars retail

BRC – Business result cub

FRC – Financial result cub

ORC – Operational result cub

OKPSC – Operational Key Points Status Cube

OKRC – Operational Key Results cube

GM – Gross margin

EBITDA – Earnings Before Interest, Taxes, Depreciation and Amortization

ROA – Return on assets

ROE – Return on equity

M.U. – Measure units

## Introduction

**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. What management science could add to the knowledge of the business decision-makers? We could argue that, in consequence, business leaders have lacked any support in their attempts to deal with certain events that negatively impact the companies they manage. 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 aimed to understand how crisis is experienced, explore the extent and need for crisis preparedness and plans, examine how companies approach crisis management planning and to assess the level of crisis preparation undertaken by these companies keeping in mind the growing impact of social and digital media, 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 [112].

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. As example, the mentioned study, showed that 40% of respondents were aware of how much harder it was to plan for a crisis today, owing to the changing nature of communications today [112]. There is a need to study the causes which led to organizational failures, as when a crisis occurs, it may have a devastating effect on a company, or it can even put at risk its own existence.

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 than to the operational management when assessing the company's health and stability. This practice was encouraged in part by the banks, which are a very important partner of any company in need of financing, who are putting a lot of emphasis on the financial analysis and give a little weight to the qualitative analysis, which is the operational

business analysis. 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. [60] 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 [37, p. 1]. To those authors we can refer Mitroff I. [73, 74, 75, 76], Shrivastava P. [110, 111], Coombs P. [23,24,25], James E. [58, 18], Darling J.R [31, 32], Shelton C.K. [107,108,109], Paun C. V. [88], Musetescu R [89]. 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 idea is to be able to prevent the crises by efficiently identifying and managing the risks that could trigger them and act efficiently when discovering the symptoms of a crisis. The early stage of detection is, therefore, in the realm of risk management and is made by identifying and assessing the risks that could cause organizational failures. 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. [66], managing of financial crisis – Mihalachi R. [71], managerial methods and techniques for sustainable development of enterprises in crisis condition – Taranenco L. [118]. As well, there are a lot of researchers, which are studying aspects of crisis management, as Burlacu N. [21], Patraşcu D. [87] – anti-crises management, Manole T. – financial crisis [70], Gorobievski S. [47] – communication crisis, Crucerescu C. [28, 29], Gheorghişă M. [43], Bugaian L. [19, 106], Timco C. [120, 81], Covas L. [26], Perciun R. [91, 92] – entrepreneurship and crisis, sustainable development. The list can be completed, but a general overview of mentioned researchers, shows that the subject of crisis is studied within the Moldavian premises.

**The main goal of the thesis.** The goal of the paper is to study the meaning of crisis management and to develop a business tool that can help to identify challenging areas of enterprise activity and based on results to elaborate action plans aimed to prevent potential crisis.

Based on the main goal **following objectives** have been formulated:

1. To study the state of art on crisis management,
2. To study existing methods of early identification of crisis,
3. 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,
4. To apply the elaborated tool in order to propose measures to overcome identified risks,
5. To make a comparative analysis on the state of the companies before and after applying the elaborated tool.

**Research assumption:** The model we intend to develop 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. Such an assumption could be criticized by the past cases when the management of the companies in crisis succeeded to „cook” their financial statements and accounting documents so the financial indicators where not showing the real picture of the company. 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. Such an assumption could be also criticized by the fact that insiders have been maybe one of the factors that lead to the problems so they are not easy and ready to accept responsibility for the situation of the company. Sometime, they prefer to highlight outside factors instead of accepting in-house

factors. However, in the case of controlling agency costs and the consequent moral hazard, this paper argues that the best solutions could be found inside 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, synthesizing 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.

**The information backgrounds.** The implementation of the research tool was conducted on three companies, all located in Bucharest, Romania, from different industry sectors. The collection of the information needed for the research was conducted at the companies' offices, with the close collaboration of the top management.

**The summary of paragraphs of the thesis.** The thesis has a classical structure, that include introduction, 3 chapters, conclusions and recommendations, 133 bibliographic sources and 13 annexes.

**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. Regarding the crisis field, there are presented the most common definitions of crisis and there are identified general types and sources of crises, then are pointed out most common existing theories in crisis management. Regarding the risk field, there are presented the most common definitions of risk and are pointed out most common existing theories in risk management and risk management models used in practice. The two risk management models presented are ISO 31000 and COSO ERM, these being the two most used risk management models by small and medium companies around the world.

At the end of the chapter, there are presented indicators for identifying risks and preventing crises. In conclusion, there is drawn the connection between the risk management and crisis management practices.

**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.

**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. 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. After the implementation of the restructuring plan, a second assessment made through the algorithm could show that the exposure to risk and, therefore crisis, of the company was considerably reduced.

**General Conclusions and recommendations.** The final part is an overview of the research and present general conclusion, the novelty of the research and the practical applications of made researchers.



## **1 An overview of crisis management within the enterprises**

From time to time, people claim that they are passing through extraordinary circumstances with a potentially catastrophic impact, with abnormal characteristics that require novel and sometimes difficult decisions to be made. From health issues to macroeconomics outlooks, the concept of „crisis” is one of the new „normals” in the XXI<sup>st</sup> century society. Mitroff and Anagos [77, pg.5] noticed that “crises are no longer an aberrant, rare, random, or peripheral feature of today's society. They are built into the very fabric and fibre of modern societies”. “Crises” are circumstances that put individuals, but also societies and groups, in uneasy positions. Arguably, there is more than a linguistic fashion of the modernity but definitely it is a constant of contemporary rhetoric.

As Pergel and Psychogios [93, pg.180] have admitted, „crisis is a too much complex and complicated phenomenon to be easily defined”. The term has been used in all areas of human knowledge and practice and despite its complexity and range of application; it keeps informing us about certain events and processes. Mitroff [76, pg.63], one of the most advanced scholars in this field of inquiry, has highlighted that „it is not possible to give a precise definition of a crisis because it is not possible to predict with certainty how a crisis will occur, when and why”.

The word „crisis” seems to have originated from the Greek word “krisis”, which means „decision”, and its general sense of „decisive point” dates from the early 17<sup>th</sup> century, according to Oxford Dictionary. Here it is defined as „a time of great danger, difficulty, or confusion when problems must be solved or important decisions must be made” [85].

A crisis can affect an individual, a group, a community, an organization or society as a whole. The focus of this paper is on the conditions and the effects of the crisis on an organization. Therefore, in order to serve the purpose of this paper, the emphasis will be on the organizational level of the crisis.

Operational risk has a very broad definition. From a financial perspective, it is the risk that is differentiated from the market risk and the credit risk. According to Basel II definition, „the risk of loss resulting from inadequate or failed processes, people and systems or from external events. This definition includes legal risks but excludes strategic and reputational risk”. According to Deutsche Bank, one of the leading German and global banks, „operational risk is the potential for failure (including the legal component) in relation to employees, contractual specifications and documentation, technology, infrastructure and disasters, external influences and customer relationships ... operational risk excludes business and reputational risk” [45, pg. 3).

Imad Moosa details the definition of the Bank for International Settlements by advancing a complex taxonomy of the operational risk [82, pg. 100]. He differentiates between internal fraud, external fraud, employment practices and workplace safety (EPWS), clients, products and business practices (CPBP), damage to physical assets (DPA), business disruption and system failures (BDST), execution, delivery and process management (EDPM).

### **1.1 Organizational crisis and its taxonomy**

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. Hermann [54, pg.13], for example, defines it as a “situation that threatens the high priority goals of the organization, restricts the amount of time available for response, and surprises decision makers by its occurrence, thereby engendering high-levels of stress”. Organizational crisis can be considered to be any situation that appears unexpectedly within the organization and affects in a negative way its individuals, its systems and its operations, thus, threatening its stability and preventing it from reaching its goals. Given that such a definition includes the “expectations” of some individuals or companies, there is categorically a strong element of subjectivity in the definition of this concept.

According to Traverso, D. K. [123], even problems that would be „small” to a larger company can be disastrous for a small one. Entrepreneurs know this, but many balks at the prospect of crisis planning because it seems endless and overwhelming.

According to Venette [126, pg.43], the phenomenon of organizational crisis can also be described as “a process of transformation where the old system can no longer be maintained”. From the perspective of Barton [9, pg.2], the crisis is “a major, unpredictable event or process that has potentially negative results and its aftermath may significantly damage an organization and its employees, products, services, financial condition and reputation”. In the sphere of economics and business, the vast majority of authors, as Poole & Van deVen, trying to structure the knowledge about this subject describe crisis as „an event that threatens the most important goals of the companies such as survival and profitability, and is usually triggered by low probability events which cause extensive damage and social disruptions involving a variety of stakeholders” [95].

All the 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. But this is a very important point to highlight: variability by itself does not necessary leads to crisis. The fact that there is a variability in the evolution of performance of some natural or economic processes can be recognized by people (including decision-makers) and be faced accordingly. The fact that there are heavy snows in every winter should not surprise anyone as this

is a naturally occurring phenomenon that can be predicted and relatively easily estimated. The fact that there is a variability in the demand related to certain events (like holydays or weekends) again should not surprise anyone and should not lead 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 [98], 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 [54], because it is non-planned. Moreover, Roux-Dufort [99, pg.106] 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 [42]. It doesn't necessarily need to be seen only as a negative event; it can also bring an opportunity to change for the better [42].

Generally, as recognized by Venette S. [126], it has been established that there are four elements common to any organizational crisis:

- a) a threat to the organization,
- b) the element of surprise,
- c) short decision time,
- d) the need for change.

Such elements confirm that “crises” have a “strategic” nature, that may put an entire organization into jeopardy and require a decision at the highest level of authority inside the organization because they impede in a significant degree the its operation.

A proper example on this subject is emphasized by Davis, L. J. in paper work “Truth to tell: Tell it early, tell it all, tell it yourself”, where he wrote about his job experience as counsellor in US Administration. Dealing with mass-media, he could simultaneously help the reporters do their jobs and not put the president in legal or political jeopardy. Also, Davis learned above all, that one can always make a bad story better by telling it early, telling it all, and telling it to yourself. [33]

Another way to prepare for such “confrontation” with mass media reaction is proposed by Noel Griese in a seminar guide, an approach which includes tracking and analysing the rumours, preparation in advance for tough questions from reporters, organizing and equip an organizational

so called “crisis action unit” and exploit the advantages of controlled media when communicating with various publics during a crisis. [48]

Tyler, L. sustained that “Crisis communication theorists need to develop a more sophisticated understanding of the ways in which concerns about liability constrain corporate executives from apologizing for crises for which the corporation itself bears some responsibility. At the same time, the resulting apologies may leave stakeholders dissatisfied, and reiterated public demands for an apology may create frustration, humiliation, and anger in corporate executives. It is widely spread that present legal system discourages apologies; crisis communication theorists need to research how executives can best communicate about crises in which their companies are implicated”. [124]

Witte, K. supported that “No consensus exists on how to develop effective risk messages that motivate appropriate action yet do not unduly frighten people. A useful framework for developing risk messages is the extended parallel process model (EPPM). The EPPM suggests that when people are faced with health or environmental risks, they are motivated to either control the danger or control their fear.” [131]

All above mentioned examples debate potential challenges and obstacles regarding communication issues, leaving to the reader the task to implement the information and solutions provided in examples, according to his specific case in order to solve or avoid communication failures.

Shrivastava and Mitroff [111] differentiate between crises that arise from within the organization and those that arise from outside. This distinction is critical because the warning signals are different for each type of crisis as they imply different characteristics and, in consequence, manifestations (table 1.1). The differentiation between crises caused by technical/economic breakdowns and those caused by people/social/organizational breakdowns is done because, if we look at only one part of the chain, we miss valuable potential lessons for preparing and correcting the whole system. [107]

**Table 1.1 Types of organizational crisis according to Shrivastava and Mitroff**

	<b>Technical/Economic causes</b>		
<b>Internal causes</b>	<ul style="list-style-type: none"> <li>• Product/service defects</li> <li>• Plant defects/industrial accidents</li> <li>• Computer breakdown</li> <li>• Defective, undisclosed information</li> <li>• Bankruptcy</li> </ul>	<ul style="list-style-type: none"> <li>• Widespread environmental destruction/ industrial accidents</li> <li>• Large- scale system failure</li> <li>• Natural disasters</li> <li>• Hostile takeovers</li> <li>• Governmental crisis</li> <li>• International crisis</li> </ul>	<b>External causes</b>

<b>Internal causes</b>	<ul style="list-style-type: none"> <li>• Failure to adapt/change</li> <li>• Organizational breakdown</li> <li>• Miscommunication</li> <li>• Sabotage</li> <li>• On-site product tampering</li> <li>• Counterfeiting</li> <li>• Rumours</li> <li>• Illegal activities</li> </ul>	<ul style="list-style-type: none"> <li>• Symbolic projection</li> <li>• Sabotage</li> <li>• Terrorism</li> <li>• Executive kidnapping</li> <li>• Off-site product tampering</li> <li>• Counterfeiting</li> <li>• False rumours</li> <li>• Boycotts</li> </ul>	<b>External causes</b>
	<b>People/ Social/ Organizational causes</b>		

Source: [111]

At the intersection of the four types of causes, there can be identified four types of organizational crises:

1. Internal, technical/economic crises – like product/service defects, industrial accidents, computer breakdown, etc. This type of crisis is caused by failures of internal systems and technology and can be mitigated with proper preparation and control.

In 1992, Shrivastava expands on the lessons to be learned from the lingering nature of the crisis. Industrial crises have identifiable causes – human, organizational, and technological – and their consequences demand new business and social policies designed to prevent such crises in the future. “This is the critical challenge we face in our rapidly industrializing world” [110];

2. External, technical/economic/political crises – like widespread environmental destruction, large- scale system failure, natural disasters, etc. This type of crisis is caused by failures of external systems and technology and are very difficult to predict or prevent.

Regarding political crisis, Stern E. [116] conducted an empirical research in this area, and some reflections upon the results of the conceptual analysis argues if governments learn from it. Stout, D. explained that external crisis can start because of governmental lack of detention and control [117];

3. Internal, people/social/organizational crises – like failure to adapt or change, organizational breakdown, miscommunication, etc. This type of crisis is caused by malevolence of internal human factor and can be mitigated and avoided with proper control measures.

On the other hand, as Elash Daniel mentions, „If we don’t stay true to what we believe on a daily basis we don’t have the strength to stick with them during a crisis” [40]. Therefore, values and beliefs inside an organization are the pillars on which it stands, therefore must be carefully appreciated on a continuous basis.

According to Zuzak R., the company crisis could be defined as „a loss of equilibrium in one or more of its subsystems which might affect achieving its goal or even threaten its existence. The corporate culture involves certain values, rules of behaviour, within and outside the company,

which are shared by the company employees and, from the moral point of view, considered binding for them.” [133, pg.185]

4. External, people/social/organizational crises – like sabotage, terrorism, boycotts, etc. This type of crisis is caused by malevolence of external human factor and are hard to predict or avoid due to the lack of control.

The types of crises by their source can be categorized in a variety of ways, depending on the nature, impact and scale at which the crisis situation occurs. Lerbinger defined eight types of crises, based on their source, as following [65]:

1. Natural Crisis. Natural disasters are, by their definition, unpredictable and they may have a negative effect on a large scale. It affects a large population of actors, from individuals to communities and whole organizations.

Some disturbances that occur in the nature may lead to natural crises. Such types of events are generally beyond the direct control of human individuals even if, sometimes, there may be an indirect causality between human action and such natural causes. At the core level, there is a strong empirical evidence that human activity has led to pollution and, in consequence, a warmer atmosphere that causes today global natural phenomena beyond the human control such as tornadoes, more powerful hurricanes, landslides, tsunamis or floods. Human vulnerability in front of this type of crisis, exacerbated by the lack of planning or lack of appropriate emergency management, leads to financial, structural and human losses.

From outbreak to global pandemic there is only one step. To illustrate this, deadly viruses spread across the world, like COVID-19, alarmed global institutions to get ready for a more serious outbreak and use, according to Davidow, the following 10 steps to overcome this type of global natural extreme crisis [34]:

- Update plans;
- Connect and coordinate with others - Depending on the industry, get to know your counterparts at area hospitals, local government offices, public health departments, evacuation centres, police and fire departments, Red Cross centres, suppliers and the media;
- Create social distancing, which public health officials encourage during disease outbreaks to slow the spread of the infection;
- Act quickly – A regular news cycle no longer exists. The media reports information as it is released;
- Communicate constantly;

- Monitor news and information;
- Be prepared to manage interactivity;
- Communicate clearly and openly;
- Provide and maintain perspective;
- Support people involved - in times of crisis, communicators are on the front lines.

According to DuHamel, despite the complexity of a crisis situation, the goals and objectives set for the organization, which is dealing with crisis, should be relatively short term and simple [39]. They have to be flexible enough to withstand a constantly changing environment and measurable to achieve results quickly and offer some moral victories for people involved. The goals set for dealing with this outbreak must be fairly obvious:

- Provide accurate and timely information to our most affected audiences as soon as information becomes available;
- Wherever possible, work to reduce rumour and correct misinformation;
- Ensure that the public has confidence in our ability to manage this outbreak effectively and protect the safety of our staff, patients and their families. [39]

Another idea was supported by Weick [128] and Weick&Sutcliffe [129] by offering guides to explain the development of unexpected events. “Expect the unexpected” is a popular mantra for a reason: it's rooted in experience. Since the dawn of civilization, organizations have been rocked by natural disasters, civil unrest, international conflict, and other unexpected crises that impact their ability to function. Understanding how to maintain function when catastrophe strikes is key to keeping organization afloat:

- Explore the many different kinds of unexpected events that the organization may face;
- Consider updated case studies and research;
- Discuss how highly reliable organizations are able to maintain control during unexpected events;
- Discover tactics that may bolster your organization's ability to face the unexpected with confidence.

2. Technological Crises are related to breakdowns or failures of the operation of some equipment device that incorporates technology. Technology is the “how-to” of human action and it is always devised to support human individuals and organization in pursuing and reaching their objectives in a given preestablished set of circumstances. When such a set is not met, we could talk about a technology crisis. Lapointe and Rivard tried to better explain resistance to information technology implementation, by using a multilevel, longitudinal approach and assessed extant models of

resistance to IT. Using semantic analysis, they identified five basic components of resistance: „behaviours, object, subject, threats, and initial conditions”. [63]

3. Confrontation Crises emerge from conflictual situations inside the organization or when organization is involved. Boycotts by the consumers or business partners, strikes from the part of trade unions. Some actors are ready to take distribution of wealth outside the contractual arrangements in which they are a part.

4. Crisis of Malevolence. Such crises emerge by the malefic acts of other individuals and organization in order to extract resources from the organization. Some may be legal (such as menace of putting in danger the opportunities of the company) but especially illegal (like kidnapping, terrorism and so on).

Although crisis management has evolved rapidly over the past decade, the symbolic aspect of crisis management has been ignored. For example, the guidelines presented by Coombs are based upon Attribution Theory and use the crisis situation and the publics as the factors that help to determine when a crisis-response strategy is appropriate. [23]

In 1985 Mitroff and Kilmann emphasise explicitly the full range of corporate tragedies, disasters and catastrophes that are happening to corporation at an ever-increasing frequency and on ever widening scope. They argue that if “one understands better why today’s world is so different, that is giving more rise to more tragedies, the one is in a much better position to design a program to cope with them”. [78]

5. Crisis of Organizational Misdeeds. Such crises emerge when the management of organizations takes decisions with the knowledge that there are harmful consequences for some stakeholders. In such cases, managers ignore the after math of strategies and still decide to implement them for desired quick results. According to Lerbinger [65], crisis of organizational misdeeds can be further classified into following three types:

- Crisis of skewed, not balanced management values, occurs when there is a gap between objectives of the management and the interests of society as a whole or another type of social actors.
- Crisis of deception, usually associated with fraud, arises when the management of an organization purposely manipulates data and the information. Management may alter the financial data of the company (“cook the data”) in order to create an artificially better image of the performance of the company. In other circumstances, the customers may be deceived by the operation of the products they buy and, in consequence, of the benefits they may receive from the act of purchasing.



- Crisis of management misconduct – it enters an obvious field of illegal actions from the part of management, such as accepting bribes or taking illegal decisions (such as anticompetitive decisions like cartel agreements and so on). Nasi J. described the stakeholder thinking in three models of management morality: “immoral management, moral management and amoral management.” [83] Stakeholder thinking is a powerful way of visualizing organization and their social responsibilities. Addressing the needs and expectation of diverse stakeholders such as owners, employees, consumers, the community and the environment necessitates a broad and encompassing concept of corporate social responsibility.

6. Crisis due to workplace violence – such type of crisis arises when employees are indulged

in violent acts such as aggression towards employees or superiors in the office premises.

7. Crisis due to rumours – may be another form of crisis, taken into account the easiness of circulation of the information in contemporary society. Social networks generate sometimes information that is not verified and may be even purposely manipulated.

8. Man-made disasters – are results of intentional acts of action from the part of some individuals, such as organized crime or terrorist networks. In a certain sense, such disasters are generating damages similar to those created by natural disasters.

CMI's founder and CEO, Bruce T. Blythe, mentioned that “securing a business' structure and rebuilding employees' spirits in times of trouble should be statement in every company and also have two sides always prepared when dealing with such man-made disasters: response and preparedness.” [15]

Erika James defined two types of organizational crises, based on the way they emerge [58]:

1. Sudden Crises. As the name suggests, such situations arise all of a sudden and on an extremely short notice. Managers do not get warning signals and such a situation is in most cases beyond anyone's control. This type of crisis is generated by natural disasters, terrorist attacks, work accidents, etc.;

2. Smouldering Crises. Neglecting minor issues when they first appear, leads to smouldering crisis later. Managers often can foresee crisis but they choose to ignore the issues or wait for someone else to take action. This type of crisis is generated, in general, by bad management actions or, better said, non-actions.

The difference highlighted by James in our opinion is very important, as sudden crises are more difficult to forecast and are generally covered by the broad concept of uncertainty. For example, a truly heavy snow (which implies a quantity of snow double or triple than a „normal”

snow) may generate some impact that cannot truly be anticipated, like hitting a certain type of critical activity that couldn't manage that abnormal situation. However, when a "normal" snow disrupts the operation of certain companies, we should consider it a type of smouldering crisis. It was a high probability, "normal" event, that shouldn't surprise anybody. In such circumstances, the crisis should be interpreted as a result of a management failure that couldn't prepare the organization for a predictable situation. Such crises could be assessed as "information asymmetry or bounded rationality crisis", as defined by Oliver Williamson [130].

All these definitions and classifications of organizational crisis are conceptually correct, but they are not practical from the point of view of managing crises. From this perspective, when we talk about organizational crises, two relevant distinctions should be made: in terms of predictability and in terms of localization within the organization.

In terms of predictability, there can be two types of crises:

- crises that can be predicted and, therefore, prevented;
- crises that cannot be predicted.

The crises that can be predicted are usually caused by internal factors, such as accidents, technological failures, mal praxis, process failures, etc. The crises that cannot be predicted are usually caused by external factors, such as natural disasters, external malevolence actions, etc.

The distinction between these two types of crisis 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.

Along the course of their life, from their start-up to their maturity, organizations face a predictable series of organizational crises. According to Lippitt and Schmidt, the level and the impact of a crisis within an organization can be determined and depends on a number of variables [67]:

- the nature of the event,
- importance of the issue to the stakeholders involved,
- impact on other organizations or industries,
- how many and how quickly individuals inside and/or outside of a particular organization need to be helped or informed,
- who and how many people need interpretation of the events, and how accessible those individuals are,
- how much interaction with the media is necessary,
- what the media choose to emphasize,
- who and how many people need emergency care,

- how much the organization needs to assert control and demonstrate that it is capable of responding,
- how quickly the organization needs to respond.

However, what matters, as Shelton, Hall and Darling [107] mention, is the overall manner in which an organization systematically and continuously assesses its environment and operations in all of its organizational structures, and plans for how crises, however interpreted, can be appropriately managed.

Crisis should not be interpreted only in isolated situations, but also to the extent or larger scale such as macroeconomic environment, industry/ industries, group of companies.

Clearly, every organization tends to pay attention in the first place to crises that are well known and related mainly to its environment or industry, but companies should be aware of all disasters that can now happen to any organization, in any industry or environment.

In terms of localization within the organization, there can be identified two major types of crises: local crises and general crises. A local crisis is affecting only one process or area of the organization. A general crisis is affecting the whole organization. A local crisis, not taken care of, will end up affecting the whole organizational system. A local crisis could be, thus, turning into a general crisis, so it could be seen as a general crisis in an incipient phase.

The distinction between these two types of crisis offers the managers the guidelines for the measures needed in order to successfully manage the crisis. It is very important to identify correctly where the crisis is located in order to secure the affected area and limit the impact.

## **1.2 Crisis management and crisis management models**

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.

It is obvious that any organization, there are different, competing interests from the part of the actors involved in its operation. An entire field of inquiry, corporate governance, study and analysis the interplay between different groups of economic actors whose welfare are impacted by the decision at company level. They are called „stakeholders” and each one of these groups have a „stake” in the wealth of the company (table 1.2).

The decision maker that allocates resources and adopts the risk exposure at company level is the actor that arbitrates between these different categories of interests by his welfare-impacting choices. Bankruptcy is not the only moment in the life of a company when these competing

interests collide. Every business decision made by the management to allocate resources has a significant impact on the welfare of every and each of these categories of stakeholders.

**Table 1.2 The main groups of stakeholders and their interests**

<i>Category</i>	<i>Main typical interest</i>
Shareholders	firm value maximization
Employees	job safety, income maximization (wages)
Management	job safety, income maximization (wages), reputation
Creditors	credit repayment, corporate risk reduction
Trade partners	business growth of the partner, continuity of business relation, profit

*Source: developed by the author*

In the corporate governance literature, there has been a long discussion about the conflict between the objectives followed by the management. They could follow only the objective of short-term profit maximization (which fundamentally favours the shareholders) or the welfare of all categories of stakeholders (based on the argument that the performance of the company is fundamentally a result of the incentives offered to all of these categories. Such a conflict has been the term the conflict between the shareholder model and the stakeholder model.

Alpaslan, Green and Mitroff [3, pg. 46] approach the core issue of how the management decision regarding the risk of the company has an impact of different categories of stakeholders: „crisis raise questions about how corporations should be governed and managers ought to act”. According to their analysis, „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. In our opinion, this is very important, not only for the knowledge involved in the crisis resolution but also for the welfare of all the categories of stakeholders involved in the company faced or exposed to crisis. Another argument in favour of applying the questionnaire inside the firm was the approach to the communication of the crisis resolution to all the categories of stakeholders. The communication of the business decision-maker regarding the risk and crisis management is critical to the success of the implementation of the action plan in order to close the risk loopholes in the company.

When speaking about organizational crisis management, the first issue to address is how to know when a crisis is coming and why. As mention Heller [52, p. 21], the answers for questions like: “What are the early warning signs? What analyses serve to give early warning of change and the possibility of a future organizational crisis?” are important steps for understanding the

complexity of factors that influence the manner in which the individuals address the crisis situation.

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. Even though a crisis is, by definition, unpredictable and chaotic, there can be steps taken towards a more predictable and controlled crisis approach.

A crisis in a business organization can consist of many “distinct phases, although in some cases these phases can be so closely related that they fuse together in close proximity”. [52, p.23] Stages enable planners to monitor risks, progress, target stakeholders, and take strategic action appropriate to the stage.

Fink’s model suggests that planning for a crisis “is the art of removing much of the risk and uncertainty to allow you to achieve more control over your own destiny” [42, pg.17]. Although this view is pretty old, it reflects the current management approach to dealing with crises, which sees them as isolated events that can be analysed in terms of causes, consequences, caution and coping, where: causes “include the immediate failures that triggered the crisis and the antecedent conditions that allowed failures to occur” [42, pg.17]; consequences are short and long-term effects; caution represents the actions taken in advance in order to prevent a crisis; and coping refers to actions taken after the crisis already occurred, as a response, in order to minimize its impact.

According to Fink [42], a crisis develops along four different and distinct stages:

a) Prodromal Crisis Stage

When someone in an organization discovers a critical situation, they usually bring it to the attention of their superiors. This is known as either the pre-crisis warning or precursor. At this point in time, the critical situation is known only inside the organization and is not yet visible to the general public.

b) Acute Stage

A crisis moves from the pre-crisis to the acute stage, when it becomes visible outside the organization. At this point in time, managers have no choice but to address it. It is too late to take preventative actions as any action taken now is more associated with damage control.

c) The chronic stage

This usually is the longest of the four, is where litigation occurs, media exposes are aired, internal investigations are launched, government oversight investigations commence and so on. This can go on for years or in some cases never ends.

#### d) Resolution stage

The final stage of crisis management is when things begin to return to normal. Effective resolutions for the situation are put into practice, and if they go as planned, the incident begins to fade from the spotlight.

The level of the impact a crisis has upon an organization is determined by the way it is being handled or managed. Based on this aspect, the way a crisis is being managed is crucial in determining the success of overcoming the effects of the crisis. Thus, the concept of “crisis management” was developed, which brings the focus on the solutions available when a crisis occurs. According to Fearn-Banks [41, pg. 22], crisis management is “a process of strategic planning for a crisis or negative turning point that is linked to crisis communication as the dialog between the organization and its publics prior to, during, and after the negative occurrence”. The term crisis management is commonly used because it can be applied to a wide variety of circumstances that might disrupt the normal course of activities in an organization. The goal of crisis management is to minimize as much as possible the potential losses that the crisis may create.

From the perspective of organizational level, crisis management is the process by which an organization deals with a major event that threatens to harm the organization, its systems, its members and its stakeholders. To manage crises effectively, organizations must first be aware of all the phases and steps involved in the entire process of crisis management. Next, they must be aware of the differences between phases [97].

Furthermore, because crises are becoming increasingly complex, a secondary step must be made to prepare simultaneous occurrences of crises. The purpose of this step is to induct and implement the idea of permanent preparation for attempting to prevent crises by constantly testing and simulating as many breakdowns as possible.

An integrated approach to ongoing crisis communication is related to: planning, managing, and responding. In this respect the author W. Timothy Coombs introduces a three-staged approach to crisis management - pre-crisis, crisis, and post-crisis, and he explains how crisis management can prevent or reduce the threats of a crisis, providing guidelines for how best to act and react in an emergency situation. [25]

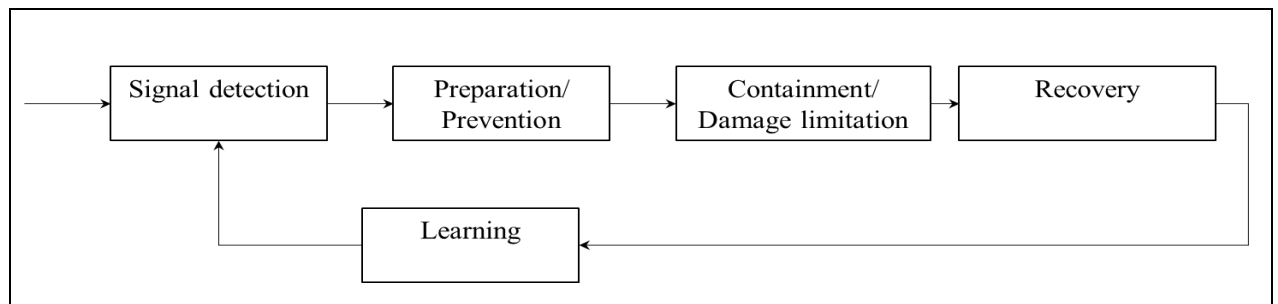
All descriptions and means of crisis have the same common point that defines the phenomena as occurring as a result of an unpredictable event or as an unforeseeable consequence of some event that had been considered a potential risk. In all the cases, crises require fast and sharp decisions to quickly limit the eventual damage to the company.

Crisis management – planning for a crisis, for a turning point – is, in consequence, 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.

Five Stages of Crisis Management comes from Mitroff [73], is a model that advances five steps in dealing with a crisis (figure 1.1):

- a) Signal detection – this step refers to the efforts to prevent the crisis by identifying and closely monitoring the early warning signs,
- b) Probing & prevention – this step is about searching for risk factors (identifying and assessing the risks) and mitigating them in order to reduce their potential to create damage,
- c) Damage containment – in this step is essential to limit the crisis and keep it from spreading to uncontaminated areas of the organization,
- d) Recovery – this step refers to the stage after the crisis is resolved and is about returning to normal operations as soon as possible in order to continue the daily business activity,
- e) Learning – after the situation is back to normal, the whole incident must be analysed and all the actions reviewed in order to completely and correctly understand the crisis that was just passed. A critical approach is recommended in order to learn what went wrong and what went well and improve the crisis prevention and response ability.



**Figure 1.1 Five stages of Crisis Management Model**

*Source: [73]*

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. Previously, in reference to the same subject, Mitroff in collaboration with Pauchant in 1988 [79] and in collaboration with Pearson in 1993 [80], published crisis management experiences and examples based on a survey of 1000 companies as well as interviews with over 500 managers with crisis management experience.

As an additional support to Mitroff's model, Paraskevas [86] emphasized that in today's dynamic, high-velocity social and business environment, most crises do not occur suddenly. He mentioned that Mitroff observed that long before its actual occurrence, a crisis sends off a repeated and persistent trail of early warning signals that could be picked up.

Gonzalez-Herrero and Pratt [46] proposed a Crisis Management Model which identifies three different stages of crisis management:

a) Diagnosis of Crisis. The first thing to be done when dealing with a crisis is to correctly identify its nature, causes and all possible effects. This stage is very important due to the fact that all actions taken from now on are based on the conclusions drawn by the diagnosis process and even the smallest inaccurate opinion could sabotage the final result.

b) Planning. As soon as a crisis is identified, a crisis management team must be put in place, in charge with decision making regarding the solutions that need to be implemented in order to mitigate the crisis and re-establish an efficient organizational environment. According to Dobbins and Russell [38] the communication inside the organization between teams is one of the key factors when dealing with crisis management. Creating a healthy environment and good communication channel, lowers the risk related to leader-subordinate conflict.

c) Adjusting to Changes. After decisions were made, there comes an even bigger challenge. A very important stage in managing the crisis is the adjustment of the system and the acceptance of the new situation by the people. This will ensure that normality will be restored to the organization in a short period of time and that the mistakes which led to the crisis in the first place will not be repeated.

This model, as the previous ones, 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.

All businesses are vulnerable to crises and to ensure that the crisis will flourish and grow, as Bernstein mentions companies should not “only start work on a potential crisis situation after it's public, let the reputation speak for the company, treat the media like the enemy, get stuck in reaction mode versus getting proactive, use language the audience doesn't understand, assume that truth will triumph over all, address only issues and ignore feelings, do the same thing over and over again expecting different results” [13]. On the other hand, PR practitioners prepare for a media frenzy, which may or may not coincide with a crisis. As is mentioned by Bernbeimer [12], PR practitioners should speak openly if there is or there it not a crisis happening, encourage the media to use of reliable sources and practice early and often. Gerard Braud, in “Crafting a crisis communication plan”, emphasised the importance for companies to have a crisis plan which



„should not say how to behave in a crisis, but it should mention what to do in a crisis and when”.[17]

Another important aspect to be mentioned in reference to crisis management, is ability of leaders to approach adaptive leadership techniques. According to Heifetz R, Grashow A. and Linsky M., “when change requires to challenge people's familiar reality, it can be difficult, dangerous work. Whatever the context would be, whether in the private or the public sector, many individuals feel threatened as pushing through major changes. But as a leader, one needs to find a way to make it work.” [51]

Shelton, C. and J. R. Darling consider that “the traditional management skills of planning, organizing, directing and controlling are inadequate in the fast-paced, constantly changing, highly complex world of twenty-first century organizations” [108]. According to them „concepts from quantum mechanics and chaos theory as metaphors for a new management skill set that can enable managers to actualize more of their leadership potential.”[108] Furthermore, as Shelton, C. and J. R. Darling defined, “a major challenge is that in order to achieve results and overcome crisis, the leaders must typically do so through others functioning in an organizational setting. Skills for successful leadership therefore become of major importance to the achievement of meaningful objectives in entrepreneurship. The modern era encompasses a period that technologically could be called The Quantum Age.” [109]

Wright, M. [132] argued that a “model of strategic choice has strengths and weaknesses”. One strength is his categorization of different management frames of reference/policy groups:

- inert,
- conservative,
- proceduralist,
- consensual innovators,
- aggressive proceduralists,
- and radical innovators.

This typology is firmly grounded in observation and helps the reader map the diverse choices and actions of the firms. The principal defect of the model is the absence of any explanation as to why managers adopt one particular management frame of reference rather than another. Ultimately, we do not know why one management group is inert and another a radical innovator, and so we lack a principal cause for the diversity that Wright reveals.

*In conclusion, 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. [105]*

Another aspect to be discussed is the difference between risk management and crisis management. Risk has been one of the key concepts studied in economics. Knight made a famous differentiation between risk and uncertainty as: „the essential fact is that risk means in some cases a quantity susceptible of measurement, while at other times it is something distinctly not of this character It will appear that a measurable uncertainty, or “risk” proper, as we shall use the term, is so far different from an unmeasurable one that it is not in effect an uncertainty at all. We shall accordingly restrict the term "uncertainty" to cases of the non-quantitate type” [60, pg. 20].

From this perspective, we could associate crisis management with uncertainty while risk management with quantitative approach to measure and assess the exposure to known events and probabilities. [99]

Risk management can be described as the process of handling the risks by first identifying them, then evaluating them, and then minimizing or monitoring them in order to keep them as harmless as possible.

Risks generally are associated with uncertainty. In organizations, the risks can come from a lot of different uncertain aspects: market evolution, projects failures, accidents, natural disasters, etc.

There are different tools that can be used when dealing with risks, depending upon the kind of risk faced. Ideally, in risk management, a risk prioritization process should be followed in order to be able to deal first with those risks that present great loss threat and have great probability of occurrence (figure 1.2).

The importance of properly assessing and prioritizing the risks is huge. According to these actions, and depending on their accuracy, the company's resources are allocated towards minimizing the perceived risks.

This risk management model is useful in practice, but it has some limitations in providing an effective protection tool. If the risks are not real or are over evaluated, resources can be wasted for nothing. In the same time, an under estimation of the risks can produce even greater threats for the organization.

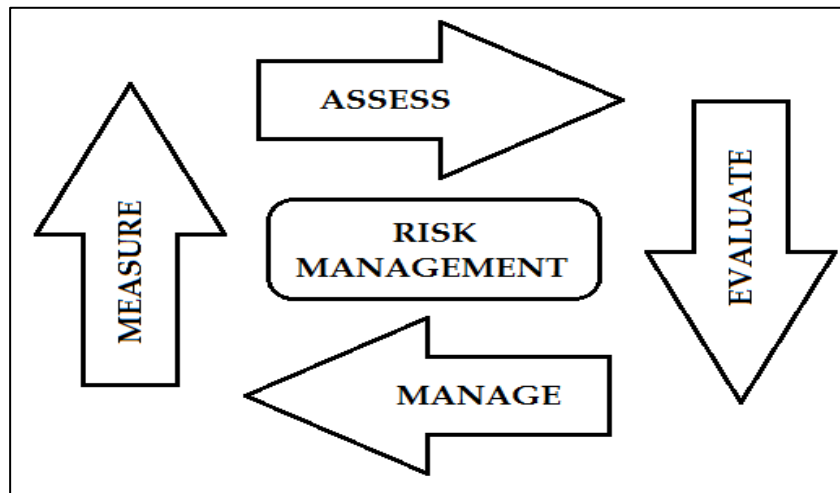
<b>Impact</b>	<b>Actions</b>
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<b>Major</b>				
<b>Moderate</b>				
<b>Minor</b>				
<b>Probability of Occurrence</b>	<b>Rare</b>	<b>Possible</b>	<b>Often</b>	<b>Frequent</b>
	High risk – extensive management actions required			
	Moderate risk – management and monitoring actions required			
	Low risk - monitoring actions required			
	Very low risk – acknowledgement of the risks			

**Figure 1.2 Risk management model**

*Source: done by the author*

Apart from risk management models, typically most of the organizations follow a risk management cycle, as described in the figure 1.3 [102].



**Figure 1.3 Basic Risk management cycle**

*Source: done by the author [102]*

According to this cycle there are four steps in the process of risk management [102]:

Step 1 – Assessment of risk. The first step is to identify or assess the risks, by identifying their source. The sources of the risks can be internal or external to the system. They both can be controlled only up to a certain extent.

Step 2 – Evaluation of risk - After the risks are identified they must be evaluated from the point of view of their potential to be harmful. The potential is calculated taking into account the likelihood of occurrence and the estimated impact, as presented previously in the risk management model.

Step 3 – Management of risk. After the evaluation is completed, the risk management plan is development and implemented.

Step 4 – Measuring risk’s impact. It defines the control mechanisms that should be used for the mitigation of risk.

This cycle is useful in practice but it is very general, it doesn’t go into detailed actions. Even with all these measures taken, there might be risks that the organization fails to identify and manage. The impact of these risks, when they occur, can be measured and taken into account in readjusting the risk management process for a better prevention in the future.

In consequence, “the term management of risk incorporates all the activities required to identify and control the exposure to risk that may have an impact on the achievement of an organization’s business objectives” [128]

Risk management and crisis management are, in a broader conceptual perspective, intrinsic parts of a performant management. As Mitroff pointed out: “Truly effective crisis management is proactive. It not only consists of “thinking the unthinkable” but being prepared for it so that one knows what steps to take to limit damage and assume rightful responsibility when the worst occurs” [76, pg.5].

In practice, from the perspective of their probability to occur, the risks are usually categorized from “low” – very small probability, to “high” – great probability, based on the expectations for the risks to happen (figure 1.4).

Traffic Light	Probability	Assessment
High	Greater than 80%	Is <b>expected</b> to occur, almost certain.
Medium/High	Between 20 and 80%	<b>Will</b> probably occur, measures may or may not exist to reduce likelihood.
Medium	Between 10 and 20%	<b>Could</b> occur, this is possible. Measures to reduce likelihood exist, but may not be fully effective.
Low/Medium	Between 5 and 10%	<b>Might</b> occur at some point in time. Conditions do exist for this to occur, but controls exist and are effective.
Low	Less than 5%	Rare, <b>may</b> occur in exceptional circumstances. No or little experience for a similar failure;

**Figure 1.4 Probability for Corporate and Operational Plan Risk**

Source: *Risk management guidance, HM Treasury* [53]

The impact of risks can be also graded from “low” to “high”, depending on the damages they may cause in the event they may happen (figure 1.5) [102].

The identification of the risk is very important for the management, but it is as important as the action taken in front of it. The risk management responses as devised by the literature could fall in one of the following categories: transfer, tolerate, treat, terminate or take the opportunity. [53]

Grade of Impact	Description
High	May cause key objectives to fail. Very <b>significant</b> impact on organizational goals. Legal or regulatory implications. Significant reputational impact.
Medium/High	<b>Major effect.</b> Risk factor may lead to significant delays or non-achievement of objectives.
Medium	<b>Moderate</b> effect. Risk factor may lead to delays or increase in cost.
Low/Medium	Some impact of the risk, <b>fairly minor</b> .
Low	Fairly insignificant, may lead to a tolerable delay in the achievement of objectives or minor reduction in Quality/Quantity and/or cost increase.

**Figure 1.5 Impact for Corporate and Operational Plan Risk**

*Source: Risk management guidance, HM Treasury [53]*

The transfer of risk can be usually pursued as a result of the existence of economic agents and market contracts that are specifically designed for such a process. Risk management has emerged as a massive industry in modern economies where institutions specialized in it can offer their counterparties the ability to transfer risk, they perceive they cannot manage. For example, insurance contracts and derivative contracts (like futures, options, forwards, so on) have developed for this end.

Termination of the risk means that the organization takes actions in order to liquidate its position (in terms of economic resources and contracts) that generate the risk. It may involve a restructuring of assets and liabilities and even economic involvement in certain types of activities.

Tolerate the risk may be an efficient response to certain types of risks. Either the cost of taking an action may be bigger than the potential benefit (or the potential loss) or the structure of portfolio of assets and liabilities of the company (and the legal exposure) is somehow optimally structured in order to incorporate the impact of the risk. There are companies that can apply, for example, the portfolio effect to their assets or legal exposure in the sense that such risk could be compensated among them and generate a neutral exposure. In this respect, we could speak about different levels of tolerance of the organization in front of certain types of risk.

The option of treat may imply either the restructuring of the portfolio of assets and liabilities in order to make the organization ready to tolerate the risk or bring the level of risk (either through transfer or other options) to the appropriate level of tolerance.

From this perspective, the crisis management is dealing with more diffuse situations which cannot be managed through the tools of risk management such as financial contracts or instruments. Crisis cannot be easily assessed (they are more related to uncertainty) and their impact cannot be precisely valued. They may have a dramatic impact on the organization and, in this respect, crisis should be more dangerous to organizations than risk situations. Crisis management should be a life-or-death process.

Crisis are not only more diffuse but also more complex than the simple and normal dynamics of certain indicators and market indices. For example, the modification of the exchange rate of some currency that a company is using is a source of risk but, normally, not of a crisis. The tools of risk management can be employed in order to deal with such a risk.

Meanwhile, there may be organizations that experience a crisis that can be generated by dynamics of the foreign exchange risk. Such crisis can be a result of a major impact of the foreign exchange risk, that, for example, has not been adequately dealt with or ignored. So, we may reach one of the key conclusions of this thesis, namely, risk can lead to crisis but not all risks automatically lead to a crisis. Risk management may be perceived, from this perspective, as a subset of crisis management as any risk could lead to a crisis in case it is properly managed. 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.

One of the most coherent approaches in crisis management has been developed in the Public Relations industry as crisis have been perceived as events that may dramatically impact the reputation of the company and the way that different categories of stakeholders are impacted by the decisions (or lack of decisions) from the part of the management of the organization.

Reynold and Seeger, from the Department of Communication at Wayne State University in Detroit, developed a model of communication known as Crisis and Emergency Risk Communication (CERC). The model unites a series of traditional notions of risk communication with crisis and disaster communication, outlining specific communication actions that should be taken during various stages of disaster or crisis development. Even though crises are unpredictable and chaotic, the CERC model pretends to be a tool that communicators can use in order to manage effectively these kinds of events [96].

There is a difference between risk and crisis communication. Risk messages address the possible harmful events that might occur and the possible methods that can reduce the probability of this occurrence. Crisis messages address what is known about a specific event and also what is not known. The things that are unknown weight more than the things that are known, in this situation. Risk communication has become almost routine, while crisis communication is more event related and is essentially no routine. Risk communication developed to understanding of risk, particularly technical and scientific.

The five-stage CERC model [96] assumes that crises will develop in largely predictable and systematic ways: from risk, to eruption, to clean-up and recovery on into evaluation:

- a) Pre-crisis (Risk Messages, Warnings, Preparations)

This stage consists of communication and education campaigns targeted to both the public and the response community to facilitate:

- Monitoring and recognition of emerging risks,
  - General public understanding of risk,
  - Public preparation for the possibility of an adverse event,
  - Changes in behaviour to reduce the likelihood of harm,
  - Specific warning messages regarding some eminent threat,
  - Alliances and cooperation with agencies, organizations, and groups,
  - Development of consensual recommendations by experts and first responders,
  - Message development and testing for subsequent stages;
- b) Initial Event (Uncertainty Reduction, Self-efficacy, Reassurance)

This stage consists of rapid communication to the general public and to affected groups seeking to establish [96]:

- Empathy, reassurance, and reduction in emotional turmoil,
  - Designated crisis agency spokespersons and formal channels and methods of communication,
  - General and broad-based understanding of the crisis circumstances, consequences, and anticipated outcomes based on available information,
  - Reduction of crisis-related uncertainty,
  - Specific understanding of emergency management and medical community responses,
  - Understanding of self-efficacy and personal response activities;
- c) Maintenance (Ongoing Uncertainty Reduction, Self-efficacy, Reassurance).

This stage consists of communication to the general public and to affected groups seeking to facilitate:

- More accurate public understandings of ongoing risks,
  - Understanding of background factors and issues,
  - Broad-based support and cooperation with response and recovery efforts,
  - Feedback from affected publics and correction of any misunderstanding's rumours,
  - Ongoing explanation and reiteration of self-efficacy and personal response activities,
  - Informed decision making by the public based on understanding of risks benefits;
- d) Resolution (Updates Regarding Resolution, Discussions about Cause and New Risks/New Understandings of Risk)

This stage consists of public communication and campaigns directed toward the general public and affected groups seeking to:

- Inform and persuade about ongoing clean-up, remediation, recovery, and rebuilding efforts,
- Facilitate broad-based, honest, and open discussion and resolution of issues regarding cause, blame, responsibility, and adequacy of response,
- Improve create public understanding of new risks and new understandings of risk as well as new risk avoidance behaviours and response procedures,
- Promote the activities and capabilities of agencies and organizations to reinforce positive corporate identity and image;

e) Evaluation (Discussions of Adequacy of Response, Consensus About Lessons and New Understandings of Risks)

This stage consists of communication directed toward agencies and the response community to:

- Evaluate and assess responses, including communication effectiveness,
- Document, formalize, and communicate lessons learned,
- Determine specific actions to improve crisis communication and crisis response capability,
- Create linkages to pre-crisis activities (Stage I).

In recent years, researchers and practitioners have explored the nature, theory, and best practices that are required for effective and ethical crisis preparation and response. The consequences of being unprepared to respond quickly, appropriately, and ethically to a crisis are dramatic and well documented. For this reason, crisis consulting and the development of crisis response plans and protocols have become more important. According to Millar, D. P. and R. L. Heath, responding to crisis „requires rhetorically tailored statements that satisfactorily address the narratives surrounding the crisis which are used by interested parties to define and judge it.” [72, pg.75]

The paradoxes of crisis learning, according to Roux-Dufort, C. is that “managers and scholars assert that crises are unique opportunities to learn and to question the conventional management assumptions that guide organizations. Behind this view, a certain conception of time and evolution is adopted. Crisis is seen as a step in itself in the evolution of an organization.” [92] Crises are thus analysed as a crucial moment of transformation that can potentially bring about radical changes in an organization.



The CERC model makes the connection between the risk management and the crisis management, combining all the actions related to the two processes into one system meant to follow the events along all their stages, from the early stage (identifying and evaluating the risks), to the peak of the crisis and till after the resolution. This is the advantage that this model brings, making the connection between risk management and crisis management actions. On the other hand, the system that CERC model designed and the actions that it proposes are very general and leave a lot of room for subjectivity. It is more a guide than a system, giving directions for every stage of the crisis, rather than precise technical instructions regarding the prevention (in the early stage), the management and the resolution of the crisis.

### **1.3 Risk management models**

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” [73, pg. 20]. 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.

The theory of risk management was developed during the time in academic work papers and more important in study cases of best practices. The most commonly used risk management models that have been formalized and frequently used by practitioners, at international level, are *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.

ISO 31000 is an internationally agreed standard for the implementation of risk management principles [1]. It was created in 2009 by the International Organization for Standardization, an independent, non-governmental membership organization and the world’s largest developer of voluntary International Standards. The basic idea behind this model is that those risks that arise from lack of organizational order can be controlled through better management and governance.[57]

ISO 31000 provides a set of principles and generic guidelines on risk management, a framework and a process for managing risk. ISO 31000 intends to help organizations of all sizes, regardless of the industry they activate in, increase the chances of achieving their objectives, to correctly identify opportunities and threats, and effectively allocate resources for the treatment of risks. The model can be applied to a wide range of activities, including strategies and decisions, operations, processes, functions, projects, products, services and assets.

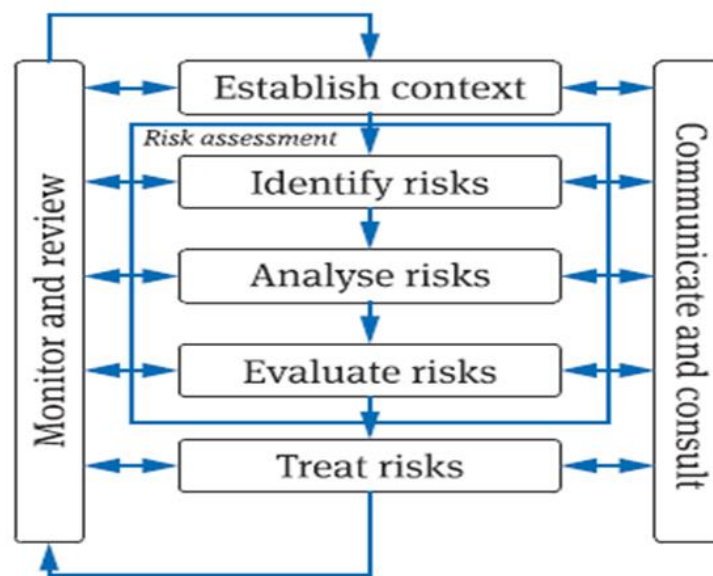
ISO 31000 standard is composed of three elements [57]:

- Risk management process – assessment and treatment of risks,

- Risk management framework – risk management cycle structure across the organization,
- Risk management principles – provide guidance for risk management actions.

The standard process (figure 1.6) follows the following four steps:

- Planning & Design of the risk assessment framework – identify, analyse and evaluate risks,
- Implementation – treatment of risks,
- Monitor and review – measuring the results and improving the process,
- Continual improvement – learning and reporting, communication and consultation.



**Figure 1.6 The ISO 31000 Risk Management Process**

*Source: Done based on Lark and Nikonov [64]*

ISO 31000 provides generic guidelines and it is not intended to promote a uniform model of risk management across organizations. The design and implementation of risk management plans and frameworks need to be adapted to the varying specific aspects of an organization, its particular objectives, structure, operations, processes, functions and specific practices it uses and promotes.

ISO 31000 also provides a set of actions that can be undertaken when dealing with risks:

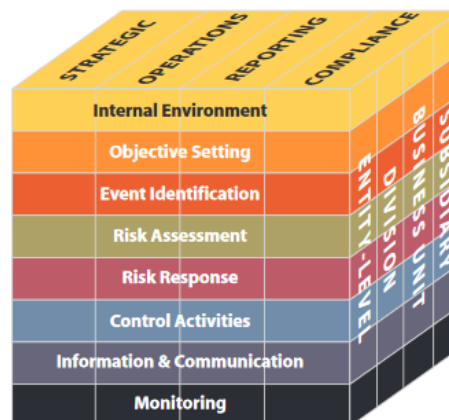
1. Avoiding any activities that present a risk,
2. Accepting the risk by conducting the activity that involves it in order to pursue an opportunity,
3. Mitigating the risk by eliminating the source of the risk,
4. Mitigating the risk by changing its likelihood or its consequences,

5. Sharing the risk with third parties.

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.

During the 1990's, The Committee of Sponsoring Organizations (COSO) developed a model for evaluating internal controls, named the COSO model that was later updated and defined as COSO ERM model [56]. COSO's ERM Framework defines *Enterprise Risk Management* (ERM) as a process effected by an entity's management, in setting the strategy across the enterprise, designed to identify potential events that may affect the entity, and keep risk within the risk appetite limits, in order not to affect the achievement of entity's objectives. Although it has attracted criticisms, the framework has been established as a model that can be used in different environments worldwide.

COSO's guidance in ERM model is illustrated in the form of a cube (figure 1.7). COSO intended the cube to illustrate the links between objectives that are shown on the top and the eight components shown on the front, which represent what is needed to achieve the objectives (activity level). The third dimension represents the organization's units, which depicts the model's ability to focus on parts of the organization as well as the whole.



**Figure 1.7 COSO ERM**

*Source: COSO [56]*

The perspective of any company should consist, according to this approach, on four groups of objectives:

- Strategic – includes the critical perspective of the company at the basic level; the core entrepreneurial perspective of the business;
- Operations – includes the ways that the day-to-day operations should be conducted;
- Reporting – involves the action necessary for the management to be reliable and accurate;
- Compliance – implies the critical process of assuring that the company operates inside the limits of law, regulations and internal or external procedures.

Regarding the importance of compliance to regulation and to external or internal procedures, Tompkins, P. K. identified ten “communication transgressions”, one of which, for example, is “ignorantia affectata” – an affected or cultivated ignorance of organizational problems [122]. On the same subject, the authors Taylor, G., Easter, K. and Hegney, R. have taken an international and holistic perspective, foregoing “prescriptive models for a self-regulatory, risk management-based approach to health and safety at work.” [119]

There are four levels at which the model can be applied at the organizational level:

- Entity = that is, at the level of the legal entity;
- Business unit = that is, at the level of the industry the entity operates;
- Division level = that is, at the level of strategic business units (identifiable units of resource allocation and profit calculation);
- Activity = at the basic, grassroots level of economic activity.

On the component level, the cube presents following elements:

- Internal Environment,
- Objective Setting,
- Event Identification,
- Risk Assessment,
- Risk Response,
- Control Activities,
- Information and Communication,
- Monitoring.

The main purpose of this framework was on one side to prevent the risk by detecting them first through internal control analysis and further by addressing the risk at each different level where it arises.

The COSO ERM model 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.

Enterprise risk management intends to help an organization to run its daily activity and to meet its targets by avoiding any possible unpleasant surprises and losses caused by certain threats to its current operations. Although it is more specific and target focused than all previous presented models for crisis prevention, it is still a guideline, a map to be followed, not a mechanism to be applied. This leaves a lot of room for human interference and subjectivity that can alter the final result, thus, creating different effects from one case to another.

Among the most frequently employed tools in risk management consultancy, we could recall the Key Risk Indicators. As a key consultant on risk management argued, “KRIs measure how risky certain activities are in relation to business objectives. They provide early warning signals when risks (both strategic and operational) move in a direction that may prevent the achievement of KPIs.” [62]

They also need to be revised periodically in order to be updated with the changes within the organization that may create new risks, as mention Coleman [22]. This is a very important aspect in the risk management process regarding the KRIs and must be approached very thoroughly, as the response time is critical in mitigating new threats that might come up. Another important aspect is how easily the KRIs can be measured and can be used and interpreted by the management. The accuracy and clearness of the information generated by KRIs make the difference between effective and ineffective KRI system.

Key Risk Indicators are a critical tool in crisis management as they are used as “early warning systems” that signal the emergence of challenging and potentially critical factors in the development of crisis. The indicators that are relevant in the process of organizational crisis prevention are associated with the types of objectives of the organization, as mentioned above.

a) Strategic KRIs – the focus is on strategic guidelines. The existence of a strategy within the organization is crucial for its continuity and performance. This way, the entity knows which way it is going and can constantly monitor its evolution compared to the designed strategy. The risk presented by the lack of strategy is threatening the very purpose of the organization.

b) Operational KRIs – the focus is on the effective and efficient ways of using the existing resources. The way an organization is using its resources can determine its sustainability and

continuity. The lack of control over this aspect can generate a defective system that can bring the organization to bankruptcy.

c) Reporting KRIs – the focus is on the accuracy, reliability, applicability of the reports. A poor quality of the reporting system or the lack of it determines the level of information the management relies on when taking important decisions regarding the future of the organization. It is instrumental for the management to have access to the most relevant and the most complete information in order not to take wrong decisions and affect the capacity of the organization to reach its goals.

d) Compliance KRIs – the focus is on compliance with laws, internal and external procedures and regulations. Setting an internal system of procedures and regulations to establish a common and unitary approach within an organization, ensures that everybody involved in achieving the organizational goals will follow the same rules, thus being avoided mistakes that could endanger reaching the goals. Also, compliance with the laws is crucial in every organization activity. The breaking of the laws or lack of control over this aspect is a risk that no management should take, as it may end suddenly and unpleasantly the operations of the organization.

Our practical experience, showed that using KRIs is very important for the optimal functioning of an operation. 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, etc.

a) Entity level:

- Improving decision making process by better prioritizing and categorizing the issues that the top management needs to address;
- Improving overall performance of the organization and reduce the likelihood of bankruptcy

b) Sub-division level:

- Developing a preventive culture within all the levels of the organization that will help the management to implement easier and more effective a risk management system;

c) Financial:

- Optimizing financial key indicators and reducing financial losses through an effective financial control;

d) Operational:

- Increasing performance and decreasing occurrence of operational errors by mitigating the exposure to operational risks;

e) Legal

- Diminishing the occurrence of litigations through a better monitoring process of the events that could lead to legal risks;

f) Marketing:

- Optimizing external communication with customers, partners and other third parties;

g) Sales:

- Increasing revenues by allowing a better focus on the selling process;

h) Human resources:

- Improving work relationships and internal communication.

Although the KRI's are very common tool in risk management consulting, but somehow, they are limited by their quantitative approach in the analysis of crisis management. We continued our analysis by towards exploring an algorithm which is more qualitative and synthetic.

*Based on made study, we can conclude that both, crisis management and risk management, are part of the general domain of organizational management and they both deal with threats that impact the well running of the organization's systems and the wellbeing of its individuals.*

According to Gunning and Hanna [50, pg.815], the core difference between risk management and crisis management lies in the ability of the organization to change and control the causes of the potential losses it is exposed to. While in the case of the risk management, the company has the ability to change and control such causes – and eventually adopt the risk exposure that is suitable and manageable by the organization – in the case of crisis management, such an ability is practically non-existent. Companies have to accept that there are events or phenomena that cannot be controlled or insulated and that crisis will eventually occur. The uncertainty regards the moment of the occurrence and, maybe, the exact details of the impact.

Crisis Management approaches the threats mostly from a reactive perspective; it describes actions that need to be put in place in order to reduce as much as possible the negative effects of an event, which is, in general, unexpected.

Risk management approaches the threats from a proactive perspective; it is concerned with identifying and correctly assessing of a possible threat.

While risk management is treating risks individually, organizational crisis management is concerned also with identifying the connections between different individual threats, from different organizational areas and levels that, existing together, might add up to become an increased threat and generate a crisis. From this perspective, crisis management has a more integrative approach.

On the other hand, risk management involves identifying and assessing potential threats and finding the best ways to avoid those threats to materialize, while crisis management involves dealing with threats before, during, and after they have occurred. In an extended version of the pre-crisis stage of crisis management, the actions are similar to the ones engaged by risk management.

The process of identifying, assessing and mitigating potential threats as part of the larger crisis management process is 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.

Some corporations spend millions of dollars on so-called “crisis communication plans”, others simply hope for the best, praying that they never face a crisis. Either way, as Steve Adubato says, “Wishful thinking is no substitute for a strategic plan” [2]. According to Alpasan M., Green S and Mitroff I. stakeholders don't care so much about crisis management, until it happened the crisis, due to the fact that crisis management behaviours are not perceived to maximize shareholder value [3]. But no company or organisation is immune to crisis and every day, organisations run the risk of being affected. However, as Anthonissen mentions a crisis does not necessarily have to turn into a disaster for the business or organisation involved and the damage can be effectively limit by acting quickly and positively [5] The importance of an efficient communication has mentioned also by Auffermann K. [7], Smith L.&Millar D. [114, 115], Austin&Jin highlight how social media are influencing the practice of crisis communication [8].

#### **1.4 Conclusion on chapter one**

1. All descriptions and means of crisis have the same common point that defines the phenomena as occurring as a result of an unpredictable event or as an unforeseeable consequence of some event that had been considered a potential risk.

2. The right approach should integrate both economics and management studies, which is unfortunately one of the issues that have not been satisfactorily done in the literature on crisis management.

3. The study of crisis management originated with the large-scale industrial and environmental disasters that took place in the 1980s. It should be noted however 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 present research will attempt to solve this in the following chapters.

4. Risk management and crisis management are not competing with each other as practices within an organization, rather, they are working together for the same outcome, which is increasing the capacity of an organization to cope in the most efficient way with any possible threat that might put in danger its functionality or even its existence;

5. 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 leaves 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.

6. KRIs 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. Such a tool will be taken over in our approach.

7. Fundamentally, our definition of crisis management is that there is a 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.

## **2 Assessing risks and preventing crises – the mathematical algorithm for assessing a company’s risks exposure**

While the conceptual framework of risk and crisis management is clear, the implementation of such a framework is obviously a challenging enterprise. Both academics exploring fundamental theory as well as practitioners that drew from their business experience have advanced different models that would be used as tools by the industry in order to record the best performance. We could argue that there is no a “first best” model that would include every factor or would take into consideration every indicator.

However, 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.

### **2.1 The limits of existing risk management models**

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 [4]. It was one of the first attempts to provide a way to forecast the economic performance of a company by analysing a function based on 5 financial indicators of a company.

The core objective of this analysis was to anticipate the bankruptcy of a company by looking into the details of the financial performance prior to such an event. Altman has employed a sample of sixty-six firms by dividing them into two groups: bankrupt firms and on-going concerns (in a certain sense, a control group). By looking at a period of five years prior to the event, Altman „concluded that failing firms exhibit significantly different ratio measurements than continuing entities”

The final function or index (Z) advanced by Altman was as follows:

$$Z = 0,012*X_1 + 0,014*X_2 + 0,033*X_3 + 0,006*X_4 + 0,0999*X_5, \text{ where}$$

X<sub>1</sub> – Working capital/ Total assets

X<sub>2</sub> – Retained Earnings/ Total assets

X<sub>3</sub> – Earnings before interest and taxes/Total assets

X<sub>4</sub> – Market value equity/ Book value of total debt

X<sub>5</sub> – Sales/Total assets

The analysis of Altman „suggested that the bankruptcy prediction model is an accurate forecaster of failure up to two years prior to bankruptcy and that the accuracy diminishes

substantially as the lead time increases” [4]. So financial indicators remain one of the most powerful tools not only in financial management but also in strategic management. The index advanced by the American scholar 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. [11]

The model employed by Altman (a function /an index) has been considered obviously limited by its core and only focus on financial data of the companies taken into analysis. Such a purely financial approach has obvious shortcomings as the situations leading to crisis in an organization are revealed by the financial indicators of the company but are not the same thing. In fact, a lot of companies that are approaching the biggest challenges in their operation have recorded excellent financial results. Moreover, in the case of fraud and manipulation, it has been revealed that there are core weaknesses in the reality that financial indicators can bring to surface.

The overall literature, approaching crisis management issues and methods of dealing with it, 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. In this respect, Hiatt C. J. mentions that the “primer is intended to help businesses plan for an occurrence that could mean a business stoppage. It helps you evaluate your business in terms of vulnerability to disaster and guides you through the process of creating a disaster recovery plan” when trying to solve crisis in IT environment.[55]

Jaques, T. supports crisis prevention, instead of just crisis response, which requires moving responsibility from the operational to the executive level. In his paper he builds a nonlinear model to explore how crisis management activities can be clustered together and integrated to optimize organizational effectiveness. [59]

Kolek J. gave few examples of how some companies and organizations have successfully managed a crisis and emerged stronger. He mentioned that „companies faced with potentially negative coverage need to take extra steps to control the message and come out as the trusted source of information about their own affairs”. [61]

Pollard, D. and Hotho, S. (2006) brought into discussion the major factors related to a strategic approach to crisis management and a more proactive approach to building relationships with the media. The authors supported that „particular attention should be given to the roles and responses of the media and agencies acting on behalf of the company, as both should be treated in the same way as other relatively powerful stakeholders”. The authors suggest that firms can obtain significant advantages through proactive preparation for major relevant contingencies, and its incorporation into the strategic management process. [94]

Robert, B. and Lajtha, C. supported that the key to effective crisis management lies not so much with the writing of detailed manuals (that have a low likelihood of being used, and an even lower likelihood of being useful) and practising location evacuations as with structured and continuous learning processes designed to equip key managers with the capabilities, flexibility and confidence to deal with sudden and unexpected problems/events – or shifts in public perception of any such problems/events.[97]

Smith D. [113] argues that the nature of interactions within a service sector context generates significant problems of emergence that, in turn, create vulnerability within organisations. He aimed to offer suggestions regarding the various points of intervention that are available to organisations, according to the nature of crisis with particular reference to the service industries. He has sought to identify three of the key elements of the crisis management literature: namely vulnerability, emergence and the barriers to learning. Each of these offers quite fundamental challenges to the practice of service recovery by highlighting the need to address both the prevention and response dynamics of the crisis process. In his paper he outlines the theoretical aspects of failure and outlines the process of vulnerable pathways within organisations.

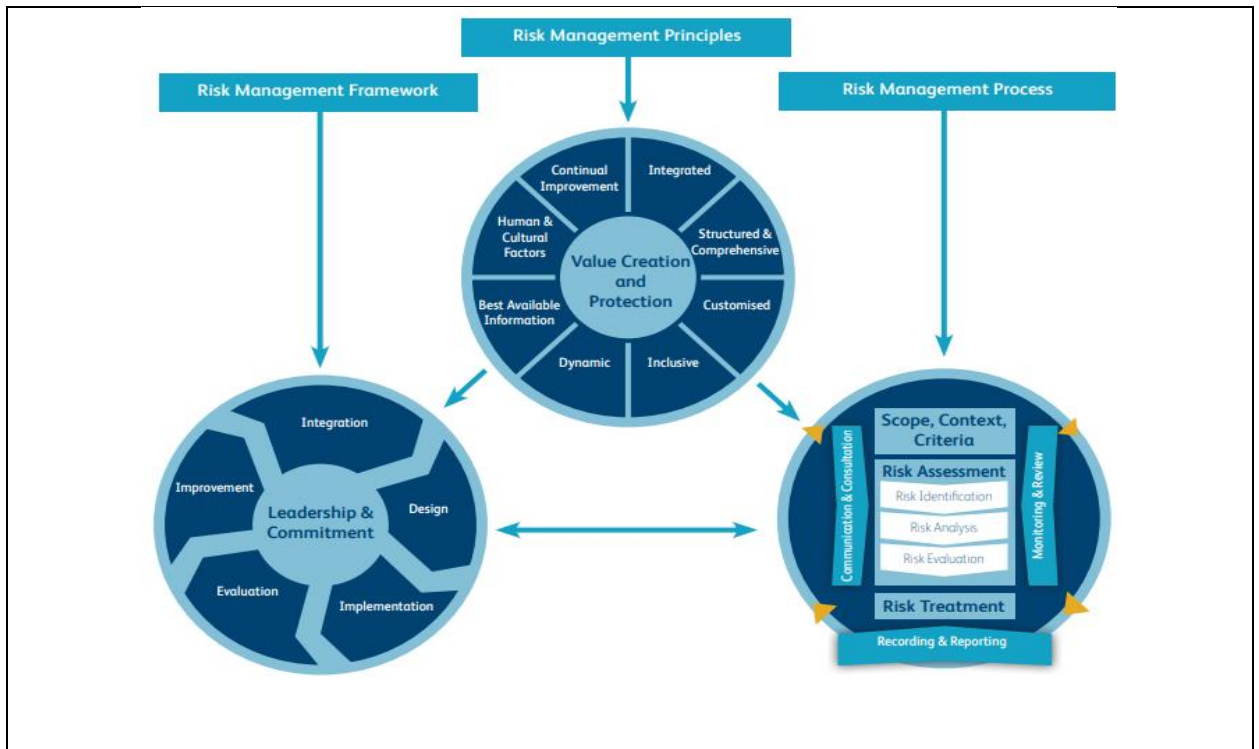
Ulmer R. R., Sellnow T. L. and Seeger M. W., present the discourse of renewal as a theory to manage crises effectively. Unlike other crisis communication texts, they try to offer answers to the question - What now? - and explains how organizations can and should emerge from crisis in a theoretical way.[125]

As was mentioned in first chapter, 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.

The latest ISO 31000:2018 Risk Management standard is depicted as a trinity of Principles, Framework, and Processes (figure 2.1). These three components come together to ensure:

- Principles - Sustaining a dynamic and continuously improving risk management system that is inclusive and considers different human and cultural factors;
- Framework - Senior management leads the proactive integration of risk management on all levels of the organization;
- Processes - Open communication and reporting of risks that are continuously identified, analysed, and evaluated.

According to ISO 31000 Risk Management [57], implementing the right software and technology is a critical component of any effective risk management system. An effective risk management tool should be intuitive for users to capture data in a timely manner and powerful enough to capture and analyse quality data.



**Figure 2.1 A Risk Practitioners Guide to ISO 31000**

*Source: ISO 31000 Risk Management [57]*

In this respect, the latest ISO 31000:2018's developed general templates for work [57], as further presented:

(I) Risk Management Checklist

This ISO 31000 Risk Management readiness checklist helps in finding gaps and build organization's risk management system to be at par with ISO 31000: 2018's standard.

It can be used this readiness checklist for business to find and correct gaps and help build a sound risk management system at par with ISO 31000: 2018's benchmark. This checklist was converted using a general type of questionnaire and it focuses on building the framework of risk management as guided by ISO 31000:2018. It requires answers each item with "Done", "To Do," or "Not Applicable". Scoring helps determine the stage of readiness and the failed items can help highlight gaps and urge appropriate action:

- ✓ Plan the establishment of your Risk Management Framework:
  - Ask stakeholders to support the establishment of a framework.
  - Ask top management to support the establishment of a framework.
  - Evaluate your existing risk management practices and processes.
  - Identify gaps in your risk management practices and processes.
  - Establish a framework that meets your organization's unique needs.
  - Establish a framework that fills the gaps in existing practices and processes.

- Consider how you intend to develop your risk management framework.
- Consider how you're going to design your risk management framework.
- Consider how you're going to fill gaps in your existing practices and procedures.
- Consider how you're going to make risk management part of your organization.
- Consider how you're going to integrate risk management into all significant activities
- Consider how you're going to build risk management into all decision-making activities
- Consider how you're going to integrate risk management into all significant functions.
- Consider how you're going to build risk management into all governance functions.
- Consider how you're going to implement your risk management framework.
- Consider how you're going to evaluate your risk management framework.
- Consider how you're going to improve your risk management framework.
- ✓ Show leadership by making a commitment to risk management:
  - Ask your leaders to support a risk management framework.
  - Ask your leaders to make a commitment to risk management.
  - Ask oversight bodies to make a commitment to risk management.
  - Ask oversight bodies to align risk management with the organization's strategy.
  - Ask oversight bodies to align risk management with the organization's culture.
  - Ask oversight bodies to align risk management with organizational objectives.
  - Ask oversight bodies to align risk management with organizational obligations.
  - Ask oversight bodies to align risk management with voluntary commitments.
  - Ask oversight bodies to be accountable for overseeing risk management.
  - Ask them to ensure that risks are understood throughout the organization.
  - Ask them to ensure that risks are communicated throughout the organization.
  - Ask them to ensure that risk management methods are communicated.
  - Ask them to ensure that risk management is integrated into all activities.
  - Ask them to ensure that risk management systems are implemented.
  - Ask them to ensure that risk management systems are operating effectively.
  - Ask them to ensure that risk is properly evaluated when setting objectives.
  - Ask them to ensure that risk is properly managed when achieving objectives.
  - Ask oversight bodies to communicate the value of risk management.
  - Ask them to communicate the value of risk management to the organization.

- Ask them to communicate the value of risk management to stakeholders.
- Ask top management to make a commitment to risk management.
- Ask top management to align risk management with the organization's strategy.
- Ask top management to align risk management with the organization's culture.
- Ask top management to align risk management with organizational objectives.
- Ask top management to align risk management with organizational obligations.
- Ask top management to align risk management with voluntary commitments.
- Ask top management to ensure that appropriate risk criteria are developed.
- Ask them to ensure that risk criteria are communicated throughout the organization.
- Ask them to ensure that risk criteria are communicated to all relevant stakeholders.
- Ask top management to communicate the value of risk management.
- Ask managers to communicate the value of risk management to the organization.
- Ask managers to communicate the value of risk management to stakeholders.
- Ask top management to be accountable for managing risk management.
- Ask them to ensure that risk management is integrated into all activities.
- Ask top management to monitor the unique risks facing their organization.
- Ask top management to encourage personnel to systematically monitor risks.
- Ask your leaders to establish a risk management framework.
- Ask them to develop a framework that meets the organization's needs.
- Ask them to prepare a general risk management policy statement.
- Ask them to define their general approach to risk management.
- Ask them to prepare a general risk management plan of action.
- Ask them to make people accountable for managing risk.
- Ask them to assign risk management responsibilities.
- Ask them to assign responsibilities at all appropriate levels.
- Ask them to delegate risk management authorities.
- Ask them to delegate authorities at all appropriate levels.
- Ask them to allocate all required risk management resources.
- Ask them to monitor the application of their risk management framework.
- Ask them to ensure that it remains appropriate to the organization's context.
- ✓ Make your organization's personnel responsible for managing risk:
  - Make risk management an integral part of your organization's culture.
  - Ask everyone in your organization to be responsible for managing risk.
  - Ask your governance personnel to be responsible for managing risk.

- Ask them to be responsible for making risk management part of governance.
  - Ask them to be responsible for making it part of the organization's purpose.
  - Ask them to be responsible for making it part of the organization's direction.
  - Ask them to be responsible for making it part of the organization's strategy.
  - Ask them to be responsible for making risk management part of management.
  - Ask them to make management accountable for implementing risk management.
  - Ask your management personnel to be responsible for managing risk.
  - Ask them to be responsible for making risk management part of management.
  - Ask them to make risk management part of the organization's roles.
  - Ask them to make risk management part of the organization's policies.
  - Ask them to make risk management part of the organization's objectives.
  - Ask them to make risk management part of the organization's operations.
  - Ask them to make risk management part of the organization's processes.
  - Ask them to make risk management part of the organization's practices.
  - Ask them to make risk management part of the organization's rules.
  - Ask your rank-and-file personnel to be responsible for managing risk.
  - Use iterative methods to build risk management into your organization.
  - Make sure that your iterative methods meet your organization's needs.
  - Make sure that your organization's methods are compatible with its culture.
  - ✓ Design your organization's unique risk management framework:
    - Consider your context when you develop your framework
    - Consider your organization's context as you design your framework.
    - Examine and understand your organization's external context.
    - Consider external influences during framework design.
    - Consider external stakeholders during framework design.
    - Examine and understand external stakeholder needs.
    - Examine and understand external stakeholder values.
    - Examine and understand external stakeholder perceptions.
    - Examine and understand external stakeholder expectations.
    - Examine and understand external stakeholder relationships.
    - Completion
    - General comments and observations
- (II) Risk Management Plan Template



This Risk Management Plan Template can be used to identify the risks, record the risks' impact on a project, assess the likelihood, seriousness and grade. Specify planned mitigation strategies and assign corrective actions needed to responsible individuals. Breakdown costs and set the timeline of mitigation actions. Risk Management Plan:

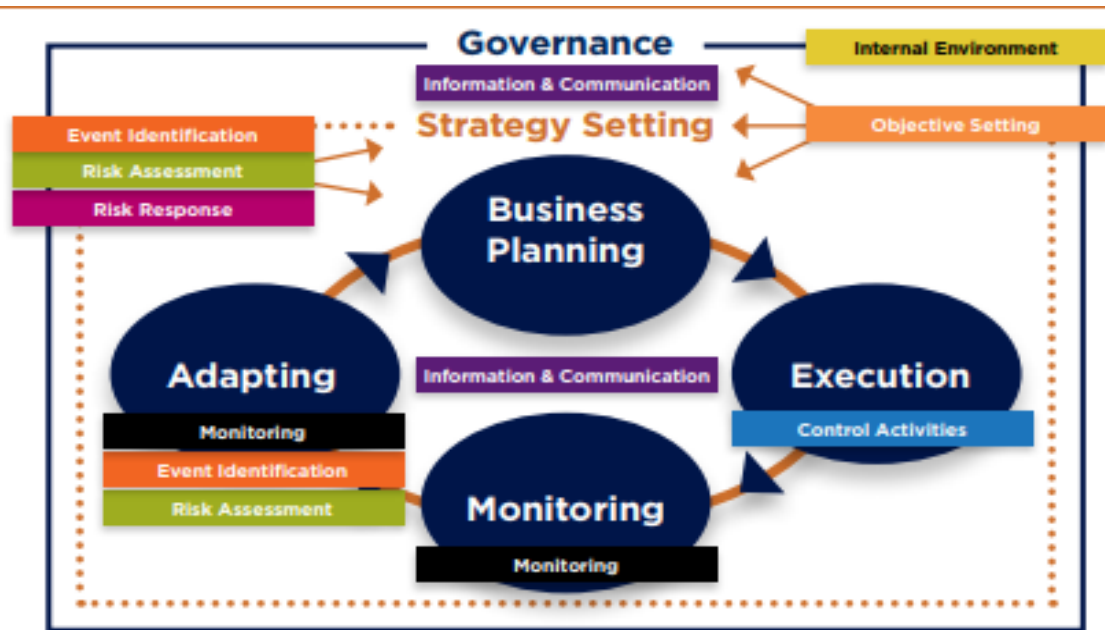
- Identify the risk,
- Description of risk,
- Photo of hazard (optional),
- Impact on Project (Identification of consequences): this can be useful in identifying appropriate mitigation actions,
- Assessment of Likelihood,
- Assessment of Seriousness,
- Grade,
- Change in Grade since last review,
- Date of last review,
- Mitigation Actions (Preventative or Contingency): Specify planned mitigation strategies,
- Individual/Group responsible for mitigation action(s),
- Cost.

Considering all mentioned above, the ISO 31000 – 2018 developed templates of work as practical examples for users. The level of details identified and presented within the questions of the template is high, identifying and questioning all important aspects of a company's environment.

However, analysing the requirements considered in the templates, it can be seen that these requirements fulfil all key points of a company, but the weak points of the companies are not identified. This can be considered one of the limitations of the model.

COSO ERM Model is somehow more encompassing than the ISO 31000 format. It also includes the goal-setting mechanism as well as the quality of the decisions, and so on. While difficult to quantify, it attempts to offer such a more holistic perspective (figure 2.2).

While the COSO frameworks are intended to be flexible in application, both must involve the board, both are focused on the standard of “providing reasonable assurance that objectives are met” and both seek to reduce risk to an acceptable level. The ERM framework includes strategic objectives within its scope; it is applied in strategy setting and deploys risk appetite as a tool for managing the level of enterprise risk (figure 2.2).



**Figure 2.2 Relationship of ERM Components to Contextual Business Model**

Source: COSO Commission [56]

The process of identifying, prioritizing and responding to risks on an enterprise-wide basis is a significant source of insight, even if objectives are implicit. However, when objectives are explicitly articulated or more objectives are considered in the scope of implementing either COSO framework, the quality of the insight increases (figure 2.3).



**Figure 2.3 Relationship of Internal Control Components to Contextual Business Model**

Source: COSO Commission [56]

Based on our research, we identified a lack in assessing risks and preventing crises, this why 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. As ISO 31000 model defines risk management more as a strategic activity based on making risk decisions, we choose COSO ERM because it is more an internal control model and structures risk management based on monitoring and compliance activities. Also, the COSO ERM cube is more widely accepted by risk management practitioners and it provides a framework for undertaking ERM.

Following the COSO ERM theoretical model, 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.

In conclusion, 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 leaves 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.

## **2.2 The framework of the SHIModel**

The formulation of the SHIModel is a result of the awareness that the above-mentioned models are limited in their potential success in implementation. This is also the result of the implementation of the perspective exposed by Gilpin and Murphy [44, pg.5] in their work that start from the same process of perceiving the challenges of “purely scientific approach”: “we argue that successful crisis management is not guaranteed by scientific planning and prescriptive decision making” and also that “the nature of the organization, the crisis, and the environment exert important influences on outcomes, influences that even the most skilled professional cannot fully control but can learn to work with adeptly”. Their conclusion is clear: “emphasis on external factors means that most crisis communication literature does not pay enough attention to how information travels within and between organizations or how knowledge develops beyond the level of information”.

The solution to these limitation – a result of the „objectivization of the risk and crisis management” – is the inward looking approach, given by the involvement of the resources and employees already inside the organization: „we need a stronger connection between crisis management and knowledge management that addresses how individuals and groups acquire and transfer knowledge and information within an organization”. This is a conclusion shared also by Appelbaum and Goransson [6, pg.115]: „the ability to prepare for, manage, and comprehend the aftermath of crises relies heavily on the creation and retention of knowledge through organizational learning”

The excellent solution devised by them to such constraints consists in the implementation of the complex system theory. The key observation is that internal organizations – and especially during crisis – can be perceived as complex systems as they satisfy the seven core principles of such systems:

- Principle #1: Interacting Agents: the agents (in our case, employees) are engaged in a “coevolution” process as their interaction is not stable and similar in time;
- Principle #2: Adaptability: such a “co-evolution” creates the premises of the adaptability of the system – in our case, the organization – to the challenges it faces;
- Principle #3: Self-Organization: complex systems have their own way of coming back to the core principles of organization. A frequent reference is made to “fractals”, that is, patterns that remain invariable despite the size;
- Principle #4: Instability: according to the perspective of the complex systems, “stability” is not only not desired but it is, in a real sense, impossible to attend as when it is however reached, the system ceases to be “complex” and loses its core advantages;
- Principle #5: Influence of History: complex systems are also “path-dependent” in the sense that knowledge generated by it is a result of past interactions;
- Principle #6: Permeable Boundaries: it is also an illusion to perceive complex systems as isolated system as they permanently generate and process information and knowledge;
- Principle #7: Irreducibility: despite the existence of patterns, complex systems cannot be “downsized” as they lose their core nature.

Gilpin and Murphy conclude that “faced with partial knowledge and a rapidly changing environment in crisis situations, managers cannot hope to specify all possible solutions to a crisis. However, they can apply complexity-based thinking to a turbulent environment, ensuring that they can rapidly brainstorm multiple possible actions depending on how the crisis evolves.” [44]

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. As Malpas and Wickham [69, pg. 37] point out, “from a complexity viewpoint, social life is full of what we may term ‘relative failure’ as a ‘necessary consequence of incompleteness’ and of the inability to establish and sustain complete control over the complex realm of the social”.

Poole and Van de Ven [95, pg. 566] also advanced such a perspective by arguing that “theorists need not be completely consistent; that seemingly opposed viewpoints can inform one another; that models are, after all, just models, incapable of fully capturing the ‘buzzing, booming confusion,’ no matter how strongly logical arrogance tries to convince theorists otherwise”.

In consequence, the core recommendation of Gilpin and Murphy [44, pg.42] is that “these are not necessarily severe limitations if we shift our aims from the positivist demand for accuracy within narrowly defined constraints to a goal more in line with the character of complexity theory: deeper understanding of localized situations. Instead of a master plan for crises, we would be more attentive to the local, the short term, and the contingent. This approach redefines strategy in terms of quick response and organizational learning. The ability to learn and act quickly is so central to crisis management in a complex environment”.

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.

Such an approach could be criticized exactly by the fact that the employees are part of the problem and not part of the solution. They are internal to the company and usually are those which are already involved in the mechanisms and procedures of the decision-making which are faulty and even a cause of the risks and potential crisis in the company.

However, some scholars support this approach as being consistent with the so-called „knowledge management” approach. Irrespective of the „fresh eyes” of the external consultants or analyst, employees are the best positioned to be aware of the challenges and weaknesses of a company.

Wand and Belardo [127, pg.6] highlight this aspect by pointing that „these frameworks offer organizations valuable guidelines for preparing for crises [but] they typically not employ knowledge-based resources, such as the crisis management expertise of employees”.

On the one hand, employees of the company are the closest to the valuable knowledge needed inside the organization to fix the issues and the vulnerabilities. Any outsider needs a certain period of time in order to get accustomed with the particularities of the company and its operation. So, in a certain sense, using the resource provided by employees is not only faster but also a cheaper route to reorganization of the exposure of the company and its operations to risks and vulnerabilities.

Moreover, the stage of learning that was described by the vast majority of authors writing on this issue (presented in chapter 1) cannot be fully internalized but by the employees of the company. As the same Wand and Belardo [127, pg. 8] mentioned „in the learning phrase, we assume that all the external knowledge an organization has acquired from previous crisis phases should have been transformed into its internal knowledge”. No other consultant or external specialist to the organization can really increase the knowledge of the company regarding risks and crisis on the medium and long term.

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 [96].

In consequence, as Wand and Belardo [127, pg.10] conclude „we have examined crisis management strategies and knowledge-based strategies, and have shown how alignment of knowledge-based strategies with crisis management strategies can lead to better crisis management for organizations”.

SHIModel is a risk assessment tool developed to assess the exposure to risk for companies activating in wide spectrum of industries. The applicability of the model could be customized in some cases, in some industries, according to the characteristics of the business. The novelty of the algorithm is by setting the grounds of the strategy of the assessment. The exposure to risk is determined by three important perspectives: general business wise, financial indicators and operational risks.

We argue that no strategy in the financial field could be successful unless it is highly correlated with the business framework of the company and with its operations. When a manager focuses too much on financial indicators, he may lose contact with the core challenges in the industry and market on which the company operates. For example, „better” financial indicators do not always mean a better positioning of the company in the sector. In fact, a large number of companies that enter bankruptcy courts may be profitable from an accounting perspective. In a less dramatic context, they may lose competitive advantage even if they increase their profit.

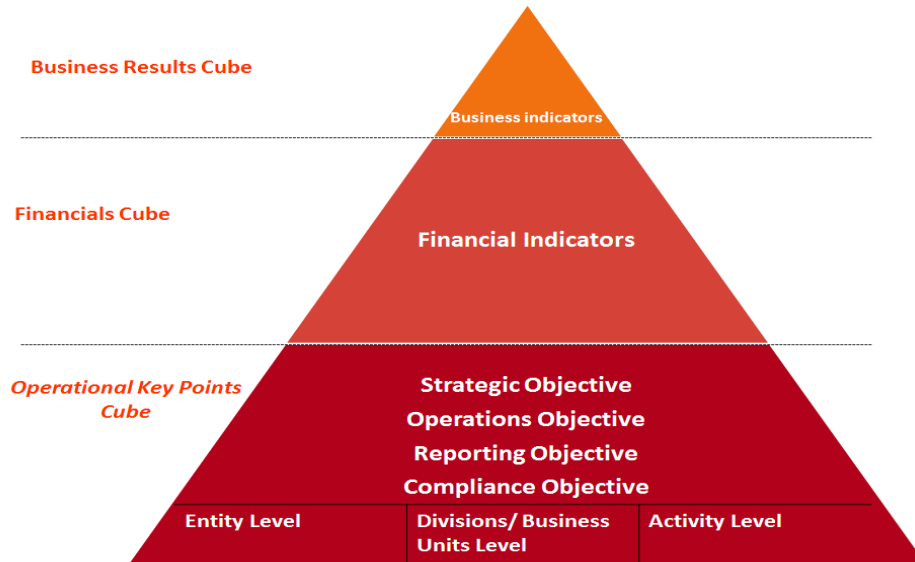
On the other hand, focusing only on the business operations and strategy may lead the manager to lose contact with discipline and the core test for any company, which is matching cash flows. There are also a large number of cases of companies with good business prospects that entered the same bankruptcy courts because they couldn't maintain the positive cash-flows and manager over-diversified and over-spent with no attention to short versus long term.

In our opinion, this is the core challenge for any manager, especially under duress: to keep the overall image intact (the complexity of the business) and to decisively act in small steps (simplicity).

No model can replace the business judgment of the decision-maker, irrespective of its soundness in theory and in legislation. Any restructuring strategy has to start from a business vision and to cohesively approach the financial and the operations dimension of the company under

duress. In fact, business strategy has always been a matter of entrepreneurial action and not a theoretical solution.

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 2.4).



**Figure 2.4 SHIModel Framework**

*Source: developed by the author*

The assessment shall be structures as follows:

- Procedure for implementing of Business Results Cube (BRC)

General. For all the organizations, implementing the assessment process of the business at high level will be approached by levels and should be based on the level of awareness of the evolution of the important indicators, requirements, aspects and overall results achieved over the past three years.

Scope. 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.

Documentation required. Management will provide to the auditor documents, reports and analysis in order to support the evolution of the indicators to be assesses through comparison over the last years.

- Financial Statements,
- Management reports,
- Profitability analysis,
- Sales reports,

- Market share monitoring reports.

The results will be gathered by answering to a set of question, listed in the Annex 1.

Conclusions of the business results evolution will be correlated with the following steps in the risk assessment process.

- Procedure for implementing of Financial Results cube (FRC)

General. The company will use the Financial Results cube analyse the evolution of the most important financial ratios at Entity Level, categorized in pre-defined stages.

Scope. The purpose if this analysis is to determine the current position of an organization with regard to the evolution of the internal financial results, which will offer a closer view of the companies' achievements, development or failures to increase in the activity.

Documentation required:

- Financial Statements & accounts details,
- Management financial reports,
- Profitability analysis,
- Fixed assets register,
- Aging of receivables and payables,
- Cash flow,
- Interest analysis,

The results will be gathered by answering to a set of question, listed in the Annex 1

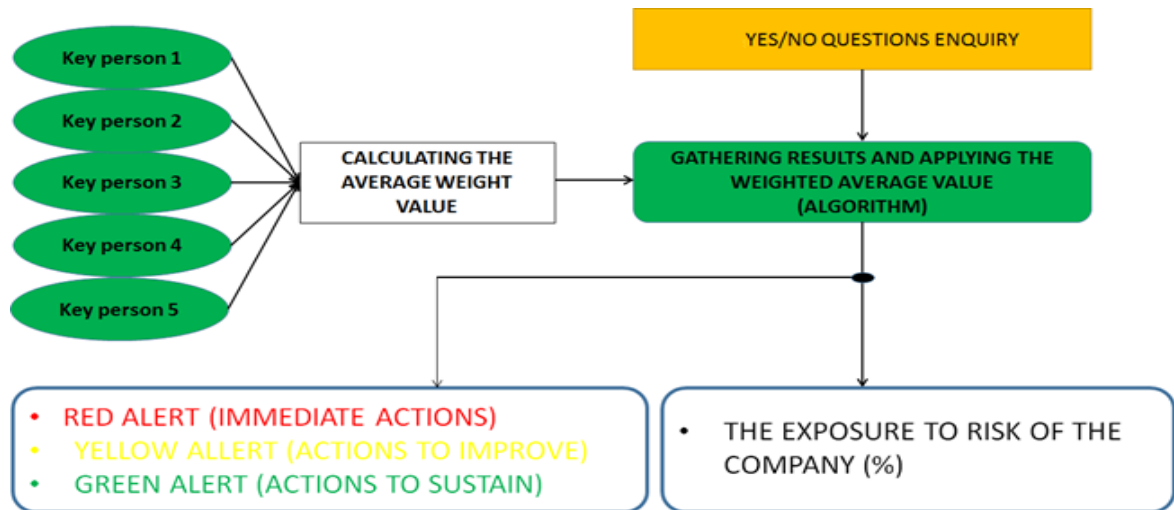
Conclusions of the business results & financial evolution gathered and summarize in a report (Annex 1) will provide the first picture of the exposure to risk of a company, analysis done based on figures. Though, measuring the exposure to risk is not complete at this level, due to the fact that operational aspect is to be analysed in order be able to analyse the efficiency of “non-figure” image and records of the organization

- Procedure for implementing of Operational Key Points Status (OKPS) Cube

General. Implementing the OKPS cube is described in the flowchart presented in the figure 2.5.

Scope. The purpose if this analysis is to determine exposure of the company to operational risks and identify the points of interconnection where the exposure is mostly present and also calculate in percentage the level of this exposure [104].





**Figure 2.5 Algorithm Flowchart for OKPS cube**

*Source: developed by the author*

Documents and involvement of management:

- CEO, CFO and other three managers involved significantly in the activity,
- Structure of the organization.

Analysis:

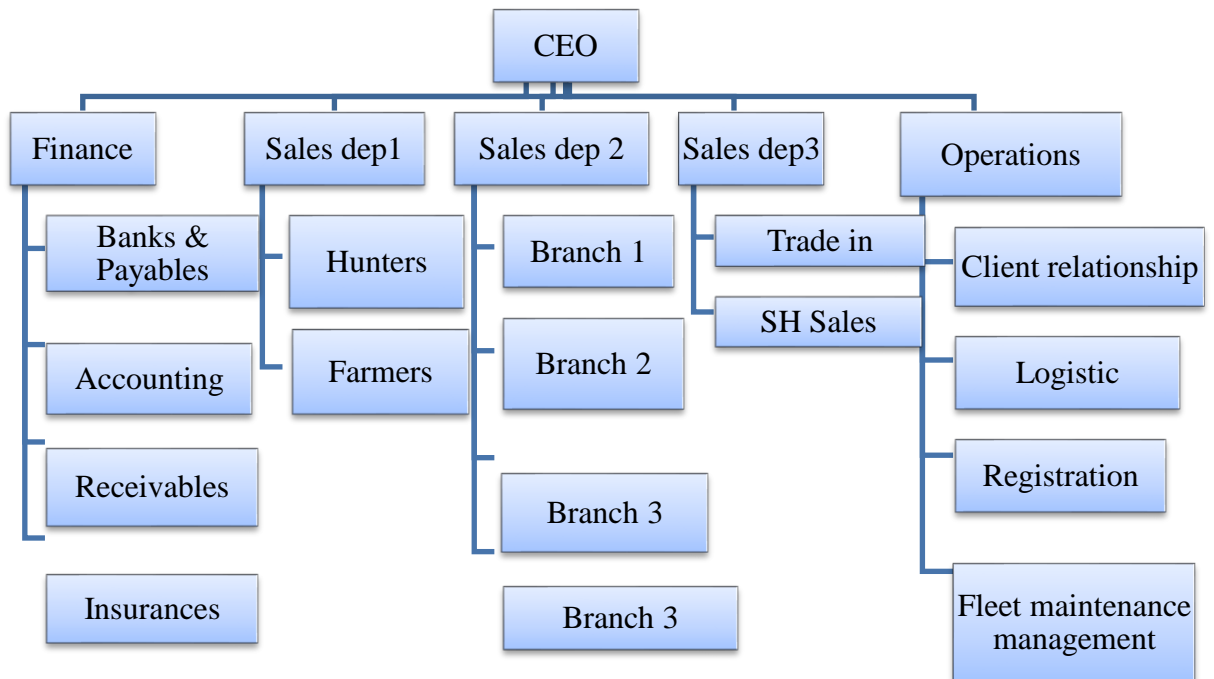
a) Organigram – structure of the company

Based on the structure of the organization, the auditor will create a simplified Organigram, focusing in identifying the Divisions, Business Units and each the main activities performed by each unit.

In order to delimitate the units in the organization, the auditor shall consider the following descriptions and definition:

- Business unit is the department which performs activities of selling or production, the departments which contribute and to the profitability of the company
- Division is the department which performs activities of supporting the business units at any level: finance, accounting, and logistic level.
- The activity within the business unit or division will be categorized according to the main purpose, location, importance.

According to the number of Business Units, Divisions and Activities, the algorithm will determine the total number of Yes/ No questions Enquiry. A practical example for structuring the companies' organigram is presented in figure 2.6.



**Figure 2.6 Practical example for structuring the companies' organigram**

*Source: developed by the author*

b) Value and Weight of questions

The five responsible and management personnel will rate from 1-5, according to their perspective and view, the levels of the company, the objectives and components of the OKPS cube. The practical example is presented in table 2.1.

**Table 2.1 Practical example of Value and Weight of questions**

Level	P1	P2	P3	P4	P5	Average
1 Entity Level	1	1	1	1	1	1.000
2 Division/ Business Unit	2	2	3	2	3	2.400
3 Activity	3	3	2	3	2	2.600
<b>Objective</b>						
1 Strategic	1	1	2	2	1	1.400
2 Operations	2	2	1	1	2	1.600
3 Reporting	4	3	3	4	4	3.600
4 Compliance	3	4	4	3	3	3.400
<b>Components level</b>						
1 Internal environment	4	4	1	7	1	3.400
2 Objective setting	1	1	2	1	2	1.400
3 Event Identification	8	8	8	6	7	7.400
4 Risk Assessment	7	7	7	5	5	6.200
5 Risk Response	5	5	6	3	3	4.400
6 Control Activities & Monitoring	2	2	3	2	4	2.600
7 Information & Communication	6	6	4	8	8	6.400
8 Customer satisfaction	3	3	5	4	6	4.200

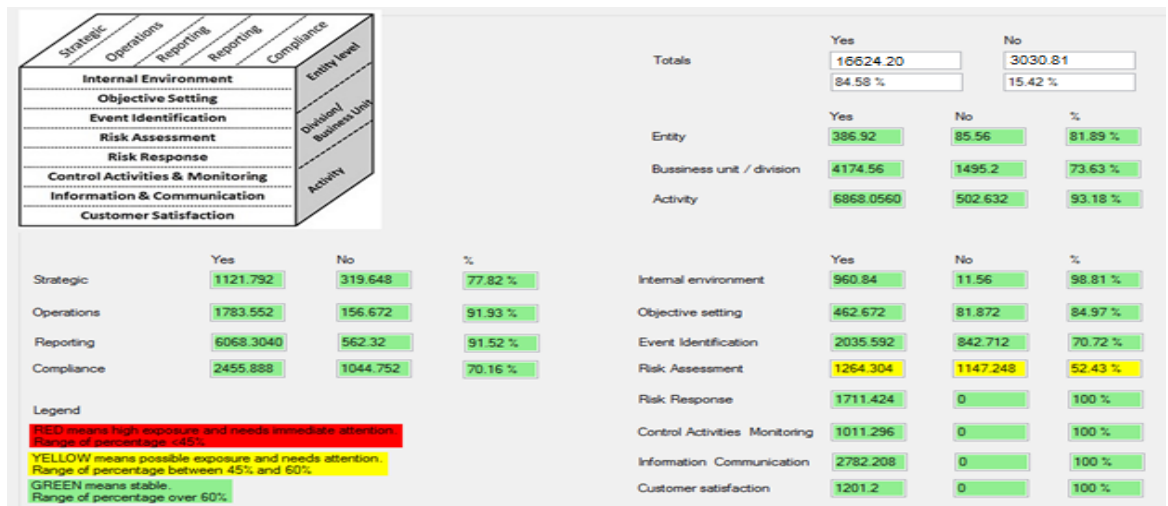
*Source: developed by the author [104]*

c) Yes/No questions for all three vectors of the cube (Annex 1 – provides the standard questions for all three vector). Each answer will be multiplied by the factor of the weight (based on the feedback of the 5 key persons):

$$\text{Yes} = 1 * \text{weighted average factor}$$

$$N_0 = 0$$

d) Results of SHIModel – Figure 2.7



**Figure 2.7 Practical example of the data presentation**

*Source: developed by the author*

The final results of the mathematical algorithm will be the correlation between business results, financial results and operational analysis. SHIModel algorithm will provide the final exposure to risk in percentages for operational analysis (figure 2.7).

### 2.3 Assessment of the components of the SHIModel and the mathematical algorithm

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 [100]. 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 [104] (figure 2.8):

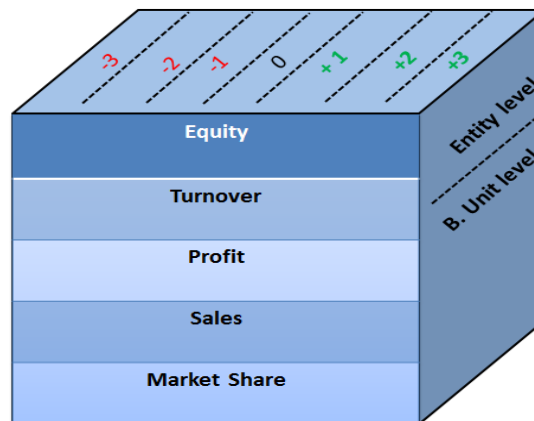
- **Overall turnover:** is the total revenues or sales registered by a company within a certain timeframe. The indicator is highly important as it shows the direct results of the company. The change in revenues shows the direction the company is going, whether up or down.

- **EBITDA –** is the earnings of a company, before interest, taxes, depreciation and amortization. This is a very important business indicator, as it shows the operational profit irrespective of the financial or tax policy of the company. It is an image of whether a company has sound operations, if the business is losing money or not.

- Profit – the profit of a company is calculated as total revenues gained from the business activity minus total expenses used to sustain those revenues. This is one of the primary indicators, used by analysts to ascertain a company's performance. In order for a company to have long-term success and survive as a business, the company must be profitable. Otherwise, some stakeholders have to pay the losses.

- Sales – represent the dollar value of the transactions made by a company within a certain timeframe. This indicator is significant due to the fact that has a direct impact on revenues, margins, operating and net income. The volume of sales is used to achieve company’s targets and objectives.

- Market share - represents the part of an industry’s total sales that is earned by a particular company within a certain period of time. Usually, it is represented as a percentage. This indicator is used to give a general idea of the position of the company in the market. Investors look at market share increases and decreases carefully, because they show the competitiveness of the company's products or services.



**Figure 2.8 Business Results Cube (BRC)**

*Source: developed by the author [104]*

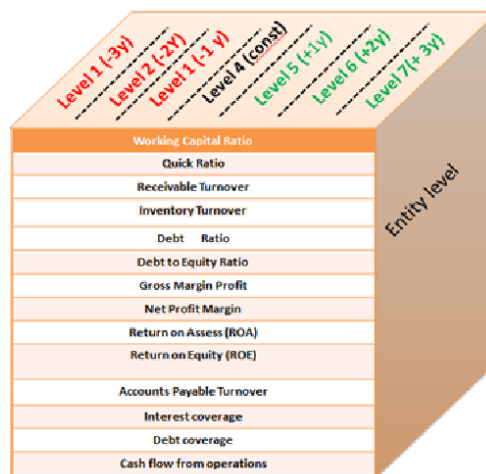
All the indicators are interconnected and can influence each other. They are calculated on a yearly basis as we start from booking records of the companies involved. The relevant period for analysing the evolution of these indicators is considered to be the last 3 years previous to the moment of analysis. 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 the six following stages:

- 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 the business indicators are collected through the BRC set of questions, presented in Annex 1.

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 [100]. 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 [101] (figure 2.9).



**Figure 2.9 Financial Results Cube (FRC)**

*Source: developed by the author [101]*

Financial indicators are used in financial management literature and practice to assess a company’s financial status and performance. Financial ratios are also calculated based on the figures extracted from the company’s financial statements (balance sheet, statement of cash-flows, so on). They can be used to identify company’s strengths and weaknesses, analyse trends, compare the company's financial position to those of other firms and show its competitive position, or more important to predict future financial crises or even bankruptcy.

The financial indicators used in the financial matrix are the ones that are usually used in the financial analysis by bankers, investors, and business analysts to assess a company's financial status:

- working capital ratio - shows how fast the assets of the company can be turned into cash to pay short term liabilities;

- quick ratio - shows how well current liabilities are covered by cash and by items with a ready cash value. The difference to working capital ratios is that it eliminates the inventory, which takes time to be sold and convert into liquid assets;

- receivable turnover - indicates how quickly the firm collects its money after the sales process is completed;

- inventory turnover and Inventory period- shows how fast a company is selling its inventory; this is a critical measure of business performance. The return a company makes on its assets is the expression of how fast it sells inventory with a profit;

- debt ratio – is a financial ratio that measures the extent of a company’s leverage. It can be interpreted as the proportion of a company’s assets that are financed by debt. The higher this ratio, the more leveraged the company is, implying greater financial risk, but in the same time leverage is an important tool that companies use to grow;

- debt-to-equity ratio - indicates how much debt a company is using to finance its assets relative to the value of shareholders’ equity. A high debt/equity ratio generally means that a company has been aggressive in financing its growth with debt. Aggressive leveraging practices are often associated with high levels of risk. This may result in volatile earnings as a result of the additional interest expense;

- gross profit margin - is used to assess a company's financial health and business model by revealing the proportion of money left over from revenues after accounting for the cost of goods sold. Without an adequate gross margin, a company is unable to pay for its operating expenses. In general, a company's gross profit margin should be stable unless there have been changes to the company's business model;

- net profit margin - shows how much of each dollar collected by a company as revenue translates into profit. To be mentioned that low profit margins don't necessarily mean low profits;

- return on assets (ROA) gives an idea as to how efficiently the management is using the assets to generate earnings. The assets of the company are comprised of both debt and equity. Both of these types of financing are used to fund the operations of the company. The ROA figure gives investors an idea of how effectively the company is converting the money it has to invest into net income. The higher the ROA number, the better, because the company is earning more money on less investment;

- return on equity (ROE) measures the profits earned for each dollar invested by the shareholders in the company;

- accounts payable turnover – shows the rate at which a company pays off its suppliers. If the turnover ratio is increasing from one period to another, this is a sign that the company is taking longer to pay off its suppliers than it was in previous time periods;

- interest coverage – measures the capacity of a company to pay the interest due for the outstanding debt;

- debt coverage - the debt coverage ratio is used to determine a company's ability to generate enough income in its operations to cover the expense of a debt;

- cash - flow from operations - indicates the money a company brings in from ongoing, regular business activities, such as manufacturing and selling goods or providing a service.

All the financial indicators are interconnected and can influence each other. They are calculated on a yearly basis. The relevant period for analysing 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 the same six stages, as used for the Business Results Cube (BRC):

- 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.

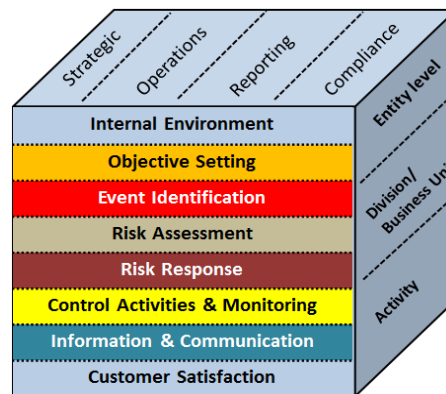
The values of the financial indicators/ratios are collected through the FRC set of questions, presented in Annex 1.

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 [100].

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 2.10).

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.



**Figure 2.10 Operational Key Points Status Cube (OKPSC)**

*Source: developed by the author [100]*

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 – it generally takes into account the values, the rhetoric and the norms of ethics of an organization and their perception by the employees or other stakeholders. The benefit for a company to have an internal environment starts with creating value inside the company, continues with attracting great employees and also attracts and maintain a good relationship with higher quality suppliers and customers.[102] At the end of the day, it translates into the risk appetite and risk an organization is willing to bear;
- objective setting – involves the decision-making process that led to the adoption of the objectives of the company;
- event identification – is a normal process through which the organization processes the events that emerge, transforming them into risks and opportunities;
- risk assessment – the process of analysis of the risks, their likelihood and impact, as a basis for determining how they should be managed;
- risk response – the development of a set of actions in order to bring the risk exposure to the level that is acceptable by the company;
- control activities & monitoring – consists in the main procedures, policies and regulations inside the organization;



- information and communication – imply the mechanisms of capture and exploitation of the information. Effective communication also occurs in a broader sense, flowing down, across, and up the entity. From accuracy point of view and time wise, the way of transmitting information across the company is a crucial point to be analysed;

- customer satisfaction – it shows the degree of satisfaction provided to internal or external clients. This objective was added on top of the classic COSO ERM cube as a novelty, after understanding that in our world customer satisfaction is one of major keys to succeed and also to keep the company safe. The external clients’ attitude towards the services received represents a very important indicator for the image and the trust in the company. Also, the relationship with the internal clients is very important; the way they are served by their colleagues is a major factor for determining the effectiveness of the cooperation between departments.

Based on the elements of the Operational Key Points Status Cube, we created a mathematical algorithm. It measures and grades the importance of every element and the interconnections between them. It calculates the level of exposure of the company to operational risks and it identifies the points of interconnection where the exposure is mostly present and tell us how high it is.

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.

2. *Weighting the significance of the questions* [101]

Although the questions are relevant to the majority of business fields and companies, the significance of each and every one of them is different from one company to another and can be changed over time in certain companies. Different persons from the same company also assess the significance of the questions. Such persons are operating at different levels and areas (departments).

In order to determine the weight of every question within a company, we need to assess every vector of the algorithm ( $X_1$ - $X_4$ ;  $Z_1$ - $Z_4$ ; 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 [100]. Based on the result obtained through the

algorithm, the company receives a percentage of exposure to risk, which is illustrated in coloured alerts, as follow: [101]

- 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

The mathematical algorithm has the formula (2.1):

$$V = \frac{W}{Y_1+Y_2+Y_3+Y_4} * 100 \text{ (2.1), where}$$

$$Y_1 = Z_1 * (X_1 * (A_1 + B_1 + C_1 + D_1 + E_1 + F_1 + G_1 + H_1) + X_2 * (A_2 + B_2 + C_2 + D_2 + E_2 + F_2 + G_2 + H_2) + X_3 * (A_3 + B_3 + C_3 + D_3 + E_3 + F_3 + G_3 + H_3) + X_4 * (A_4 + B_4 + C_4 + D_4 + E_4 + F_4 + G_4 + H_4))$$

$$Y_2 = Z_2 * (X_1 * (A_1 + B_1 + C_1 + D_1 + E_1 + F_1 + G_1 + H_1) + X_2 * (A_2 + B_2 + C_2 + D_2 + E_2 + F_2 + G_2 + H_2) + X_3 * (A_3 + B_3 + C_3 + D_3 + E_3 + F_3 + G_3 + H_3) + X_4 * (A_4 + B_4 + C_4 + D_4 + E_4 + F_4 + G_4 + H_4))$$

$$Y_3 = Z_3 * (X_1 * (A_1 + B_1 + C_1 + D_1 + E_1 + F_1 + G_1 + H_1) + X_2 * (A_2 + B_2 + C_2 + D_2 + E_2 + F_2 + G_2 + H_2) + X_3 * (A_3 + B_3 + C_3 + D_3 + E_3 + F_3 + G_3 + H_3) + X_4 * (A_4 + B_4 + C_4 + D_4 + E_4 + F_4 + G_4 + H_4))$$

$$Y_4 = Z_4 * (X_1 * (A_1 + B_1 + C_1 + D_1 + E_1 + F_1 + G_1 + H_1) + X_2 * (A_2 + B_2 + C_2 + D_2 + E_2 + F_2 + G_2 + H_2) + X_3 * (A_3 + B_3 + C_3 + D_3 + E_3 + F_3 + G_3 + H_3) + X_4 * (A_4 + B_4 + C_4 + D_4 + E_4 + F_4 + G_4 + H_4))$$

Legend:

- $Q_n$  – answer value of the question (0 or 1 values),
- $R_n$  – weighted average in the cube given by the responders,

Obviously, we have  $A_n = Q_n * R_n$

- $Z$  – 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 ( $A_n-H_n$ ).

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.

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.

The existence of controls, procedures, reports and internal values supports employee awareness of what is required to achieve the organization's environmental objectives and enables the evaluation of the system and environmental performance.

The nature of the documentation can vary depending on the size and complexity of the organization. For ease of use, the organization can consider organizing and maintaining a summary of the useful information to:

- collate the general and specific policies, objectives, and targets;
- budget, objectives and targets;
- document the key roles, responsibilities and procedures for personnel;
- provide direction to related documentation and describe other elements of the organization's management system, where appropriate.

Such a summary of useful info can serve as a reference or starting point to the implementation and maintenance of the organization's environmental management system.

## **2.4 Conclusion on chapter two**

1. There is a need to have a model to prevent organizational crisis, aimed to support managers in decision-taking process. 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,

2. 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 leaves 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,

3. SHIModel – that 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.

4. The added value of the SHIModel, throughout its three cubes (Business Results Cube, Financial Results Cube, Operational Key Points Status Cube OKPSC) 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.

5. SHIModel comes with novelties at applicable level for companies, but it must be well understood that the model does not offer a “magic pill” (so much desired by the world, especially during the pandemic times). 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.

### 3 The application of SHIModel for managing crisis

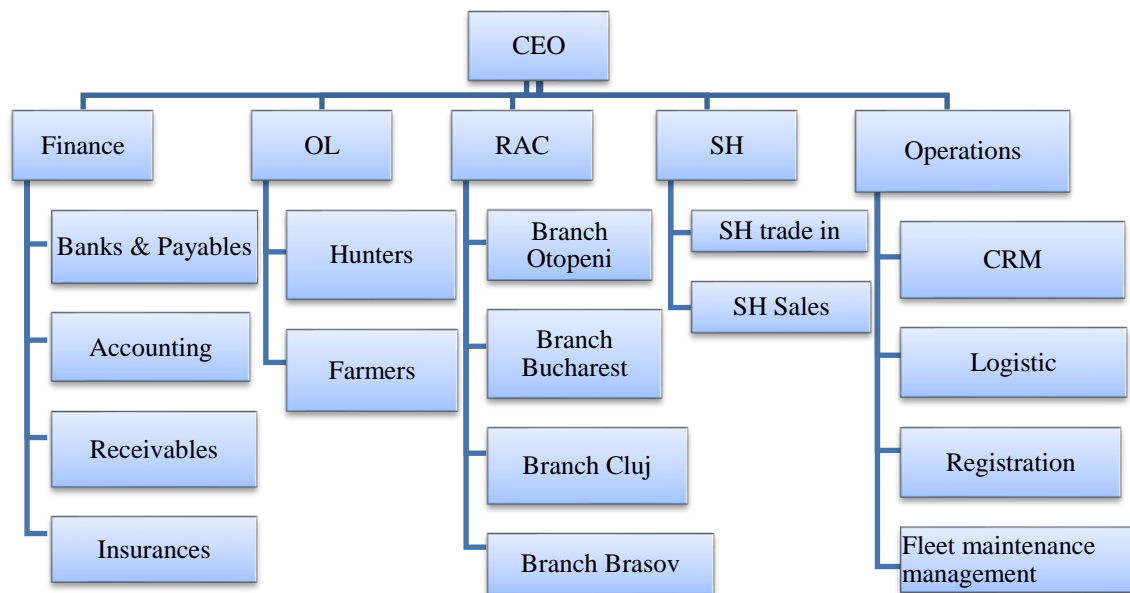
Three companies, of different sizes, from different industries and with different types of business activity, working on Rumanian market, have been evaluated using the risk assessment process provided by the algorithm of SHIModel. [104] The assessment was aimed to develop actions plans for each company, which should be adapted to their own needs.

#### 3.1 Assessment and action plan for company A

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 3.1.



**Figure 3.1 The organizational chart of the company A**

*Source: developed by the author*

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.

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). The business situation of the Company A was assessed at four organizational levels:

- a) Entity level
- b) Business Unit A (Rent a car) level
- c) Business Unit B (Operational Leasing) level
- d) Business Unit C (Second hand cars retail) level

Business Results Cube 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), as following:

- The Equity registered a three-year increase;
- The Overall Turnover registered a one-year increase at Entity level and Business Unit A level, three-year increase at Business Unit B level and two-year decrease at Business Unit C;
- EBITDA registered a two-year increase at Entity level and Business Unit B level, three-year decrease at Business Unit A level and three-year increase at Business Unit C;
- The Profit registered a two-year increase at Entity level, three-year decrease at Business Unit A level and three-year increase at Business Unit B level and Business Unit C;
- The Sales registered a two-year increase at Entity level and Business Unit A level, three-year increase at Business Unit B level and two-year decrease at Business Unit C;
- The Market Share registered a two-year increase at Entity level, Business Unit A level and Business Unit C level and three-year increase at Business Unit B.

In conclusion, the business situation is improving at all levels, in the past three years. The increasing in Equity of the company shows its healthy capacity of development, the enlargement of the business in a sustainable way based as well on the commitment of the shareholders. The decrease in Overall Turnover and Sales for Business Unit C, even though the profitability indicators are increasing, shows that the business strategy of the company changed for this business unit, favouring the profitability over turnover. The decreasing EBITDA and Profit indicator at Business Unit A level, even though the sales are increasing, shows that the business strategy of the company changed for this business unit, favouring the turnover over profitability.

As an overall conclusion, the indicators calculated in the BRC matrix offer an overview of the activity in such a manner that is simple to understand and shows the correlation between strategy and results.

The Financial Result Cub was applied only at Entity level. The analysis was made based on the year-end financial results of the company registered during 2014 - 2016. Financial Results Cube applied to Company A, revealed the overview of the financial activity over the past three years, showing the evolution of each indicator assessed at entity level, as following:

- Working Capital Ratio - registered a one-year increase;
- Quick Ratio - registered a one-year increase;
- Receivable Turnover – registered a one-year decrease;
- Inventory Turnover - stagnated;
- Debt-Ratio - registered a three-year increase;
- Debt-to Equity Ratio - registered a three-year increase;
- Gross Profit Margin - registered a three-year increase;
- Net Profit Margin - registered a two-year increase;
- Return on Assets (ROA) - registered a two-year increase;
- Return on Equity (ROE) - registered a one-year decrease;
- Accounts payable turnover - registered a two-year decrease;
- Interest coverage - registered a one-year increase;
- Debt coverage - registered a one-year increase;
- Cash flow from operations - registered a one-year increase.

In conclusion, the financial situation is improving in the above-mentioned period. The increasing Working Capital and Quick Ratio show the good ability of the company to support its operations with liquidities. The increasing debt indicators (Debt-Ratio and Debt-to Equity Ratio) show that the company supported its growth also through loans. In terms of profitability, the company is on a positive trend, which shows its capacity to produce money. Increasing ROA and ROE shows that the company is effectively converting the money it has to invest into net income. The capacity of the company to pay its due debts and the interest generated by these debts (Interest coverage and Debt coverage indicators) is also increasing. Last, but not least, Cash flow from operations, is a very important indicator and shows that the company has the ability to generate enough cash from its operations and to cover its current expenses, debts and taxes.

Overall conclusion of the financial analysis shows that the company is passing through a development process in all its areas of activity.

The Operational risk exposure (OKPC) of Company A was assessed at 6 organizational levels and 16 activity levels:

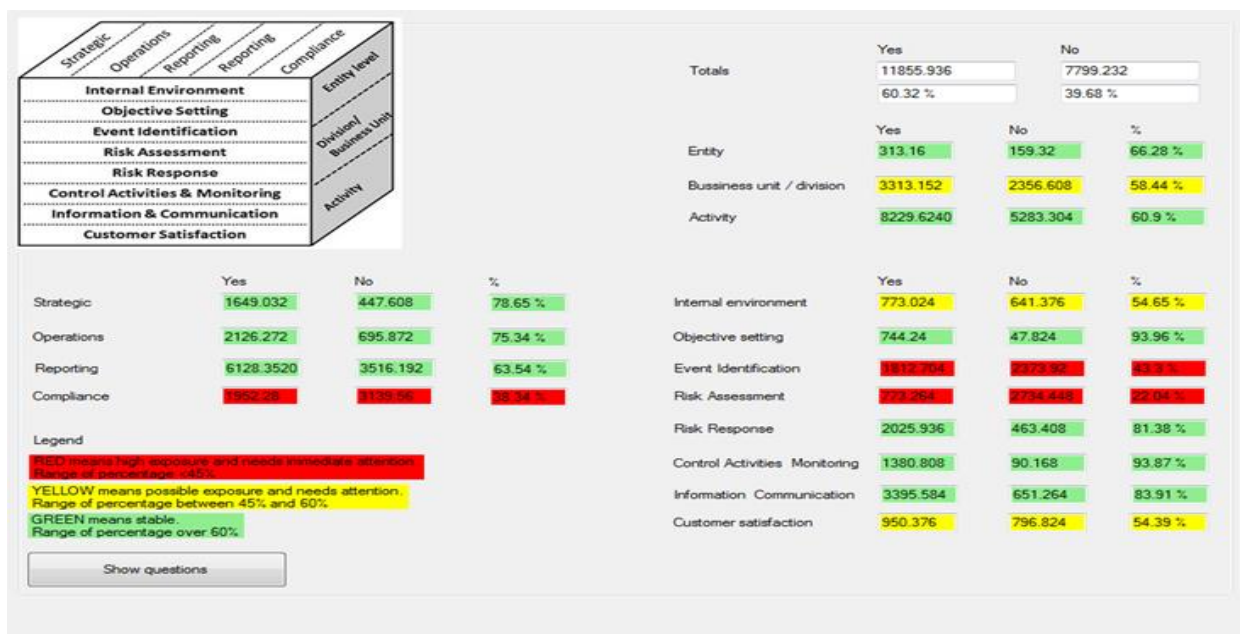
1. Entity level;
2. Business Unit A (Rent a car) level:
  - 2.1. Branch Otopeni activity level,
  - 2.2. Branch Bucharest activity level,
  - 2.3. Branch Cluj activity level,
  - 2.4. Branch Brasov activity level;
3. Business Unit B (Operational Leasing) level:
  - 3.1. Hunters activity level,
  - 3.2. Framers activity level;
4. Business Unit C (Second hand cars retail) level:
  - 4.1. Second hand trade in activity level,
  - 4.2. Second Hand Sales activity level;
5. Finance Division level:
  - 5.1. Banks & payables activity level,
  - 5.2. Accounting activity level,
  - 5.3. Receivables activity level,
  - 5.4. Insurances activity level;
6. Operations Division level:
  - 6.1. CRM activity level,
  - 6.2. Logistic activity level,
  - 6.3. Registration activity level,
  - 6.4. Fleet maintenance management activity level.

The weight of the questions was established for this company by 5 managers, according to their experience. Each of them is responsible for a certain department in the company's organizational structure and overall management: Financial Manager, Operational Leasing Director, Rent a Car Manager and Second-Hand Car Sales Manager. Their assessment of the weight is subjective, reflecting their own view and managerial approach from every different perspective each of them represent (Annex 2).

Conclusions and recommendations. Based on the answers provided by Company A to the questions required by OKPC assessment (figure 3.2), the following conclusions were drawn [104]:



- 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 3.2 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 3.2. 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 3.2. 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 Annexes 3-5.

Given the simple approach of the action plan, there was no need for complex tool like Gantt Chart, considering the small number of deadlines and linear approach of the tasks. In a more complex project, the Gantt Chart would be highly recommended. The same approach will be employed in the further analysed companies.

For the levels Compliance, Event identification and Risk assessment, immediate actions are required to be implemented for remedy in terms of creating the strategy, improving and strengthening the tools and procedures needed to control and monitor the activities down to the most basic ones.

The actions needed are:

- Create and implement event identification 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;
- Create and implement reporting tools for event identification and risk assessment at business unit/division level;
- Create and implement risk assessment tools and techniques across the organization level of business units and divisions;
- Create and implement monitoring procedures and tools to check if event identification and risk assessment are compliant with the defined procedures and regulations.

Internal environment and Customer satisfaction procedures and tools need to be improved. This means that for these areas, there are some control instruments in place, such as reporting and monitoring tools, but they need to be improved and strengthened in terms of making them mandatory through the internal regulation system and better monitored.

The Customer satisfaction level and Internal environment procedures define the values and policies followed in every action by the employees of the company. According to the algorithm's results, these levels must be improved in order to create a uniform image of the company in front of the customers, on the market and internally.

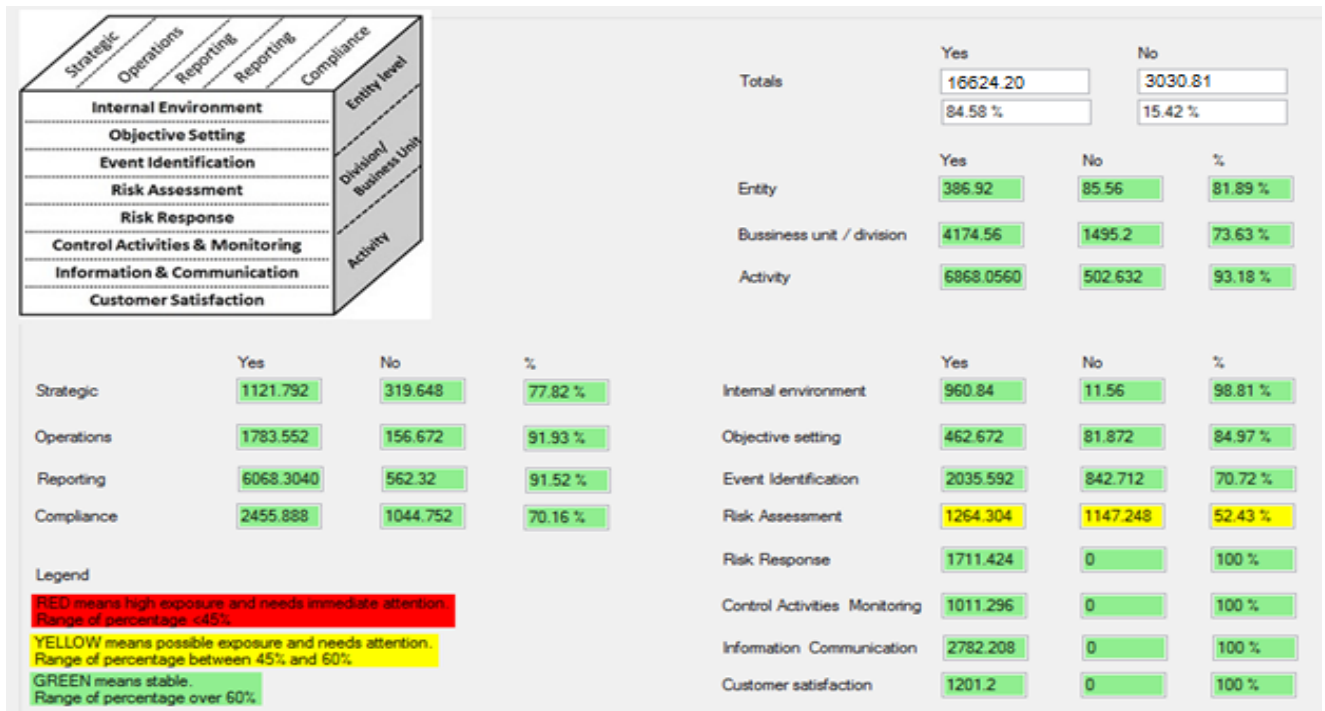
Second assessment. After eleven weeks, time allocated for the company to implement the recommendations resulted from the first operational risk assessment, a second assessment was conducted, in order to determine how the situation of the company improved as a result of applying the action plan established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

After the second assessment of the company's situation, the following improvements could be observed (figure 3.3) [104]:

- 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.

Due to the fact that, at the moment when the second assessment was conducted, the company didn't finish implementing the reporting procedures and tools for Risk Assessment at Second Hand Car Sales Business Unit, Finance Division and Operations Division, and also the compliance monitoring tools for Risk Assessment across all the organization, the exposure to risk in this area remained in the medium range, but the company knew exactly what needed to be done in order to reduce the risk to a stable level.



**Figure 3.3 Operational Risk assessment result for Company A**

Source: developed by the author

The purpose of the SHIModel applied for Company A was to early detect the exposure to risk of the organization. After the first analysis, the company implemented the recommendation and measures proposed. At the second analysis, using the same SHIModel, the weak points of the organization were improved and the company was placed in a better financial, business and management position.

The evolution of financial and business indicators of Company A were as follows, (compared to the first analysis):

- Turnover increased by 17% in 2017 compared to 2016 and 24% in 2018 compared 2017
- Profit of the company increased significantly especially in 2018 compared to 2017. The sources of this major increase will be further explained.
- An increase of total debt is a normal trend considering the positive evolution to Turnover. However, the most important aspect to be mentioned is the fact that the debts – the costs did not increase with the same unit scale as the increase of Turnover, which means that the company learned how to expand their activity in an efficient way.
- decrease in overdue payments shows that the company better manages its cash flow and it manages to pay on time all debts.

**Table 3.1 The evolution of financial and business indicators of Company A during 2016-2018**

Indicator	M.U.	2016	2017	2018
Turnover	euro	13,383,921	15,452,471	18,742,415
	%	+13	+17	+24
EBITDA	euro	8,718,331	9,055,811	12,998,016
	%	+16	+6	+46
Net Result	euro	621,325	716,475	2,453,537
	%	+2	+17	+249
Equity	euro	5,539,830	5,726,573	8,075,017
	%	+130	+5	+44
Total Debts	euro	32,071,990	37,120,877	43,376,755
	%	+22	+18	+19
Overdue Payments	euro	144,636	39,524	29,142
	%	+73	-72	-25

Source: developed by the author

According to the recommendation and measures proposed, the company developed a Management Financial & Operating Report, which helps the management to better understand the source of the sensitive variations of the company's activity.

As shown in the table 3.2., the car fleet had a positive increasing trend in every business unit (leasing, rent a car and sale of second hand cars) and resulted in an increase of total income. The fact that the income increased significantly is a direct positive consequence of good control of the activities and good management decisions. The profit of the company increased, mainly due to strategies of "cherry picking" carefully monitored and good strategy of pricing.

**Table 3.2 Evolution of management financial – operating indicators, Company A**

Indicator	MU	Dec-16	Dec-17	Dec-18
Fleet leasing	units	2,520	2,948	3,378
Fleet rent	units	459	620	939
Fleet Sale cycle- Second-hand	units	99	108	179
<b>Total fleet</b>	<b>units</b>	<b>3,077</b>	<b>3,677</b>	<b>4,497</b>
Leasing Total Income	euro	9,681,120	11,048,880	13,110,416
RAC Total income	euro	3,375,436	4,191,313	5,633,482
<b>Total income (including other income)</b>	euro	<b>13,105,776</b>	<b>15,246,691</b>	<b>18,768,363</b>
Cost of Sales Total	euro	(9,524,588)	(10,901,034)	(13,865,487)
Net income Second-hand	euro	519,487	577,835	829,306
<b>Total GM</b>	euro	<b>4,100,676</b>	<b>4,923,492</b>	<b>5,732,183</b>
<b>Total cost</b>	euro	<b>(14,673,158)</b>	<b>(15,385,109)</b>	<b>(19,484,554)</b>

Source: developed by the author

After analysing the data, using the platform Keysfin, following conclusion can be drawn (table 3.3. and figure 3.4):

- Net profit margin is better than the sector average which includes the company. The company registers a low risk compared with other similar companies within the sector.

- Operating margin is better than the sector average which includes the company. The company registers a low risk compared with other similar companies within the sector.

- ROA - The company registers a high level of return on assets compared with other similar companies within the sector.

- ROE - Company registers high level of ROE compared with other similar companies within the sector.

- Indebtedness Ratio - The indicator registered by the company and the sector average exceeded an acceptable level of indebtedness ratio.

- Current liquidity - The sector average recorded a low level of liquidity. The current liquidity of the analysed company is at the sector's average

- Quick Ratio - The sector average recorded a low level of liquidity. The quick ratio of the analysed company is at the sector average but is considered a low level of the indicator

- Days debt payment outstanding - The analysed company is paying the current debts faster than majority companies within the sector.

- Inventory Turnover - The analysed company records an efficient selling of inventories compared with the majority companies within the sector.

- Turnover Evolution - The company recorded an increase of turnover greater than the sector average.

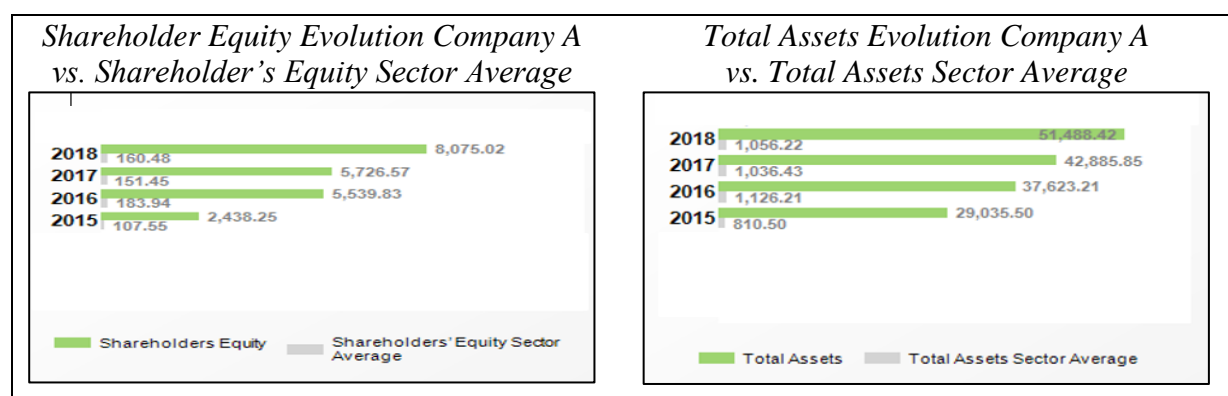
- Net Profit Evolution - The company recorded an increase of net profit greater than the sector average.

The purpose of the post assessment for 2016 – 2018 was to verify the sustainability of the company after mitigating the exposures. At the first analysis using the Operational Key Point Status Cube, the Company A presented exposure at Compliance (objective level), Customer Satisfaction, Internal values, Event Identification and Risk Assessment (components level). After implementing proposed measures, at second analysis, the Company improved and mitigate all the exposures to risk. According to the findings, it can be concluded that there is a significant link between reducing the exposure to risk of Compliance, Customer Satisfaction and Internal values - and the progress of company's business activity, financial and operational figures.

**Table 3.3 Financial indicators for Company A post-assessment**

FINANCIAL ANALYSIS		2017	2018	Sector average	
<b>PROFITABILITY AND PRODUCTIVITY INDICATORS</b>					
<i>Net Profit Margin</i>	✓	%	4.64	13.09	5.00
<i>Operating Margin</i>	✓	%	16.54	16.58	10.69
<i>Operating margin is better than the sector average which includes the analysed company. The company registers a low risk compared with other similar companies within the sector.</i>					
<i>Return on Assets (ROA)</i>	✓	%	5.96	6.03	4.57
<i>Return on Equity (ROE)</i>	✓	%	12.51	30.38	13.37
<b>SOLVABILITY INDICATORS</b>					
<i>Indebtedness Ratio</i>	⚠	%	648.22	537.17	511.16
<i>Debts coverage Ratio</i>	⚠	%	6.89	7.16	5.59
<b>LIQUIDITY INDICATORS</b>					
<i>Current liquidity</i>	⚠		0.50	0.52	0.57
<i>Quick Ratio</i>	⚠		0.43	0.43	0.47
<b>EFFICIENCY INDICATORS</b>					
<i>Days debt payment outstanding</i>	✓	Days	303.00	297.00	309.00
<i>Inventory Turnover</i>	✓	Days	20.00	27.00	31.00
<b>ACTIVITY'S EVOLUTION</b>					
<i>Turnover Evolution</i>	✓	%	17.44	23.56	-5.74
<i>Net Profit Evolution</i>	✓	%	17.30	248.85	-25.84

Source: developed by the author, using <https://www.keysfin.com/EN/>



**Figure 3.4 Evolution of financial indicators for company A**

Source: developed by the author, using <https://www.keysfin.com/EN/>

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 of view.

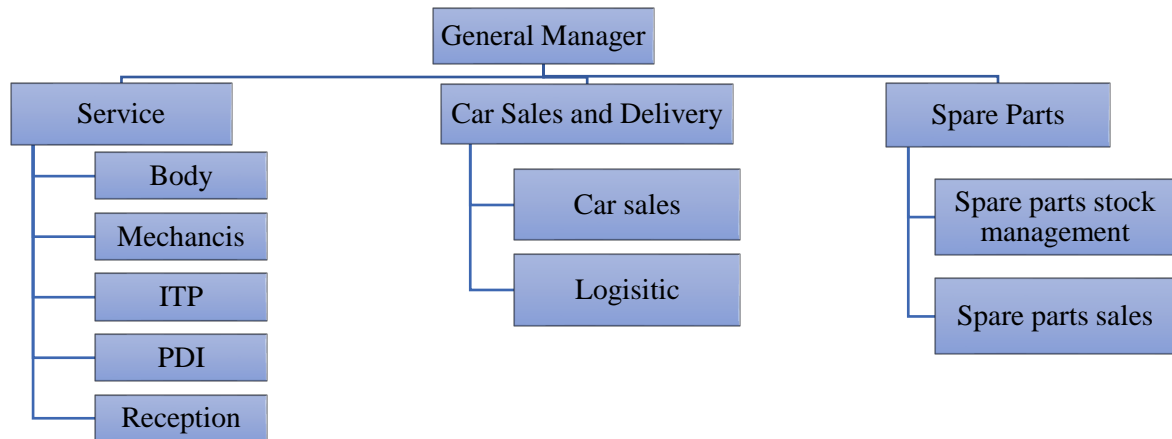
### 3.2 Assessment and action plan for company B

Company profile. Company B is a local business operating in automotive industry providing repair services for all brands of auto vehicles (Business Unit A) and new car sales, as an authorized dealer of a famous European auto vehicle brand (Business Unit B).

The business was developed after the company acquired the premises of a former competitor which was forced to withdraw from the market, three years before. Main financial figures that define the business at the end of the last closed year, 2016: equity – Euro 2.3 mil.,

turnover – Euro 8 mil., a loss of Euro 25,000 and the dimension of the company expressed by the number of employees – 72 employees.

The activity of the company is structured as showed in the organizational chart in figure 3.5.



**Figure 3.5 The organizational chart of the company B**

*Source: developed by the author*

The company is managed by the General Manager, who has under his direct subordination the two business units functioning in the company: Service for auto vehicles (Service) and New cars sales (Car Sales and delivery) and, also, the division that comprise the other activities in the company - Spare Parts.

The assessment. The business situation of Company B was assessed at three organizational levels:

- a) Entity level,
- b) Business Unit A (Auto Service) level,
- c) Business Unit B (Car sales) level.

The analysis was made based on the year-end results of the company registered during 2014 – 2016. Business Results Cube applied to Company B, 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 two activities of the company: Auto Service (Business Unit A) and New Car Sales (Business Unit B):

- The Equity remained constant;
- The Overall Turnover registered a two-year increase at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- EBITDA registered a two-year increase at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;



- The Profit registered a two-year increase at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- The Sales registered a two-year increase at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- The Market Share registered a one-year increase at all the three level of the company.

In conclusion, the business situation is improving at all levels, in the past three years. The constant level of the Equity of the company shows the maintenance of the commitment of the shareholders to the business. The improving income indicators (Overall Turnover and Sales) show the growth of the business, on both units. The improving profitability indicators (EBITDA and Profit) show the business is producing an increasing surplus of money.

The financial situation of Company B was assessed at Entity organizational level. The analysis was made based on the year-end financial results of the company registered during 2014-2016. Financial Results Cube applied to Company B, revealed the overview of the financial activity over the past three years, showing the evolution of each indicator assessed at entity level:

- Working Capital Ratio - registered a two-year increase;
- Quick Ratio - registered a two-year increase;
- Receivable Turnover – registered a one-year increase;
- Inventory Turnover - registered a one-year increase;
- Debt-Ratio - registered a one-year increase;
- Debt-to Equity Ratio - registered a two-year increase;
- Gross Profit Margin - registered a two-year increase;
- Net Profit Margin - registered a two-year increase;
- Return on Assets (ROA) - registered a two-year increase;
- Return on Equity (ROE) - registered a two-year increase;
- Accounts payable turnover - registered a two-year increase;
- Interest coverage - registered a two-year increase;
- Debt coverage - registered a two-year increase;
- Cash flow from operations - registered a two-year increase.

In conclusion, the financial situation is improving in the past three years for Company B. The increasing Working Capital and Quick Ratio show the good ability of the company to support its operations with liquidities. The increasing debt indicators (Debt-Ratio and Debt-to Equity Ratio) show that the company supported its growth through loans. In terms of profitability, the company is on a positive trend, which shows its capacity to produce more money than it is

spending. Increasing ROA and ROE shows that the company is effectively converting the money it has to invest into net income. The capacity of the company to pay its due debts and the interest generated by these debts (Interest coverage and Debt coverage indicators) is also increasing. Cash flow from operations shows that the company has the ability to generate enough cash from its operations so that to cover its current expenses, debts and taxes.

Overall conclusion of the financial analysis shows that the company is passing through a process of improvement and development in all its areas of activity.

The operational risk exposure (OKPC) of Company B was assessed at 4 organizational levels and 9 activity levels:

1. Entity level;
2. Business Unit A (Auto Service) level:
  - 2.1. Body activity level,
  - 2.2. Mechanics activity level,
  - 2.3. ITP activity level,
  - 2.4. PDI activity level,
  - 2.5. Reception activity level;
3. Business Unit B (Car sales) level:
  - 3.1. Car sales activity level,
  - 3.2. Logistic activity level;
4. Spare parts division level:
  - 4.1. Spare parts sales activity level,
  - 4.2. Spare parts stock management activity level.

The weight of the questions was established for this company by 4 managers, according to their experience. Each of them is responsible for a certain department in the company's organizational structure and overall management: General Manager, Service Manager, Car Sales and Delivery Manager and Spare Parts Manager. Their assessment of the weight is subjective, reflecting their own view and managerial approach from every different perspective each of them represent. Weighting the significance of the questions for Company B is presented in Annex 6.

Conclusion and recommendations. Based on the answers provided by Company B to the questions required by OKPC assessment, the following conclusions were drawn (figure 3.6):

- Out of the total of 452 questions, with a total weight of 12,277 points, 59.46% were answered "Yes", weighting 7,299 points and 40.54% were answered "No", weighting 4,978 points;

- Compliance area gained the least number of points, resulting a capacity to manage the risks of 21.31% - signalled in red colour;
- Also, Reporting area is under the threshold of 60%, with a capacity to manage risks of 57.21% - signalled in yellow colour;
- The organizational level that summed up the least number of points, with a capacity to manage risks of 56.96% was the Activity level - signalled in yellow colour;
- The areas that gained the least number of points, signalled in red colour, were Event Identification, with a capacity to manage risks of 39%; Risk Assessment, with a capacity to manage risks of 36.91% and Customer satisfaction, with a capacity to manage risks of 28.81%.



**Figure 3.6 Operational Risk exposure assessment for Company B**

Source: developed by the author

The company has an overall exposure to risk of 40.54%. Analysed from the perspective of crisis prevention, the company has a capacity to manage risks and prevent crises of 59.46%. According to results of the questions in the algorithm, with a capacity to manage risks of 56.96%, slightly under the threshold of 60%, the Activity level needs attention, possible exposure is shown. On the objectives level, exposed to risk are the Reporting and the Compliance levels. Achieving 21.31% coverage against risk, Compliance level is highly exposed therefore it is under a red signal in figure 3.5. Regarding Reporting area, here the exposure is much smaller, it is very close to the threshold of 60%.

Overall, the company is stable in terms of procedures, objectives, reporting and controlling, but a high exposure to risk presents the prevention part/opportunities finding and risk assessment. Procedures specially designed for these points shall be implemented immediately, according to the companies' needs.

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.

The details of the Action Plan for Company B as well as the timetable and the progress done using the algorithm are presented in Annexes 7-9. Reporting and the Compliance levels require immediate attention and remedy in terms of defining the strategy and creating the tools and procedures.

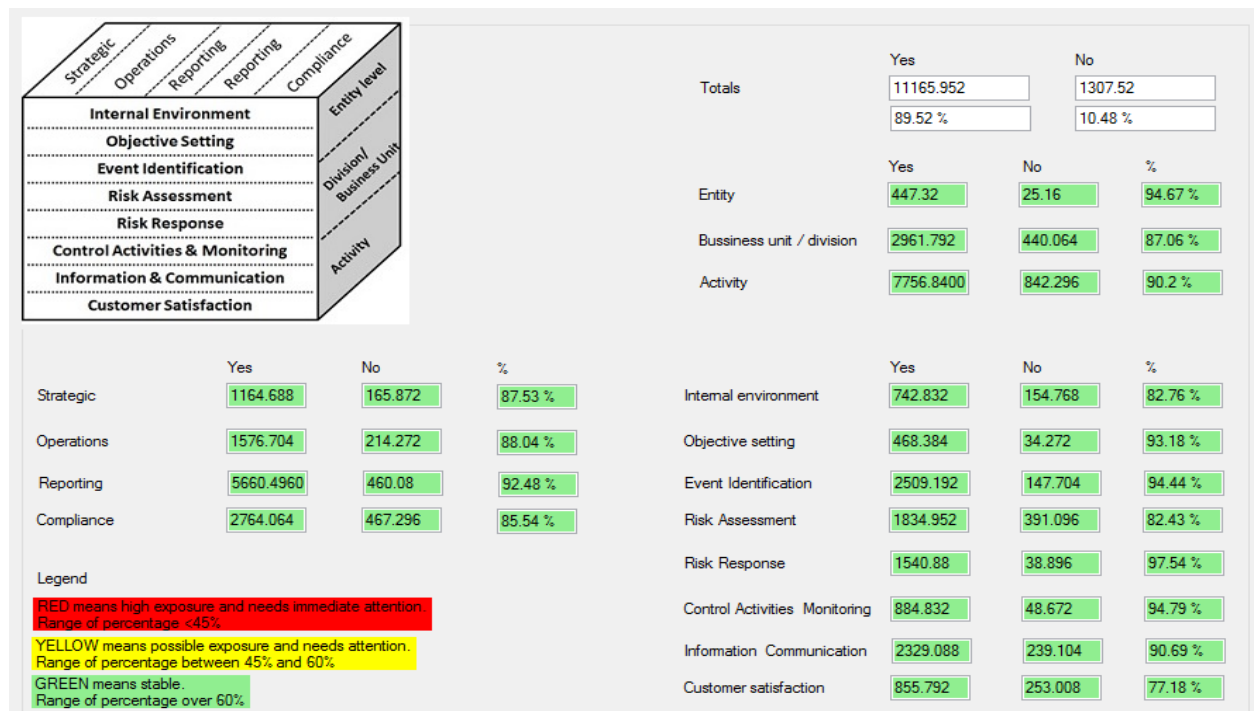
In the Activity level the compliance tools and procedures for Event identification, Risk Assessment and Customer satisfaction, must be defined and implemented.

Regarding Reporting area, only slight improvements are needed. This means that for this area, there are some control instruments in place, such as reporting and monitoring tools, but they need to be improved and strengthened in terms of making them mandatory through the internal regulation system and better monitored.

Actions needed to be taken:

- Define and implement procedures for verifying compliance for Event identification, Risk Assessment and Customer satisfaction at every activity level;
- Define and implement the tools necessary to check if Event identification, Risk Assessment and Customer satisfaction are compliant with the defined procedures and regulations at every activity level;
- Review the reporting procedures for Event identification, Risk Assessment and Customer satisfaction at every activity level;
- Review the reporting tools for Event identification, Risk Assessment and Customer satisfaction at every activity level.

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 (figure 3.7).



**Figure 3.7 Operational Risk assessment result for Company B**

*Source: developed by the author*

After the second assessment of the company's situation, the following improvements could be observed (figure 3.7):

- The overall risk exposure was reduced from 40.54% to 10.48%;
- Compliance, Event identification, Risk assessment and Customer Satisfaction areas went from red alert range of high exposure to green, stable range;
- Reporting area went from yellow alert range of medium exposure to green, stable range;
- Activity 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 B was able to improve its overall situation in terms of crisis prevention with 30%. 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.

The evolution of financial and business indicators of the Company B during next 2016-2018 were as follows (table 3.4), compared to the first analysis:

- Turnover increased by 1.2% in 2017 compared to 2016 and 33% in 2018 compared 2017
- Profit of the company increased significantly in 2018 compared to 2017.
- Total debt increased by 5.65% in 2017 compared to 2016, a normal trend considering the positive evolution of Turnover. Furthermore, in 2018 compared to 2017, the same total debt

value decreased by 5.82%. This practically means that the company succeeded to significantly increase the turnover while maintaining low level of costs. This type of evolution can be described only as efficiency.

- A decrease in overdue payments was kept a constant level.

**Table 3.4 The evolution of financial and business indicators of Company B during 2016-2018**

Indicators	2016	2017	2018
Turnover, euro	8,932,836	9,043,012	12,108,964
EBITDA, euro	260,639	253,388	626,861
Net Result, euro	-25,057	9,330	423,497
Equity, euro	2,328,771	2,588,709	2,964,699
Total Debt, euro	4,883,409	5,161,255	4,861,080
Overdue Payments, euro	16,171	16,251	17,754

Source: developed by the author

According to the organization's Management Financial & Operating Report, the high-level management has the ability to understand, map and translate the variations of the company's activities (table 3.5).

**Table 3.5 Evolution of management financial – operating indicators, Company B**

Indicators	MU	Dec-16	Dec-17	Dec-18
Total Cars sold	units	497	458	694
GM From Cars Sales	euro	471,467	434,877	608,817
Number of Sold Hours				
✓ Mechanical	euro	11,476	13,043	18,905
✓ Mechanical External contracts	euro	8,138	9,616	9,180
✓ Body	euro	30,865	34,449	34,149
✓ Body External contracts	euro	8,123	8,328	7,153
✓ Technical hours	euro	13,104	14,165	13,444
<i>Total Number of Sold Hours</i>	<i>euro</i>	<i>71,706</i>	<i>79,600</i>	<i>82,831</i>
Labour Income				-
✓ Mechanical	euro	127,416	147,885	206,413
✓ Mechanical External contracts	euro	120,135	131,785	125,582
✓ Body	euro	370,947	404,842	389,050
✓ Body External contracts	euro	115,031	110,752	96,885
✓ Technical hours income	euro	63,033	72,456	77,112
<i>Labor Income total</i>	<i>euro</i>	<i>796,562</i>	<i>867,720</i>	<i>895,041</i>
<i>GM from Parts</i>	<i>euro</i>	<i>293,625</i>	<i>382,538</i>	<i>376,360</i>
<b>Total GM</b>	<b>euro</b>	<b>1,712,375</b>	<b>1,768,606</b>	<b>1,993,282</b>
<b>Total cost</b>	<b>euro</b>	<b>(1,542,717)</b>	<b>(1,608,976)</b>	<b>(1,547,945)</b>

Source: developed by the author

In the Business unit - Car Sales and Delivery - the number of cars sold increased by 236 cars in 2018 compared to 2017. This increase is shown not only as absolute number (car number),

but also in the increase of this business unit's income and gross margin. The Business unit Service increased its activity, especially on the external client's contracts (mainly individuals and not fleet contracts). This increase in 2017 compared to 2016 in the number of hours sold both in Mechanics and Body workshop. The Business Unit – Sale of Spare Parts increased significantly (approx. 30%) the income and gross margin in 2017 and 2018 compared to 2016. Overall, the company benefitted a significant increase starting 2017, switched its failure direction to a successful way - from loss to approx. 400,000-euro profit. The result is a direct positive consequence of good control of the activities and good management decisions.

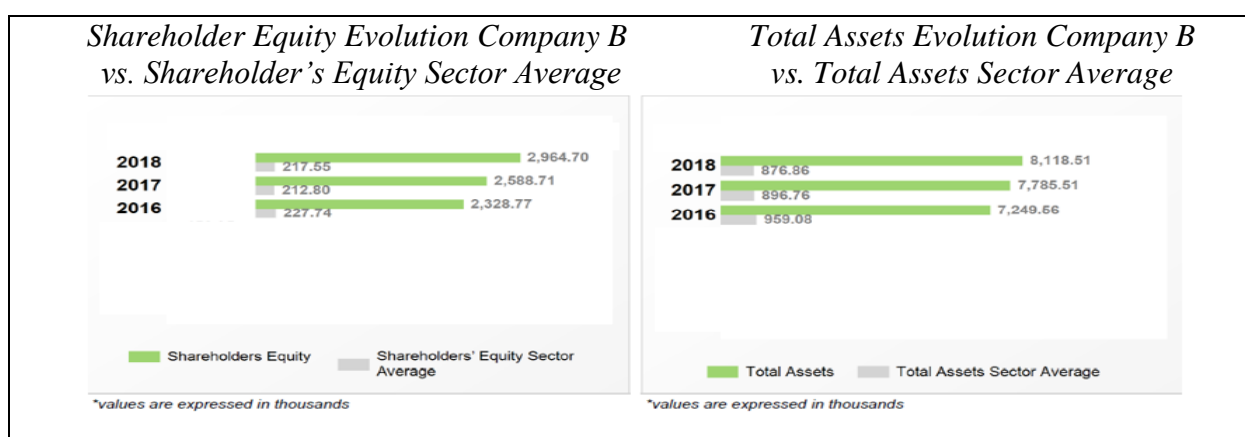
After analysing the data, using the platform Keysfin, following conclusion can be drawn (table 3.6. and figure 3.8):

- Net profit margin is better than the sector average which includes the company. The company registers a low risk compared with other similar companies within the sector.
- Operating margin is better than the sector average which includes the company. The company registers a low risk compared with other similar companies within the sector
- ROA – The company registers a low level of return on assets compared with other similar companies within the sector, but acceptable level
- ROE – The company registers an acceptable level of ROE compared with other similar companies within the sector.
- Debt coverage ratio – the indicator registered by the company and the sector average is at an acceptable level of indebtedness ratio.
- Current liquidity – the sector average recorded a low level of liquidity. The current liquidity of the analyzed company is at the sector average.
- Quick ratio the sector average recorded a low level of liquidity. The quick ratio of the analyzed company is at the level of the sector average.
- Days sales outstanding – the analysed company collect the receivables faster than majority companies within the sector
- Days debt payment outstanding – the analysed company is paying the current debts at the level of the majority companies within the sector
- Turnover evolution – the company recorded an increase of turnover greater than the sector average.
- Net Profit Evolution – the company recorded an increase of net profit greater than the sector average.

**Table 3.6 Evolution of financial indicators for company B, post-assessment**

FINANCIAL ANALYSIS		2017	2018	Sector average	
<b>PROFITABILITY AND PRODUCTIVITY INDICATORS</b>					
Net Profit Margin		%	0.10	3.50	2.31
Operating Margin		%	2.07	4.29	3.31
Return on Assets (ROA)		%	2.41	6.39	9.53
Return on Equity (ROE)		%	0.36	14.28	23.98
<b>SOLVABILITY INDICATORS</b>					
Debts coverage Ratio		%	3.63	10.68	13.98
<b>LIQUIDITY INDICATORS</b>					
Current liquidity			0.34	0.47	1.22
Quick Ratio			0.10	0.16	0.60
<i>The sector average recorded a low level of liquidity. The quick ratio of the analysed company is smaller than the sector average</i>					
<b>EFFICIENCY INDICATORS</b>					
Days sales outstanding		Days	15.00	19.00	33.00
Days debt payment outstanding		Days	167.00	125.00	80.00
<b>ACTIVITY'S EVOLUTION</b>					
Turnover Evolution		%	2.98	36.41	11.21
Net Profit Evolution		%	137.87	4,524.09	14.35

Source: Developed by author using the platform <https://www.keysfin.com/EN/>



**Figure 3.8 Evolution of financial indicators for company B**

Source: Developed by author using the platform <https://www.keysfin.com/EN/>

The purpose of the post assessment for 2016 – 2018 was to verify if the measures implemented for mitigating the exposures to risk were sustainable for the company. At the first analysis using the Operational Key Point Status Cube, the Company B presented exposure at Reporting and Compliance (objective level), Customer Satisfaction, Event Identification and Risk Assessment (components level). After the second analysis, the Company improved and mitigate all the exposures to risk. According to the findings, it can be concluded that there is a significant link between reducing the exposure to risk of Compliance, Reporting and Customer Satisfaction - and the progress of company's business activity, financial and operational figures. Another key factor in Company B progress was the improvement of Event Identification – component which allowed the company to identify faster and easier business opportunities to sell cars.

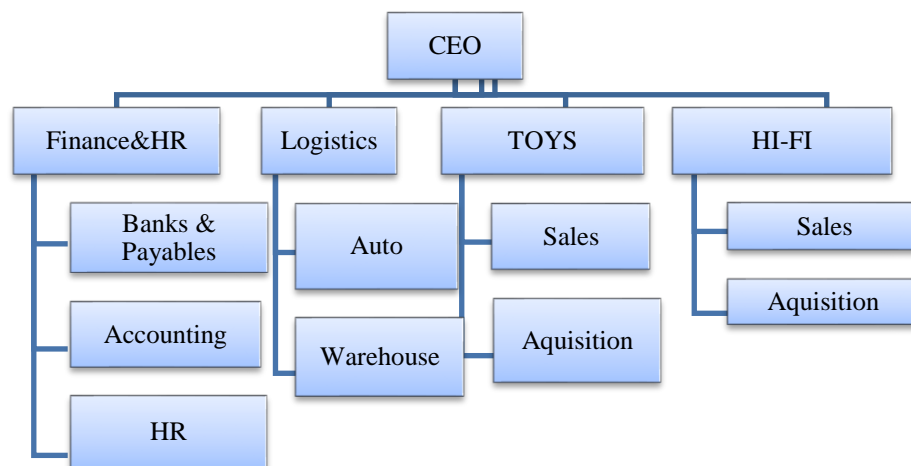


Two years after the process, Company B is stronger, switched from loss to profit, developed a healthier business environment, with a better image in front of the customers - trust and quality wise - and more valuable from assets points of view.

### 3.3 Assessment and action plan for company C

Company profile. Company C is a company that imports and distributes toys and HI-FI equipment. The company imports top international brands toys like LEGO, Simba, Hasbro, Mattel, Sun City, etc. and distributes them to major hypermarket networks like Carrefour, Cora, Auchan, Kaufland, Mega Image (Business Unit A). Also, the company is the sole importer and distributor for two major Hi-Fi equipment brands: Denon and Marantz, and distributes them through specialized retailers' networks like and through individual dealers national wide (Business Unit B). The main financial figures that define the business at the end of 2016: equity – 250 000 euros, turnover – 5 015 870 euros, the profit – (-142 158) euros and the number of employees – 58 persons.

The activity of the company is structured as shown in the organizational chart (figure 3.7).



**Figure 3.9 Organizational chart for Company C**

*Source: developed by the author*

The company is managed by the CEO, who has under his direct subordination the two business units functioning in the company: Import and distribution of toys (TOYS) and Import and distribution of HI-FI equipment (HI-FI); and, also, the two divisions that comprise the other operational, administrative and management activities: Finance & HR Division and Logistics Division.

Assessment and recommendations. The analysis was made based on the year-end results of the company registered during 2014-2016. The business situation of Company C was assessed at three organizational levels:

- a) Entity level
- b) Business Unit A (TOYS) level
- c) Business Unit B (HI-FI) level

Business Results Cube applied to company C, 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 two activities of the company: TOYS (Business Unit A) and HI-FI (Business Unit B):

- The Equity remained constant;
- The Overall Turnover registered a one-year decrease at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- EBITDA registered a one-year decrease at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- The Profit registered a one-year decrease at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- The Sales registered a one-year decrease at the Entity level and Business Unit A level, and a one-year increase at Business Unit B level;
- The Market Share registered a one-year decrease at all the three level of the company.

In conclusion, the business situation is depreciating at entity level and business unit A level over the past one year and is improving at business unit B level, in the past one year. The constant level of the Equity of the company shows the maintenance of the commitment of the shareholders to the business. The decrease of sales and profitability indicators for Business Unit A, shows that this business line is declining compared to the previous period. The increase of sales and profitability indicators for Business Unit B, shows that this business line is growing compared to the previous period.

The financial situation of Company C was assessed at Entity organizational level. The analysis was made based on the year-end financial results of the company registered during 2014-2016.

Financial Results Cube applied to Company C, revealed the overview of the financial activity over the last three years, showing the evolution of each indicator assessed at entity level:

- Working Capital Ratio - registered a two-year decrease;
- Quick Ratio - registered a three-year decrease;
- Receivable Turnover – registered a one-year increase;
- Inventory Turnover - registered a one-year increase;

- Debt-Ratio - registered a one-year increase;
- Debt-to Equity Ratio - registered a two-year increase;
- Gross Profit Margin - registered a one-year decrease;
- Net Profit Margin - registered a one-year decrease;
- Return on Assets (ROA) - registered a one-year decrease;
- Return on Equity (ROE) - registered a one-year decrease;
- Accounts payable turnover - registered a two-year increase;
- Interest coverage - registered a two-year decrease;
- Debt coverage - registered a one-year decrease;
- Cash flow from operations - registered a two-year decrease.

In conclusion, the financial situation is depreciating in the past three years analyzed. The decreasing Working Capital and Quick Ratio show that the company doesn't have the ability to support its operations with liquidities. The increasing debt indicators (Debt-Ratio and Debt-to Equity Ratio) show that the company supported its growth through loans. In terms of profitability, the company is on a negative trend, which shows its poor capacity to produce surplus money. Decreasing ROA and ROE shows that the company is failing converting the money it has to invest into net income. The capacity of the company to pay its due debts and the interest generated by these debts (Interest coverage and Debt coverage indicators) is also decreasing. Last, but not least, Cash flow from operations, is a very important indicator and shows that the company doesn't have the ability to generate enough cash from its operations to cover its current expenses, debts and taxes.

Overall conclusion of the financial analysis shows that the company is passing through a weak period in terms of financial health and, if measures are not taken, the shortage of liquidity and cash can produce a financial blockage.

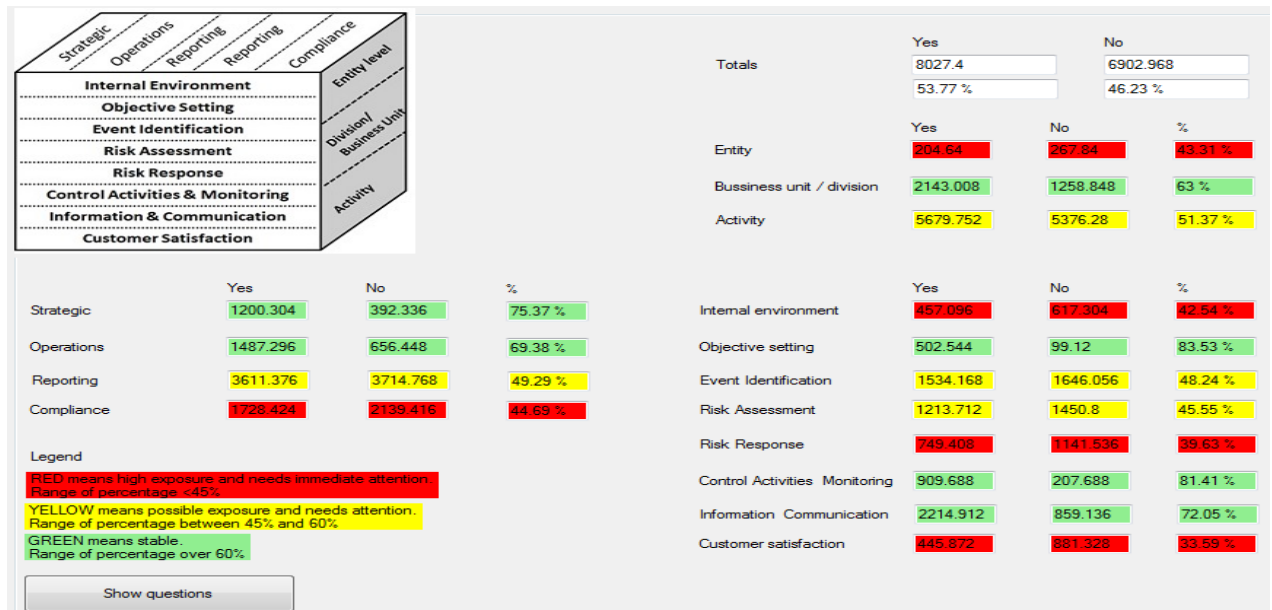
The operational risk exposure of Company C (OKPC) was assessed at 5 organizational levels and 9 activity levels:

1. Entity level
2. Business Unit A (TOYS) level
  - 2.1. Sales activity level
  - 2.2. Acquisition activity level
3. Business Unit B (HI-FI) level
  - 3.1. Sales activity level
  - 3.2. Acquisition activity level

4. Finance & HR Division level
  - 4.1. Banks & payable activity level
  - 4.2. Accounting activity level
  - 4.3. Human Resources
5. Logistics Division level
  - 5.1. Auto activity level
  - 5.2. Warehouse activity level

The weight of the questions was established for this company by 5 managers, according to their experience. Each of them is responsible for a certain department in the company's organizational structure and overall management: CEO, Financial Manager, Logistics Manager, Sales & Acquisition Toys Manager and Sales & Acquisition Hi-Fi Manager. Their assessment of the weight is subjective, reflecting their own view and managerial approach from every different perspective each of them represent. Weighting the significance of the questions for Company C is presented in Annex 10.

Based on the answers provided by Company C to the questions required by OKPC assessment, the following conclusions were drawn (figure 3.10):



**Figure 3.10 Operational Risk assessment result for Company C**

Source: developed by the author

- Out of the total of 546 questions, with a total weight of 14,930 points, 53.77% were answered “Yes”, weighting 8,027 points and 46.23% were answered “No”, weighting 9,903 points;

- Compliance area gained the least number of points, resulting a capacity to manage the risks of 44.69% - signalled in red colour;
- Also, Reporting area is under the threshold of 60%, with a capacity to manage risks of 49.29% - signalled in yellow colour;
- The organizational level that summed up the least number of points, with a capacity to manage risks of 43.31% was the Entity level - signalled in red colour;
- Also, Activity level is under the threshold of 60%, with a capacity to manage risks of 51.37% - signalled in yellow colour;
- The areas that gained the least number of points, signalled in red colour, were Internal Environment, with a capacity to manage risks of 42.54%; Risk Response, with a capacity to manage risks of 39.63% and Customer satisfaction, with a capacity to manage risks of 33.59%;
- The areas that are also under the threshold of 60% are Event Identification, with a capacity to manage risks of 48.24% and Risk Assessment, with a capacity to manage risks of 45.55% - both signalled in yellow colour.

The company has an overall exposure to operational risks of 46.23%. Analysed from the perspective of crisis prevention, the company has a capacity to manage risks and prevent crises of 53.77%. The risk exposure is mainly concentrated on the Entity level, for Compliance objectives, related to Internal environment, Risk response and Customer satisfaction perspectives. All are under the threshold of 45%, which means highly exposed to risk and are signalled in red colour in figure 3.8. Compliance objective has the highest exposure to risk, but it is slightly under the threshold of 45%, so with a little improvement it can move to the yellow area. Also, Reporting objective is in the medium risk range, with need for improvement in terms of reporting tools and procedures. A moderate exposure to risk there can be found at the Activity level, especially on the areas of Reporting, Event identification and Risk assessment (all signalled in yellow colour). Room for improvement there would be overall at the Activity level, special attention needed for Reporting, Event identification and Risk assessment. Here, reporting tools must be reviewed and adjusted in order to have a better control over the process of event identification and risk assessment down to every activity of the company, in particular.

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

The details of the Action Plan for Company C as well as the timetable and the progress done using the algorithm are presented in Annexes 11-13. At the Entity level, compliance tools and reporting procedures poorly exist in the company's environment, customer satisfaction and risk response areas. At these areas, immediate actions are required at the highest organizational level, in order to prevent possible crises.

Actions needed are:

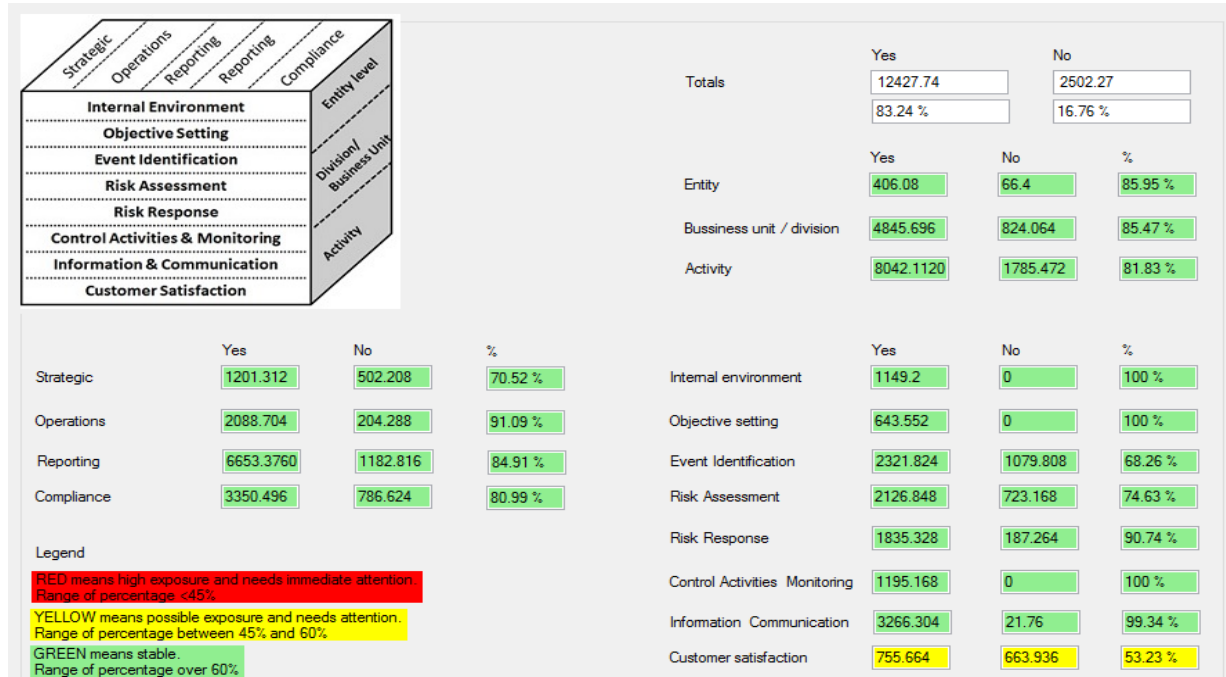
- Define and implement procedures for reporting and compliance for Internal environment at entity level;
- Define and implement procedures for reporting and compliance for Risk Response at entity level;
- Define and implement procedures for reporting and compliance for Customer satisfaction at entity level;
- Define and implement the tools necessary to check if Internal environment are compliant with the defined procedures and regulations at entity level;
- Define and implement the tools necessary to check if Risk Response is compliant with the defined procedures and regulations at entity level;
- Define and implement the tools necessary to check if Customer satisfaction is compliant with the defined procedures and regulations at entity level;
- Review the reporting procedures and tools for Event identification at entity level and every activity level;
- Review the reporting procedures and tools for Risk Assessment at entity level and every activity level.

Second assessment. After the company implemented 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 (figure 3.11).

After the second assessment of the company's situation, the following improvements could be observed:

- The overall risk exposure was reduced from 46.23% to 16.76%;
- Compliance, Internal environment and Risk response areas went from red alert range of high exposure to green, stable range;
- Customer Satisfaction area went from red alert range of high exposure to yellow, moderate exposure range;

- Event identification and Risk assessment areas went from yellow alert range of medium exposure to green, stable range;
- Reporting area went from yellow alert range of medium exposure to green, stable range;
- Entity level went from red alert range of high exposure to green, stable range.
- Activity level went from yellow alert range of medium exposure to green, stable range.



**Figure 3.11 Second Operational Risk assessment result for Company C**

*Source: developed by the author*

Due to the measures taken as a result of applying the algorithm in assessing the exposure to operational risk of the company, Company C was able to improve its overall situation in terms of crisis prevention with almost 30%. 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.

Due to the fact that, at the moment when the second assessment was conducted, the company didn't finish implementing the reporting procedures and tools for Customer Satisfaction, the exposure to risk in this area remained in the medium range, but the company knew exactly what needed to be done in order to reduce the risk to a stable level.

Post assessment 2016 – 2018 for Company C. During the analysis proceeded using SHIModel for Company C the exposure to risk of the organization was early detected.

After the first analysis, the company implemented the recommendation and measures proposed. At the second analysis, the weak points of the organization were improved and the company was placed in a better position financial, business and management wise. The evolution

of financial and business indicators of Company C were as follows, compared to the first analysis (table 3.7):

- The Turnover had a sustainable increasing trend in 2017 compared to 2016 and also in 2018 compared to 2017.

- The company became profitable, switching from a loss of Euro 142,000 to a profit of Euro 367,000.

**Table 3.7 The evolution of financial and business indicators of Company C during 2016-2018, euro**

Indicators	Dec-16	Dec-17	Dec-18
<i>Toys Total Income</i>	3,159,998	3,972,569	4,911,540
<i>HI FI Total income</i>	1,655,237	1,895,999	2,166,856
<i>Other income</i>	200,635	150,476	72,229
<b>Total income</b>	<b>5,015,870</b>	<b>6,019,044</b>	<b>7,150,624</b>
Cost of Sales Total	(3,260,316)	(4,213,331)	(4,647,906)
<b>Total turnover</b>	<b>5,015,870</b>	<b>6,019,044</b>	<b>7,222,853</b>
Total GM	1,755,555	1,805,713	2,502,718
Total General admin costs	(1,887,221)	(1,769,599)	(2,152,338)
<b>Operating profit/(loss)</b>	<b>(131,667)</b>	<b>36,114</b>	<b>350,381</b>
Other finance cost	(10,491)	14,886	17,071
<b>Profit w/o exchange rates</b>	<b>(142,158)</b>	<b>51,000</b>	<b>367,452</b>

*Source: developed by the author*

As an overview of how Company C evolved, at the first analysis using the Operational Key Point Status Cube, the Company C presented exposure at Reporting and Compliance (objective level), Customer Satisfaction, Internal Environment, Risk response and Risk Assessment (components level). At the second analysis, the Company mitigated all the exposures to risk.

The post assessment for 2016 – 2018 reveals that the measures implemented for mitigating the exposures to risk were sustainable and benefitted the company.

According to the findings, it can be concluded that there is a significant link between reducing the exposure to risk of Compliance, Reporting and Customer Satisfaction - and the progress of company's business activity, financial and operational figures.

Relevant factors for Company C were mitigating the exposure of Risk response and Risk assessment– components which allowed the company to understand easier and faster how to deal with the risks which arose in their business logistical processes.

Two years after the process, Company C followed an increasing trend, switched from loss to profit, developed a healthier business environment, with a better image in front of the customers and has the ability to take faster actions in order to avoid logistic risks.



### 3.4 The impact of using the algorithm from the crisis management point of view

The algorithm is improving the process of crisis prevention, so that the actions of crisis management are simplified. Due to the measures taken based on the results of the evaluation through the algorithm, the crisis can be avoided. Thus, the company will no longer use resources and time to repair the damages caused by the crisis and recover after such an event, but focus on its main business goals and targets. In the same time, it will be more protected in the future from possible dangers.

The practical impact of using the algorithm from the crisis management point of view is illustrated in the table 3.8.

**Table 3.8 The impact of using the algorithm**

Crisis management actions	Algorithm actions
1. Prevention of crisis: a. Identification of risks b. Evaluation of risks c. Mitigation of risks	1. Identification of risks ( <i>Input</i> ) 2. Evaluation of risks ( <i>Result</i> )
2. <i>Solving the crisis</i> 3. <i>Recovering after the crisis</i>	
4. Implementing changes for a better crisis prevention	3. Implementing changes for mitigating the risks and a better crisis prevention ( <i>Treatment</i> )

*Source: developed by the author*

The impact of using the algorithm from the risk management point of view is, from the practical point of view of risk management:

- easy to use - due to the input mechanism (yes/no questions);
- applicable to all kinds of companies - due to the mathematical formula;
- adjustable to the specifics of any organization - due to the question weighting system;
- offering a complete process of risk management, from identifying and assessing the impact of every risk to the company to treating actions for every exposed point existing in the organization.

The risk management process proposed by the algorithm is much simpler than the ones provided by the other risk management models:

1. Input - identify risks,
2. Result - assess risks,
3. Treatment - mitigate risks.

The first stage of the process is the Input into the application of the “yes” or “no” answers to the algorithm questions. In this stage the risks are identified by the algorithm.

The second stage of the process provides the Result of the risk assessment. In this stage, the algorithm, based on the answers introduced in the first stage, produces the risk assessment exposure map that indicates the weak points within the organization from the risk exposure point of view.

The third stage of the process is the Treatment of the weak points indicated in the second stage by implementing the action plan resulted from the algorithm. In this stage, the company is removing the sources of the risks it was exposed to.

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, 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.

Based on the experience of a business decision maker specialized in restructuring companies under duress or prepare companies to be more resilient to the issues of risk and crisis, we were able to advance a tool for business consulting that is highly practical and, in a certain sense, easy to apply.

Regarding the subject of resilience in organization, Weick, K.E. [128] emphasises four potential sources of resilience „that make groups less vulnerable to disruptions of sensemaking are proposed to forestall disintegration, including improvisation, virtual role systems, the attitude of wisdom, and norms of respectful interaction”. The analysis is then embedded in the organizational literature to show that it is needed to re-examine the thinking about temporary systems, structuration, nondisclosure intimacy, intergroup dynamics, and team building.

For each company, we were able to draw an action plan to restructure the company and make it more resilient to the issues of risk and crisis. By implementing the algorithm according to the action plan, we were also able to monitor the progress of this process and ensure that our objectives were implemented and companies were well prepared for any contingency.

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. During the implementation of the restructuring action plan, the following aspects were observed, that:

- all analysed companies were lacking, in a certain extent, operational processes and procedures regarding the day to day usual business activity;

- the majority of managers of the different business lines and departments within the analysed companies were, in a certain extent, in one of the two situations presented below:

1. they were not aware of the fact that the business processes and procedures were missing and didn't acknowledged the impact of the missing processes and procedures on the business performance,

2. they were aware of the lacks in the business procedures and processes and the impact of this on the business performance but didn't do anything to change the situation;

- the CEOs of analysed companies didn't consider the implementation of the restructuring plan as being crucial for the improvement of the operational performance of the company.

According to the findings and conclusions of the researches of the SHIMoldel, and in order to categories solutions for the issues discovered, a developed set of recommendation will be presented further as new tool for decision makers' use.

Considering the issues found in the analysed companies, the proposed measures are presented in the table 3.9.

**Table 3.9 Measures proposed as a result of the application of the algorithm**

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	<ul style="list-style-type: none"> <li>✓ Establish strategy according to companies will to further develop in each area</li> <li>✓ Agree and implement strategy and targets for each component, focusing on the component found by the algorithm as risky</li> <li>✓ Inform each relevant personnel about the new targets approved by high level management</li> </ul>
Operations	<ul style="list-style-type: none"> <li>✓ Create flow chart of working flow and processes for each business unit/ division</li> <li>✓ Create Overall flow chart for all company and understand the correlation and between departments</li> </ul>
Reporting	<ul style="list-style-type: none"> <li>✓ Analyse existing reports and decide which one is relevant</li> <li>✓ Create frame and templates of reports for each business unit's/ division's activity</li> <li>✓ Allocate responsible personnel for each report</li> <li>✓ Establish a frequency of reporting and monitoring</li> <li>✓ Analyse reports and compare to the targets established by the strategy</li> <li>✓ Set timetable</li> </ul>
Compliance	<ul style="list-style-type: none"> <li>✓ Allocate responsible personnel in charge with the monitoring</li> <li>✓ Set thresholds and alert system</li> </ul>
If risks are found at Company's Components	Measures proposed
Internal environment	<ul style="list-style-type: none"> <li>✓ Define internal environment's VALUES</li> <li>✓ Improve the strategy of transmitting these values and beliefs of the company internally and externally</li> <li>✓ Develop and create opportunities to expose the values of the company</li> </ul>
Objective setting	<ul style="list-style-type: none"> <li>✓ Create overall budget and scenarios of the company for a specific period (1 year)</li> <li>✓ Establish quarterly/monthly/weekly targets according to the budget and the strategy</li> </ul>

	<ul style="list-style-type: none"> <li>✓ Establish targets of increasing in no of sales, frequency, efficiency, productivity, targets related to commitment and deadlines</li> </ul>
Event identification & Risk Assessment	<ul style="list-style-type: none"> <li>✓ Set a strategy for event identification and risk assessment for each department</li> <li>✓ 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;</li> <li>✓ Communicate to each department the strategy, the procedure and establish personnel responsible for event identification and risk assessment</li> <li>✓ Create template formats of reports &amp; tools for events identification and risk assessment – to be used by the responsible personnel</li> <li>✓ 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</li> </ul>
Risk Response	<ul style="list-style-type: none"> <li>✓ Create a procedure for risk response</li> <li>✓ Allocate responsible personnel to analyse and gather solutions in accordance all the aspects of the problem (legal advisor, logistic/operations, finance)</li> <li>✓ Approve the solution for the problem found with the decision makers</li> </ul>
Control activities & Monitoring	<ul style="list-style-type: none"> <li>✓ Create “checking points” – responsible personnel to check according to timetable the accuracy of the activity and reporting</li> <li>✓ Set a strategy for monitoring by creating timetable of meetings</li> <li>✓ Create frame and template of tools and for monitoring (system)</li> <li>✓ Create flow chart of all the controls in the company and in each department</li> <li>✓ Improve or create additional control points</li> <li>✓ Create a procedure of ad-hoc and unannounced internal audit</li> </ul>
Information & Communication	<ul style="list-style-type: none"> <li>✓ Set a procedure according to the internal work flow chart of communication – each activity should follow gradual and specific steps</li> <li>✓ Create a structure of communication: high level management – middle management – all employees</li> <li>✓ Create channels of internal communication</li> <li>✓ Set a strategy for external communication</li> <li>✓ Allocate responsibility to specialized personnel for external communication</li> </ul>
Customer Satisfaction	<ul style="list-style-type: none"> <li>✓ Create tools to understand the customer satisfaction situation: complains dedicated e-mail, alerts, personnel to respond to all complains</li> <li>✓ Understand the customers complains and create reports for further transmitting of the issue</li> <li>✓ Compensate the customer immediately – if the case</li> <li>✓ Apply periodical enquiry to customers</li> <li>✓ Maintain the relationship with existing customers by periodical contact</li> </ul>

*Source: developed by the author*

After completing the second operational risk exposure assessment, the risk exposure of the analysed companies was:

- Company A has a very low exposure to operational risk;
- Company B has a very low exposure to operational risk;
- Company C has a very low exposure to operational risk;

During the completion of the second operational risk exposure assessment, the following aspects were observed:

- The managers of the business units recognized that the actions taken during the restructuring action plan determined an improvement of the usual business processes and tasks operated by the employees;
- The CEOs of the companies had a better understanding of the impact of the business processes and procedures on the performance of the business units, departments and the entire business entity, as a whole.

Considering the progress of the companies analysed after few years after implementing the measures to mitigate risks revealed by SHIModel, the improvement of the objectives and components in each organization benefitted the results, as follows:

- By improving the Strategic Objective - companies increased their ability to compete on the market, to gain market share and customers.
- By improving Operations Objective – companies increased their efficiency and decreased costs.
- By improving Reporting and Compliance Objectives– companies increased their abilities to have total control, accuracy and reliability of the results.
- By improving internal environment – the companies clarified and described their internal and external environment, due to the clear values in a way that the employees and business partners will have a clear understanding of the added value of the company.
- By improving objective setting – companies became goal oriented
- By improving event identification – companies increased the ability to better identify the opportunities on the market.
- By improving control activities & monitoring – companies increased their abilities to have total control, accuracy and reliability of the results.
- By improving customer satisfaction – companies increased the number of clients, gained their trust and feeling of reliability, which leads to a sustainable and long-term collaboration and increased the repetition rate of the customers.

### **3.5 Conclusions on chapter three**

1. 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.

2. After completing the diagnosis, the following main conclusions have been drawn:

2.1. All companies participating in the research could be analysed from the perspective of exposure to operational risk with the mathematical algorithm;

2.2. All the analysed companies were exposed to operational risk no matter the business activity of the company, its dimension or the industry it operates in;

2.3. 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;

2.4. The operational risk exposure can be present within the company no matter of its financial and business situation.

3. The software allowed to identify the most exposed areas. Based on the algorithm of the model, where proposed measures to restructure companies' activity.

4. 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.

5. The testing of the algorithm showed that it can be applied in a wide spectrum of industries, in order to determine the level of risk exposure.

## 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) [100, 101, 105, 106]

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) [102, 103]

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) [104]



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) [103, 104]

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) [101]

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) [103, 104]

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) [103]

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) [103]

**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)

Based on the objectives, and as result of made research following **novelties** are formulated:

1. New definition of risk management, based on literature review,
2. Critical analysis of existing risk management models from practical perspective,
3. 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,
4. Applying the SHIModel for identifying operational risks for real companies and development of actions plans to enhance companies' activity,
5. 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 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, Bucharest University of Economics (Romania).

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## Annexes

### Annex 1. The set of questions used in the algorithm

#### BRC Questions

	Question BRC	Answer						
		1	2	3	4	5	6	7
1. 1	On the entity level, what is the stage of Sales?							
1. 2	On the entity level, what is the stage of Turnover?							
1. 3	On the entity level, what is the stage of EBITDA?							
1. 4	On the entity level, what is the stage of Profit?							
1. 5	On the entity level, what is the stage of Equity?							
1. 6	On the entity level, what is the stage of Market share?							
2. 1	On the business unit level, what is the stage of Sales?							
2. 2	On the business unit level, what is the stage of Turnover?							
2. 3	On the business unit level, what is the stage of Profit?							
2. 4	On the business unit level, what is the stage of EBITDA?							
2. 5	On the business unit level, what is the stage of Market share?							

#### FRC Questions

	Question FRC	Answer						
		1	2	3	4	5	6	7
1.1	On the entity level, what is the stage of Working Capital Ratio?							
1.2	On the entity level, what is the stage of Quick Ratio?							
1.3	On the entity level, what is the stage of Receivable Turnover indicator?							
1.4	On the entity level, what is the stage of Inventory Turnover Indicator?							
1.5	On the entity level, what is the stage of Debt Ratio?							
1.6	On the entity level, what is the stage of Debt-to Equity Ratio?							
1.7	On the entity level, what is the stage of Gross Profit Margin?							
1.8	On the entity level, what is the stage of Net Profit Margin?							
1.9	On the entity level, what is the stage of ROA?							
1.10	On the entity level, what is the stage of ROE?							
1.11	On the entity level, what is the stage of Payable Period?							
1.12	On the entity level, what is the stage of Interest Coverage indicator?							



	Question FRC	Answer						
		1	2	3	4	5	6	7
1.13	On the entity level, what is the stage of Debt Coverage indicator?							
1.13	On the entity level, what is the stage of Cash flow from Operations?							

OKPS Questions

Level	Question	Y	N
Entity level	On the entity level, does the company have a strategy set to internal environment (set of values)?		
Entity level	On the entity level, does the company have a strategy for objective setting?		
Entity level	On the entity level, does the company have a strategy for event identification?		
Entity level	On the entity level, does the company have a strategy of risk assessment?		
Entity level	On the entity level, does the company have a strategy of risk response?		
Entity level	On the entity level, does the company have a strategy of controlling and monitoring?		
Entity level	On the entity level, does the company have a strategy of information and communication?		
Entity level	On the entity level, does the company have a strategy for customer satisfaction?		
Entity level	On the entity level's operations, does the company have the right internal environment attitude (agreed and written)?		
Entity level	On the entity level's operations, does the company have objective set?		
Entity level	On the entity level's operations, does the company event identification (ability to identify opportunities or treats)?		
Entity level	On the entity level's operations, does the company have the ability to do risk assessment?		
Entity level	On the entity level's operations, does the company have the ability to respond to risk?		
Entity level	On the entity level's operations, does the company have the ability control and monitor?		
Entity level	On the entity level's operations, does the company have the ability to inform and communicate internal?		
Entity level	On the entity level's operations, does the company have the ability to inform and communicate external?		
Entity level	On the entity level's operations, does the company have the procedure for customer satisfaction?		
Entity level	On the entity level does the internal environment activity have reporting procedure?		
Entity level	On the entity level does the company's objectives have reporting procedures?		
Entity level	On the entity level does the company's objectives have reporting tools?		
Entity level	On the entity level does the company's event identification have reporting procedures?		
Entity level	On the entity level does the company's event identification have reporting tools?		
Entity level	On the entity level does the company's risk assessment have reporting procedures?		
Entity level	On the entity level does the company's risk assessment have reporting tools?		
Entity level	On the entity level does the company's risk response have reporting procedures?		
Entity level	On the entity level does the company's risk response have reporting tools?		
Entity level	On the entity level does the company's control activities and monitoring have reporting procedures?		

Level	Question	Y	N
Entity level	On the entity level does the company's control activities and monitoring have reporting tools?		
Entity level	On the entity level does the company's information and communication activities have reporting procedures?		
Entity level	On the entity level does the company's information and communication activities have reporting tools?		
Entity level	On the entity level does the company's customer satisfaction have reporting tools?		
Entity level	On the entity level does the company have a tool to check if the internal environment rules/ values are compliant?		
Entity level	On the entity level does the company have a tool to check if objective setting is internally compliant?		
Entity level	On the entity level does the company have a tool to check if event identification is compliant?		
Entity level	On the entity level does the company have a tool to check if risk assessment is compliant?		
Entity level	On the entity level does the company have a tool to check if risk response is compliant?		
Entity level	On the entity level does the company have a tool to check if control activities and monitoring is compliant?		
Entity level	On the entity level does the company have a tool to check if information and communication activity is compliant?		
Entity level	On the entity level does the company have a tool to check if customer satisfaction level is compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy set to internal environment (set of values)?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy for objective setting?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy for event identification?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy of risk assessment?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy of risk response?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy of controlling and monitoring?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy of information and communication?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a strategy for customer satisfaction?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the right internal environment attitude (agreed and written)?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have objective set?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company event identification (ability to identify opportunities or treats)?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the ability to do risk assessment?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the ability to respond to risk?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the ability control and monitor?		

Level	Question	Y	N
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the ability to inform and communicate internal?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the ability to inform and communicate external?		
Business Unit/Division level	On the Business Unit/Division level level's operations, does the company have the procedure for customer satisfaction?		
Business Unit/Division level	On the Business Unit/Division level, does the internal environment activity have reporting procedure?		
Business Unit/Division level	On the Business Unit/Division level, does the company's objectives have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's objectives have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's event identification have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's event identification have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's risk assessment have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's risk assessment have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's risk response have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's risk response have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's control activities and monitoring have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's control activities and monitoring have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's information and communication activities have reporting procedures?		
Business Unit/Division level	On the Business Unit/Division level, does the company's information and communication activities have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company's customer satisfaction have reporting tools?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if the internal environment rules/ values are compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if objective setting is internally compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if event identification is compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if risk assessment is compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if risk response is compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if control activities and monitoring is compliant?		
Business Unit/Division level	On the Business Unit/Division level, does the company have a tool to check if information and communication activity is compliant?		
Business Unit/Division level	On the division FINANCE level, does the company have a tool to check if customer satisfaction level is compliant?		
Activity level	On the activity level, does the company have a strategy set to internal environment (set of values)?		

Level	Question	Y	N
Activity level	On the activity level, does the company have a strategy for objective setting?		
Activity level	On the activity level, does the company have a strategy for event identification?		
Activity level	On the activity level, does the company have a strategy of risk assessment?		
Activity level	On the activity level, does the company have a strategy of risk response?		
Activity level	On the activity level, does the company have a strategy of controlling and monitoring?		
Activity level	On the activity level, does the company have a strategy of information and communication?		
Activity level	On the activity level, does the company have a strategy for customer satisfaction?		
Activity level	On the activity level, does the company have the right internal environment attitude (agreed and written)?		
Activity level	On the operations level of the activity Accounting of the Division Finance, does the company have objective set?		
Activity level	On the activity level, does the company event identification (ability to identify opportunities or treats)?		
Activity level	On the activity level, does the company have the ability to do risk assessment?		
Activity level	On the activity level, does the company have the ability to respond to risk?		
Activity level	On the activity level, does the company have the ability control and monitor?		
Activity level	On the activity level, does the company have the ability to inform and communicate internal?		
Activity level	On the activity level, does the company have the ability to inform and communicate external?		
Activity level	On the activity level, does the company have the procedure for customer satisfaction?		
Activity level	On the activity level, does the internal environment activity have reporting procedure?		
Activity level	On the activity level, does the company's objectives have reporting procedures?		
Activity level	On the activity level, does the company's objectives have reporting tools?		
Activity level	On the activity level, does the company's event identification have reporting procedures?		
Activity level	On the activity level, does the company's event identification have reporting tools?		
Activity level	On the activity level, does the company's risk assessment have reporting procedures?		
Activity level	On the activity level, does the company's risk assessment have reporting tools?		
Activity level	On the activity level, does the company's risk response have reporting procedures?		
Activity level	On the activity level, does the company's risk response have reporting tools?		
Activity level	On the activity level, does the company's control activities and monitoring have reporting procedures?		
Activity level	On the activity level, does the company's control activities and monitoring have reporting tools?		
Activity level	On the activity level, does the company's information and communication activities have reporting procedures?		
Activity level	On the activity level, does the company's information and communication activities have reporting tools?		
Activity level	On the activity level, does the company's customer satisfaction have reporting tools?		
Activity level	On the activity level, does the company have a tool to check if the internal environment rules/ values are compliant?		
Activity level	On the activity level, does the company have a tool to check if objective setting is internally compliant?		

Level	Question	Y	N
Activity level	On the activity level, does the company have a tool to check if event identification is compliant?		
Activity level	On the activity level, does the company have a tool to check if risk assessment is compliant?		
Activity level	On the activity level, does the company have a tool to check if risk response is compliant?		
Activity level	On the activity level, does the company have a tool to check if control activities and monitoring is compliant?		
Activity level	On the activity level, does the company have a tool to check if information and communication activity is compliant?		
Activity level	On the activity level, does the company have a tool to check if customer satisfaction level is compliant?		

## Annex 2. Weighting the significance of the questions for Company A

Level	P1	P2	P3	P4	P5	Average
1 Entity Level	1	1	1	1	1	1.000
2 Division/ Business Unit	2	2	3	2	3	2.400
3 Activity	3	3	2	3	2	2.600
<b>Objective</b>						
1 Strategic	1	1	2	2	1	1.400
2 Operations	2	2	1	1	2	1.600
3 Reporting	4	3	3	4	4	3.600
4 Compliance	3	4	4	3	3	3.400
<b>Components level</b>						
1 Internal environment	4	4	1	7	1	3.400
2 Objective setting	1	1	2	1	2	1.400
3 Event Identification	8	8	8	6	7	7.400
4 Risk Assessment	7	7	7	5	5	6.200
5 Risk Response	5	5	6	3	3	4.400
6 Control Activities & Monitoring	2	2	3	2	4	2.600
7 Information & Communication	6	6	4	8	8	6.400
8 Customer satisfaction	3	3	5	4	6	4.200

### Annex 3. The action plan for Company A

Action	Create and implement event identification procedures and regulations for event identification at business unit/division level		
Steps	Description	Implementation terms	Person in charge
Step 1a	Create a procedure that will define the strategy regarding identifying events (opportunities or threats) and describe the way it will be implemented at Business Unit A (Rent a car) level	4 weeks	Rent a car Manager
Step 2a	Approve the procedure by the company's top management	1 week	Rent a car Manager
Step 3a	Communicate the procedure to the personnel from the Rent a Car Business Unit through the internal communication system	3 days	Rent a car Manager
Step 1b	Create a procedure that will define the strategy regarding identifying events (opportunities or threats) and describe the way it will be implemented at Business Unit B (Operational Leasing) level	4 weeks	Operational Leasing Manager
Step 2b	Approve the procedure by the company's top management	1 week	Operational Leasing Manager
Step 3b	Communicate the procedure to the personnel from the Operational Leasing Business Unit through the internal communication system	3 days	Operational Leasing Manager
Step 1c	Create a procedure that will define the strategy regarding identifying events (opportunities or threats) and describe the way it will be implemented at Business Unit C (Second hand cars retail) level	4 weeks	Second hand cars Manager
Step 2c	Approve the procedure by the company's top management	1 week	Second hand cars Manager
Step 3c	Communicate the procedure to the personnel from the Second hand cars Business Unit through the internal communication system	3 days	Second hand cars Manager
Step 1d	Create a procedure that will define the strategy regarding identifying events (opportunities or threats) and describe the way it will be implemented at Finance Division level	4 weeks	Finance Manager
Step 2d	Approve the procedure by the company's top management	1 week	Finance Manager
Step 3d	Communicate the procedure to the personnel from the Finance Division through the internal communication system	3 days	Finance Manager
Step 1e	Create a procedure that will define the strategy regarding identifying events (opportunities or threats) and describe the way it will be implemented at Operations Division level		Operations Manager
Step 2e	Approve the procedure by the company's top management	1 week	Operations Manager
Step 3e	Communicate the procedure to the personnel from the Operations Division through the internal communication system	3 days	Operations Manager
<b>Action</b>	<b>Create and implement procedures and regulations for risk assessment at business unit/division level</b>		

<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Create a procedure that will define the strategy regarding assessing (evaluating) risks and describe the way it will be implemented at Business Unit A (Rent a car) level	4 weeks	Rent a car Manager
Step 2a	Approve the procedure by the company's top management	1 week	Rent a car Manager
Step 3a	Communicate the procedure to the personnel from the Rent a Car Business Unit through the internal communication system	3 days	Rent a car Manager
Step 1b	Create a procedure that will define the strategy regarding assessing (evaluating) risks and describe the way it will be implemented at Business Unit B (Operational Leasing) level	4 weeks	Operational Leasing Manager
Step 2b	Approve the procedure by the company's top management	1 week	Operational Leasing Manager
Step 3b	Communicate the procedure to the personnel from the Operational Leasing Business Unit through the internal communication system	3 days	Operational Leasing Manager
Step 1c	Create a procedure that will define the strategy regarding assessing (evaluating) risks and describe the way it will be implemented at Business Unit C (Second hand cars retail) level	4 weeks	Second hand cars Manager
Step 2c	Approve the procedure by the company's top management	1 week	Second hand cars Manager
Step 3c	Communicate the procedure to the personnel from the Second hand cars Business Unit through the internal communication system	3 days	Second hand cars Manager
Step 1d	Create a procedure that will define the strategy regarding assessing (evaluating) risks and describe the way it will be implemented at Finance Division level	4 weeks	Finance Manager
Step 2d	Approve the procedure by the company's top management	1 week	Finance Manager
Step 3d	Communicate the procedure to the personnel from the Finance Division through the internal communication system	3 days	Finance Manager
Step 1e	Create a procedure that will define the strategy regarding assessing (evaluating) risks and describe the way it will be implemented at Operations Division level	4 weeks	Operations Manager
Step 2e	Approve the procedure by the company's top management	1 week	Operations Manager
Step 3e	Communicate the procedure to the personnel from the Operations Division through the internal communication system	3 days	Operations Manager
<b>Action</b>	<b>Create and implement reporting tools for event identification at business unit/division level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>



Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for identifying events (opportunities or threats) at Business Unit A (Rent a car) level	4 weeks	Rent a car Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Rent a car Manager
Step 6a	Communicate the templates and the system to the personnel from the Rent a car Business Unit through the internal communication system	3 days	Rent a car Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for identifying events (opportunities or threats) at Business Unit B (Operational Leasing) level	4 weeks	Operational Leasing Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Operational Leasing Manager
Step 6b	Communicate the templates and the system to the personnel from the Operational Leasing Business Unit through the internal communication system	3 days	Operational Leasing Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for identifying events (opportunities or threats) at Business Unit C (Second hand cars retail) level	4 weeks	Second hand cars Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Second hand cars Manager
Step 6c	Communicate the templates and the system to the personnel from the Second hand cars Business Unit through the internal communication system	3 days	Second hand cars Manager
Step 4d	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for identifying events (opportunities or threats) at Finance Division level	4 weeks	Finance Manager
Step 5d	Approve the templates and the system by the company's top management	1 week	Finance Manager
Step 6d	Communicate the templates and the system to the personnel from the Finance Division through the internal communication system	3 days	Finance Manager
Step 4e	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for identifying events (opportunities or threats) at Operations Division level	4 weeks	Operations Manager
Step 5e	Approve the templates and the system by the company's top management	1 week	Operations Manager
Step 6e	Communicate the templates and the system to the personnel from the Operations Division through the internal communication system	3 days	Operations Manager
<b>Action</b>	<b>Create and implement reporting tools for risk assessment at business unit/division level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for assessing (evaluating) risks at Business Unit A (Rent a car) level	4 weeks	Rent a car Manager

Step 5a	Approve the templates and the system by the company's top management	1 week	Rent a car Manager
Step 6a	Communicate the templates and the system to the personnel from the Rent a car Business Unit through the internal communication system	3 days	Rent a car Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for assessing (evaluating) risks at Business Unit B (Operational Leasing) level	4 weeks	Operational Leasing Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Operational Leasing Manager
Step 6b	Communicate the templates and the system to the personnel from the Operational Leasing Business Unit through the internal communication system	3 days	Operational Leasing Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for assessing (evaluating) risks at Business Unit C (Second hand cars retail) level	4 weeks	Second hand cars Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Second hand cars Manager
Step 6c	Communicate the templates and the system to the personnel from the Second hand cars Business Unit through the internal communication system	3 days	Second hand cars Manager
Step 4d	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for assessing (evaluating) risks at Finance Division level	4 weeks	Finance Manager
Step 5d	Approve the templates and the system by the company's top management	1 week	Finance Manager
Step 6d	Communicate the templates and the system to the personnel from the Finance Division through the internal communication system	3 days	Finance Manager
Step 4e	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for assessing (evaluating) risks at Operations Division level	4 weeks	Operations Manager
Step 5e	Approve the templates and the system by the company's top management	1 week	Operations Manager
Step 6e	Communicate the templates and the system to the personnel from the Operations Division through the internal communication system	3 days	Operations Manager
<b>Action</b>	<b>Create and implement monitoring procedures and tools to check if event identification is compliant with the defined procedures and regulations</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1f	Create a procedure that will define the strategy regarding compliance monitoring for identifying events and describe the way it will be implemented across the organization	4 weeks	CEO

Step 2f	Approve the procedure by the company's top management	1 week	CEO
Step 3f	Communicate the procedure to all the staff of the organization through the internal communication system	3 days	CEO
Step 4f	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for monitoring compliance with existing procedures for identifying events across the organization	2 weeks	CEO
Step 5f	Approve the templates and the system by the company's top management	1 week	CEO
Step 6f	Communicate the templates and the system to all the staff of the organization through the internal communication system	3 days	CEO
<b>Action</b>	<b>Create and implement monitoring procedures and tools to check if risk assessment is compliant with the defined procedures and regulations</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1f	Create a procedure that will define the strategy regarding compliance monitoring for assessing (evaluating) risks and describe the way it will be implemented across the organization	4 weeks	CEO
Step 2f	Approve the procedure by the company's top management	1 week	CEO
Step 3f	Communicate the procedure to all the staff of the organization through the internal communication system	3 days	CEO
Step 4f	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for compliance monitoring of assessing (evaluating) risks across all the organization	2 weeks	CEO
Step 5f	Approve the templates and the system by the company's top management	1 week	CEO
Step 6f	Communicate the templates and the system to all the staff of the organization through the internal communication system	3 days	CEO
<b>Action</b>	<b>Improve and strengthen Internal environment procedures and tools such as reporting and monitoring tools across the organization</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1f	Review the procedure that defines the strategy regarding internal environmental policy and describe the way it will be implemented, reported and monitored across the organization	2 weeks	CEO
Step 2f	Approve the procedure by the company's top management	1 week	CEO
Step 3f	Communicate the procedure to all the staff of the organization through the internal communication system	3 days	CEO
Step 4f	Review reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for monitoring the compliance with	2 weeks	CEO

	internal environmental policy across all the organization		
Step 5f	Approve the templates and the system by the company's top management	1 week	CEO
Step 6f	Communicate the templates and the system to all the staff of the organization through the internal communication system	3 days	CEO
<b>Action</b>	<b>Improve and strengthen Customer satisfaction procedures and tools such as reporting and monitoring tools across the organization</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1f	Review the procedure that defines the strategy regarding customer satisfaction and describe the way it will be implemented, reported and monitored across the organization	2 weeks	CEO
Step 2f	Approve the procedure by the company's top management	1 week	CEO
Step 3f	Communicate the procedure to all the staff of the organization through the internal communication system	3 days	CEO
Step 4f	Review reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities for monitoring the compliance with customer satisfaction strategy across all the organization	2 weeks	CEO
Step 5f	Approve the templates and the system by the company's top management	1 week	CEO
Step 6f	Communicate the templates and the system to all the staff of the organization through the internal communication system	3 days	CEO

*Source: Developed by the author*

**Annex 4. The timetable for the action plan for company A**

<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Rent a Car Manager	Step 1a	4 weeks
	Step 2a	1 week
	Step 3a	3 days
	Step 4a	4 weeks
	Step 5a	1 week
	Step 6a	3 days
	<i>Total time needed</i>	<i>11 weeks</i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Operational Leasing Manager	Step 1b	4 weeks
	Step 2b	1 week
	Step 3b	3 days
	Step 4b	4 weeks
	Step 5b	1 week
	Step 6b	3 days
	<i>Total time needed</i>	<i>11 weeks</i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Second hand cars Manager	Step 1c	4 weeks
	Step 2c	1 week
	Step 3c	3 days
	Step 4c	4 weeks
	Step 5c	1 week
	Step 6c	3 days
	<i>Total time needed</i>	<i>11 weeks</i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Finance Manager	Step 1d	4 weeks
	Step 2d	1 week
	Step 3d	3 days
	Step 4d	4 weeks
	Step 5d	1 week
	Step 6d	3 days
	<i>Total time needed</i>	<i>11 weeks</i>

<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Operations Manager	Step 1e	4 weeks
	Step 2e	1 week
	Step 3e	3 days
	Step 4e	4 weeks
	Step 5e	1 week
	Step 6e	3 days
	<i>Total time needed</i>	<i>11 weeks</i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
CEO	Step 1f	4 weeks
	Step 2f	1 week
	Step 3f	3 days
	Step 4f	4 weeks
	Step 5f	1 week
	Step 6f	3 days
	<i>Total time needed</i>	<i>11 weeks</i>

### Annex 5. The progress done related to the action plan for Company A

Action	Progress after 11 weeks
Create and implement procedures and regulations for event identification at business unit/division level	1a. Define procedure – completed 2a. Approve procedure – completed 3a. Communicate procedure – completed
	1b. Define procedure – completed 2b. Approve procedure – completed 3b. Communicate procedure – completed
	1c. Define procedure – completed 2c. Approve procedure – in progress 3c. Communicate procedure – not completed
	1d. Define procedure – completed 2d. Approve procedure – completed 3d. Communicate procedure – completed
	1e. Define procedure – completed 2e. Approve procedure – completed 3e. Communicate procedure – completed
Action	Progress after 11 weeks
Create and implement procedures and regulations for risk assessment at business unit/division level	1a. Define procedure – completed 2a. Approve procedure – completed 3a. Communicate procedure – completed
	1b. Define procedure – completed 2b. Approve procedure – completed 3b. Communicate procedure – completed
	1c. Define procedure – in progress 2c. Approve procedure – not completed 3c. Communicate procedure – not completed
	1d. Define procedure – in progress 2d. Approve procedure – not completed 3d. Communicate procedure – not completed
	1e. Define procedure – completed 2e. Approve procedure – completed 3e. Communicate procedure – completed
Action	Progress after 11 weeks
Create and implement reporting tools for event identification at business unit/division level	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed
	4c. Define tools – completed 5c. Approve tools – in progress 6c. Communicate tools – not completed
	4d. Define tools – completed 5d. Approve tools – completed 6d. Communicate tools – completed
	4e. Define tools – completed 5e. Approve tools – completed 6e. Communicate tools – completed
Action	Progress after 11 weeks
Create and implement reporting tools for risk assessment at business unit/division level	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed
	4c. Define tools – in progress 5c. Approve tools – not completed 6c. Communicate tools – not completed

	4d. Define tools – in progress 5d. Approve tools – not completed 6d. Communicate tools – not completed
	4e. Define tools – completed 5e. Approve tools – in progress 6e. Communicate tools – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Create and implement monitoring procedures and tools to check if event identification is compliant with the defined procedures and regulations	1f. Define procedure – completed 2f. Approve procedure – completed 3f. Communicate procedure – completed 4f. Define tools – completed 5f. Approve tools – completed 6f. Communicate tools – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Create and implement monitoring procedures and tools to check if risk assessment is compliant with the defined procedures and regulations	1f. Define procedure – completed 2f. Approve procedure – completed 3f. Communicate procedure – completed 4f. Define tools – in progress 5f. Approve tools – not completed 6f. Communicate tools – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Improve and strengthen Internal environment procedures and tools such as reporting and monitoring tools across the organization	1f. Review procedure – completed 2f. Approve procedure – completed 3f. Communicate procedure – completed 4f. Review tools – completed 5f. Approve tools – completed 6f. Communicate tools – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Improve and strengthen Customer satisfaction procedures and tools such as reporting and monitoring tools across the organization	1f. Review procedure – completed 2f. Approve procedure – completed 3f. Communicate procedure – completed 4f. Review tools – completed 5f. Approve tools – completed 6f. Communicate tools – completed



### Annex 6. Weighting the significance of the questions for Company B

Level	P1	P2	P3	P4	Average
1 Entity Level	3	3	3	3	3.000
2 Division/ Business Unit	2	2	1	1	1.500
3 Activity	1	1	2	2	1.500
<b>Objective</b>					
1 Strategic	4	4	4	4	4.000
2 Operations	1	1	1	3	1.500
3 Reporting	2	2	2	2	2.000
4 Compliance	3	3	3	1	2.500
<b>Components level</b>					
1 Internal environment	4	5	5	3	4.250
2 Objective setting	1	1	3	2	1.750
3 Event Identification	5	8	4	6	5.750
4 Risk Assessment	8	6	7	8	7.250
5 Risk Response	7	3	6	7	5.750
6 Control Activities & Monitoring	2	2	1	4	2.250
7 Information & Communication	6	7	8	5	6.500
8 Customer satisfaction	3	4	2	1	2.500

**Annex 7. The detailed description of the action plan for Company B**

<b>Action</b>	<b>Define and implement procedures for verifying compliance for <i>Event identification</i> at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Mechanics Activity level through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at ITP Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager
Step 1b	Create a procedure that will define the compliance process for identifying events (opportunities or	4 weeks	Car sales Manager

	threats) and describe the way it will be implemented at Car sales Activity level		
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Create a procedure that will define the compliance process for identifying events (opportunities or threats) and describe the way it will be implemented at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Define and implement procedures for verifying compliance for <i>Risk Assessment</i> at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager

Step 3a	Communicate the procedure to the personnel from the Mechanics Activity level through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at ITP Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager
Step 1b	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Car sales Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Create a procedure that will define the compliance process for <i>Risk Assessment</i> and describe the way it will be implemented at Spare parts sales Activity level	4 weeks	Spare parts Manager

	will be implemented at Spare parts stock management Activity level		
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Define and implement procedures for verifying compliance for <i>Customer satisfaction</i> at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Mechanics Activity level through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at ITP Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager

Step 1b	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Car sales Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Create a procedure that will define the compliance process <i>Customer satisfaction</i> and describe the way it will be implemented at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Create a procedure that will define the compliance process for <i>Customer satisfaction</i> and describe the way it will be implemented at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Event identification</i> are compliant with the defined procedures and regulations at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Body Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Mechanics Activity level	4 weeks	Service Manager

Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Mechanics Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at ITP Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at PDI Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Reception Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Car sales Activity level	4 weeks	Car sales Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Logistic Activity level	4 weeks	Car sales Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Spare parts sales Activity level	4 weeks	Spare parts Manager

Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Event identification</i> at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Risk Assessment</i> is compliant with the defined procedures and regulations at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Body Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Mechanics Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Mechanics Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at ITP Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at PDI Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager



Step 6a	Communicate the templates and the system to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Reception Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Car sales Activity level	4 weeks	Car sales Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Logistic Activity level	4 weeks	Car sales Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Assessment</i> at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Customer satisfaction</i> is compliant with the defined procedures and regulations at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of	4 weeks	Service Manager

	responsibilities and time frames for <i>Customer satisfaction</i> at Body Activity level		
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Body Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Mechanics Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Mechanics Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at ITP Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the ITP Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at PDI Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the PDI Activity through the internal communication system	3 days	Service Manager
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Reception Activity level	4 weeks	Service Manager
Step 5a	Approve the templates and the system by the company's top management	1 week	Service Manager
Step 6a	Communicate the templates and the system to the personnel from the Reception Activity through the internal communication system	3 days	Service Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Car sales Activity level	4 weeks	Car sales Manager
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 4b	Create reporting templates (file formats) and a reporting system (flow) with allocation of	4 weeks	Car sales Manager

	responsibilities and time frames for <i>Customer satisfaction</i> at Logistic Activity level		
Step 5b	Approve the templates and the system by the company's top management	1 week	Car sales Manager
Step 6b	Communicate the templates and the system to the personnel from the Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 4c	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 5c	Approve the templates and the system by the company's top management	1 week	Spare parts Manager
Step 6c	Communicate the templates and the system to the personnel from the Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Review the reporting procedures and tools for <i>Event identification</i> at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Mechanics Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored;	4 weeks	Service Manager

	reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at ITP Activity level		
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Reception Activity through the internal communication system	3 days	Service Manager
Step 1b	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Car sales Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Review the procedure that defines the reporting process regarding event identification and describe	4 weeks	Spare parts Manager

	the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Spare parts sales Activity level		
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Review the procedure that defines the reporting process regarding event identification and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Review the reporting procedures and tools for Risk Assessment at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Mechanics Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at ITP Activity level	4 weeks	Service Manager

Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Reception Activity through the internal communication system	3 days	Service Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Car sales Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting	4 weeks	Spare parts Manager

	system (flow) with allocation of responsibilities and time frames at Spare parts sales Activity level		
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager
<b>Action</b>	<b>Review the reporting procedures and tools for <i>Customer Satisfaction</i> at every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Body Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Body Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Mechanics Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Mechanics Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of	4 weeks	Service Manager

	responsibilities and time frames at ITP Activity level		
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from ITP Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at PDI Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from PDI Activity through the internal communication system	3 days	Service Manager
Step 1a	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Reception Activity level	4 weeks	Service Manager
Step 2a	Approve the procedure, the templates and the system by the company's top management	1 week	Service Manager
Step 3a	Communicate the procedure, the templates and the system to all the personnel from Reception Activity through the internal communication system	3 days	Service Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Car sales Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Car sales Activity through the internal communication system	3 days	Car sales Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Logistic Activity level	4 weeks	Car sales Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management	1 week	Car sales Manager



Step 3b	Communicate the procedure, the templates and the system to all the personnel from Logistic Activity through the internal communication system	3 days	Car sales Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Spare parts sales Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts sales Activity through the internal communication system	3 days	Spare parts Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Customer Satisfaction</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Spare parts stock management Activity level	4 weeks	Spare parts Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management	1 week	Spare parts Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Spare parts stock management Activity through the internal communication system	3 days	Spare parts Manager

### Annex 8. The time table for the action plan of Company B

<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Auto Service Manager	Step 1a	4 weeks
	Step 2a	1 week
	Step 3a	3 days
	Step 4a	4 weeks
	Step 5a	1 week
	Step 6a	3 days
	<i><b>Total time needed</b></i>	<i><b>11 weeks</b></i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Car sales Manager	Step 1b	4 weeks
	Step 2b	1 week
	Step 3b	3 days
	Step 4b	4 weeks
	Step 5b	1 week
	Step 6b	3 days
	<i><b>Total time needed</b></i>	<i><b>11 weeks</b></i>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Spare parts Manager	Step 1c	4 weeks
	Step 2c	1 week
	Step 3c	3 days
	Step 4c	4 weeks
	Step 5c	1 week
	Step 6c	3 days
	<i><b>Total time needed</b></i>	<i><b>11 weeks</b></i>

## Annex 9. The progress done related to the action plan of Company B

<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for verifying compliance for Event identification at every activity level	1a. Define procedure – completed 2a. Approve procedure – completed 3a. Communicate procedure – completed
	1b. Define procedure – completed 2b. Approve procedure – completed 3b. Communicate procedure – completed
	1c. Define procedure – completed 2c. Approve procedure – in progress 3c. Communicate procedure – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for verifying compliance for Risk Assessment at every activity level	1a. Define procedure – completed 2a. Approve procedure – completed 3a. Communicate procedure – completed
	1b. Define procedure – completed 2b. Approve procedure – completed 3b. Communicate procedure – completed
	1c. Define procedure – completed 2c. Approve procedure – in progress 3c. Communicate procedure –not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for verifying compliance for Customer satisfaction at every activity level	1a. Define procedure – completed 2a. Approve procedure – completed 3a. Communicate procedure – completed
	1b. Define procedure – completed 2b. Approve procedure – completed 3b. Communicate procedure – completed
	1c. Define procedure – completed 2c. Approve procedure – completed 3c. Communicate procedure –completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if Event identification are compliant with the defined procedures and regulations at every activity level	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed
	4c. Define tools – completed 5c. Approve tools –completed 6c. Communicate tools –completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if Risk Assessment is compliant with the defined procedures and regulations at every activity level	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed
	4c. Define tools – completed 5c. Approve tools – in progress 6c. Communicate tools – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if Customer satisfaction is compliant with the defined procedures and regulations at every activity level	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed
	4b. Define tools – completed 5b. Approve tools – completed 6b. Communicate tools – completed

	<p>4c. Define tools – completed  5c. Approve tools – in progress  6c. Communicate tools – not completed</p>
<b>Action</b>	<b>Progress after 11 weeks</b>
Review the reporting procedures and tools for Event identification at every activity level	<p>4a. Review procedures &amp; tools – completed  5a. Approve procedures &amp; tools – completed  6a. Communicate procedures &amp; tools – completed</p>
	<p>4b. Review procedures &amp; tools – completed  5b. Approve procedures &amp; tools – completed  6b. Communicate procedures &amp; tools – completed</p>
	<p>4c. Review procedures &amp; tools – completed  5c. Approve procedures &amp; tools – in progress  6c. Communicate procedures &amp; tools – not completed</p>
<b>Action</b>	<b>Progress after 11 weeks</b>
Review the reporting procedures and tools for Risk Assessment at every activity level	<p>4a. Review procedures &amp; tools – completed  5a. Approve procedures &amp; tools – completed  6a. Communicate tools – completed</p>
	<p>4b. Review procedures &amp; tools – completed  5b. Approve procedures &amp; tools – completed  6b. Communicate procedures &amp; tools – completed</p>
	<p>4c. Review procedures &amp; tools – completed  5c. Approve procedures &amp; tools – in progress  6c. Communicate procedures &amp; tools – not completed</p>
<b>Action</b>	<b>Progress after 11 weeks</b>
Review the reporting procedures and tools for Customer Satisfaction at every activity level	<p>4a. Review procedures &amp; tools – completed  5a. Approve procedures &amp; tools – completed  6a. Communicate procedures &amp; tools – completed</p>
	<p>4b. Review procedures &amp; tools – completed  5b. Approve procedures &amp; tools – completed  6b. Communicate procedures &amp; tools – completed</p>
	<p>4c. Review procedures &amp; tools – completed  5c. Approve procedures &amp; tools – in progress  6c. Communicate procedures &amp; tools – not completed</p>

### Annex 10. Weighting the significance of the questions for Company C

Level	P1	P2	P3	P4	P5	Average
1 Entity Level	1	1	1	1	1	1.000
2 Division/ Business Unit	2	2	3	3	3	2.600
3 Activity	3	3	2	2	2	2.400
<b>Objective</b>						
1 Strategic	4	1	2	4	1	2.400
2 Operations	2	3	4	3	2	2.800
3 Reporting	3	2	3	2	4	2.800
4 Compliance	1	4	1	1	3	2.000
<b>Components level</b>						
1 Internal environment	7	5	2	2	6	4.400
2 Objective setting	5	7	5	3	3	4.600
3 Event Identification	4	2	3	5	1	3.000
4 Risk Assessment	2	3	4	6	2	3.400
5 Risk Response	3	4	7	4	4	4.400
6 Control Activities & Monitoring	8	8	8	7	7	7.600
7 Information & Communication	1	1	6	1	8	3.400
8 Customer satisfaction	6	6	1	8	5	5.200

### Annex 11. The action plan for Company C

<b>Action</b>	<b>Define and implement procedures for reporting and compliance for <i>Internal environment</i> at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementati on terms</b>	<b>Person in charge</b>
Step 1a	Create the procedures that will define the reporting and compliance process for <i>Internal environment</i> and describe the way they will be implemented at Entity level.	4 weeks	CEO
Step 2a	Approve the procedures by the company's top management.	1 week	CEO
Step 3a	Communicate the procedures to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Define and implement procedures for reporting and compliance for <i>Risk Response</i> at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementati on terms</b>	<b>Person in charge</b>
Step 1a	Create the procedures that will define the reporting and compliance process for <i>Risk Response</i> and describe the way they will be implemented at Entity level.	4 weeks	CEO
Step 2a	Approve the procedures by the company's top management.	1 week	CEO
Step 3a	Communicate the procedures to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Define and implement procedures for reporting and compliance for <i>Customer satisfaction</i> at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementati on terms</b>	<b>Person in charge</b>
Step 1a	Create the procedures that will define the reporting and compliance process for <i>Customer satisfaction</i> and describe the way they will be implemented at Entity level.	4 weeks	CEO
Step 2a	Approve the procedures by the company's top management.	1 week	CEO
Step 3a	Communicate the procedures to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Internal environment</i> are compliant with the defined procedures and regulations at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementati on terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Internal environment</i> at Entity level.	4 weeks	CEO
Step 5a	Approve the templates and the system by the company's top management.	1 week	CEO
Step 6a	Communicate the templates to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Risk Response</i> is compliant with the defined procedures and regulations at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>

Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Risk Response</i> at Entity level.	4 weeks	CEO
Step 5a	Approve the templates and the system by the company's top management.	1 week	CEO
Step 6a	Communicate the templates to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Define and implement the tools necessary to check if <i>Customer satisfaction</i> is compliant with the defined procedures and regulations at entity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 4a	Create reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames for <i>Customer satisfaction</i> at Entity level.	4 weeks	CEO
Step 5a	Approve the templates and the system by the company's top management.	1 week	CEO
Step 6a	Communicate the templates to all the company staff through the internal communication system.	3 days	CEO
<b>Action</b>	<b>Review the reporting procedures and tools for <i>Event identification</i> at entity level and every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at entity level.	4 weeks	CEO
Step 2a	Approve the procedure, the templates and the system by the company's top management.	1 week	CEO
Step 3a	Communicate the procedure, the templates and the system to all the company personnel through the internal communication system.	3 days	CEO
Step 1b	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Sales Toys Activity level.	4 weeks	Sales & Acquisition Toys Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Toys Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Sales Toys Activity through the internal communication system.	3 days	Sales & Acquisition Toys Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Acquisition Toys Activity level.	4 weeks	Sales & Acquisition Toys Manager

Step 2b	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Toys Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Acquisition Toys Activity through the internal communication system.	3 days	Sales & Acquisition Toys Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Sales Hi-Fi Activity level.	4 weeks	Sales & Acquisition Hi-Fi Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Hi-Fi Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Sales Hi-Fi Activity through the internal communication system.	3 days	Sales & Acquisition Hi-Fi Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Acquisition Hi-Fi Activity level	4 weeks	Sales & Acquisition Hi-Fi Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Hi-Fi Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Acquisition Hi-Fi Activity through the internal communication system.	3 days	Sales & Acquisition Hi-Fi Manager
Step 1d	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Banks & Payables Activity level.	4 weeks	Financial Manager
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Banks & Payables Activity through the internal communication system.	3 days	Financial Manager
Step 1d	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Accounting Activity level.	4 weeks	Financial Manager
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Accounting Activity through the internal communication system.	3 days	Financial Manager
Step 1d	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe	4 weeks	Financial Manager



	the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Human Resources Activity level.		
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Human Resources Activity through the internal communication system.	3 days	Financial Manager
Step 1e	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Auto Activity level.	4 weeks	Logistic Manager
Step 2e	Approve the procedure, the templates and the system by the company's top management.	1 week	Logistic Manager
Step 3e	Communicate the procedure, the templates and the system to all the personnel from Auto Activity through the internal communication system.	3 days	Logistic Manager
Step 1e	Review the procedure that defines the reporting process regarding <i>Event identification</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Warehouse Activity level.	4 weeks	Logistic Manager
Step 2e	Approve the procedure, the templates and the system by the company's top management.	1 week	Logistic Manager
Step 3e	Communicate the procedure, the templates and the system to all the personnel from Warehouse Activity through the internal communication system.	3 days	Logistic Manager
<b>Action</b>	<b>Review the reporting procedures and tools for <i>Risk Assessment</i> at entity level and every activity level</b>		
<b>Steps</b>	<b>Description</b>	<b>Implementation terms</b>	<b>Person in charge</b>
Step 1a	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Entity level.	4 weeks	CEO
Step 2a	Approve the procedure, the templates and the system by the company's top management.	1 week	CEO
Step 3a	Communicate the procedure, the templates and the system to all the company personnel through the internal communication system.	3 days	CEO
Step 1b	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Sales Toys Activity level.	4 weeks	Sales & Acquisition Toys Manager

Step 2b	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Toys Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Sales Toys Activity through the internal communication system	3 days	Sales & Acquisition Toys Manager
Step 1b	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Acquisition Toys Activity level.	4 weeks	Sales & Acquisition Toys Manager
Step 2b	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Toys Manager
Step 3b	Communicate the procedure, the templates and the system to all the personnel from Acquisition Toys Activity through the internal communication system.	3 days	Sales & Acquisition Toys Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Sales Hi-Fi Activity level.	4 weeks	Sales & Acquisition Hi-Fi Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Hi-Fi Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Sales Hi-Fi Activity through the internal communication system.	3 days	Sales & Acquisition Hi-Fi Manager
Step 1c	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Acquisition Hi-Fi Activity level.	4 weeks	Sales & Acquisition Hi-Fi Manager
Step 2c	Approve the procedure, the templates and the system by the company's top management.	1 week	Sales & Acquisition Hi-Fi Manager
Step 3c	Communicate the procedure, the templates and the system to all the personnel from Acquisition Hi-Fi Activity through the internal communication system.	3 days	Sales & Acquisition Hi-Fi Manager
Step 1d	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Banks & Payables Activity level.	4 weeks	Financial Manager
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Banks & Payables Activity through the internal communication system.	3 days	Financial Manager

Step 1d	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Accounting Activity level.	4 weeks	Financial Manager
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Accounting Activity through the internal communication system.	3 days	Financial Manager
Step 1d	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Human Resources Activity level.	4 weeks	Financial Manager
Step 2d	Approve the procedure, the templates and the system by the company's top management.	1 week	Financial Manager
Step 3d	Communicate the procedure, the templates and the system to all the personnel from Human Resources Activity through the internal communication system.	3 days	Financial Manager
Step 1e	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Auto Activity level.	4 weeks	Logistic Manager
Step 2e	Approve the procedure, the templates and the system by the company's top management.	1 week	Logistic Manager
Step 3e	Communicate the procedure, the templates and the system to all the personnel from Auto Activity through the internal communication system.	3 days	Logistic Manager
Step 1e	Review the procedure that defines the reporting process regarding <i>Risk Assessment</i> and describe the way it will be implemented and monitored; reporting templates (file formats) and a reporting system (flow) with allocation of responsibilities and time frames at Warehouse Activity level.	4 weeks	Logistic Manager
Step 2e	Approve the procedure, the templates and the system by the company's top management.	1 week	Logistic Manager
Step 3e	Communicate the procedure, the templates and the system to all the personnel from Warehouse Activity through the internal communication system.	3 days	Logistic Manager

**Annex 12. The time table for the action plan by the Company C**

<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
CEO	Step 1a	4 weeks
	Step 2a	1 week
	Step 3a	3 days
	Step 4a	4 weeks
	Step 5a	1 week
	Step 6a	3 days
	<b><i>Total time needed</i></b>	<b><i>11 weeks</i></b>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Sales & Acquisition Toys Manager	Step 1b	4 weeks
	Step 2b	1 week
	Step 3b	3 days
	<b><i>Total time needed</i></b>	<b><i>6 weeks</i></b>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Sales & Acquisition Hi-Fi Manager	Step 1c	4 weeks
	Step 2c	1 week
	Step 3c	3 days
	<b><i>Total time needed</i></b>	<b><i>6 weeks</i></b>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Financial Manager	Step 1c	4 weeks
	Step 2c	1 week
	Step 3c	3 days
	<b><i>Total time needed</i></b>	<b><i>6 weeks</i></b>
<b>Person in charge</b>	<b>Steps</b>	<b>Time allocated</b>
Logistic Manager	Step 1c	4 weeks
	Step 2c	1 week
	Step 3c	3 days
	<b><i>Total time needed</i></b>	<b><i>6 weeks</i></b>

### Annex 13. The progress done related to the action plan by the Company C

<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for reporting and compliance for <i>Internal environment</i> at entity level.	1a. Define procedures – completed 2a. Approve procedures – completed 3a. Communicate procedures – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for reporting and compliance for <i>Risk Response</i> at entity level.	1a. Define procedures – completed 2a. Approve procedures – completed 3a. Communicate procedures – in progress
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement procedures for reporting and compliance for <i>Customer satisfaction</i> at entity level.	1a. Define procedure – in progress 2a. Approve procedure – not completed 3a. Communicate procedure – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if <i>Internal environment</i> are compliant with the defined procedures and regulations at entity level.	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if <i>Risk Response</i> is compliant with the defined procedures and regulations at entity level.	4a. Define tools – completed 5a. Approve tools – completed 6a. Communicate tools – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Define and implement the tools necessary to check if <i>Customer satisfaction</i> is compliant with the defined procedures and regulations at entity level.	4a. Define tools – in progress 5a. Approve tools – not completed 6a. Communicate tools – not completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Review the reporting procedures and tools for <i>Event identification</i> at entity level and every activity level.	1a. Review procedures & tools – completed 2a. Approve procedures & tools – completed 3a. Communicate procedures & tools – completed
	1b. Review procedures & tools – completed 2b. Approve procedures & tools – completed 3b. Communicate procedures & tools – completed
	1c. Review procedures & tools – completed 2c. Approve procedures & tools – in progress 3c. Communicate procedures & tools – not completed
	1d. Review procedures & tools – completed 2d. Approve procedures & tools – in progress 3d. Communicate procedures & tools – not completed
	1e. Review procedures & tools – completed 2e. Approve procedures & tools – completed 3e. Communicate procedures & tools – completed
<b>Action</b>	<b>Progress after 11 weeks</b>
Review the reporting procedures and tools for <i>Risk Assessment</i> at entity level and every activity level.	1a. Review procedures & tools – completed 2a. Approve procedures & tools – completed 3a. Communicate procedures & tools – completed
	1b. Review procedures & tools – completed 2b. Approve procedures & tools – completed

	3b. Communicate procedures & tools – completed
	1c. Review procedures & tools – completed 2c. Approve procedures & tools – in progress 3c. Communicate procedures & tools – not completed
	1d. Review procedures & tools – completed 2d. Approve procedures & tools – completed 3d. Communicate procedures & tools – completed
	1e. Review procedures & tools – completed 2e. Approve procedures & tools – completed 3e. Communicate procedures & tools – in progress
	1a. Review procedures & tools – completed 2a. Approve procedures & tools – in progress 3a. Communicate procedures & tools – not completed

## **Statement of assumption of responsibility**

I, the undersigned, declare on my own responsibility that the materials presented in the doctoral thesis are the result of my own research and scientific achievements. I am aware that, otherwise, I will bear the consequences in accordance with the legislation in force.

**Hezi Aviram SHAYB**

Signature

Date 29.04.2021

## Curriculum Vitae

PERSONAL INFORMATION Hezi Aviram Shayb



📍 Israel  
 📞 +97250-4882887  
 ✉️ shaybhezi@gmail.com

Sex Male | Date of birth 11/07/1963 | Nationality israeli

## WORK EXPERIENCE

- 2018 - PRESENT Chairman of ABMC Investment Group  
Import & Investments in the Automotive & real state market.
- 2018 - PRESENT CEO IVIA (Israeli Vehicle Importers Association)  
Representing all Car Importers in Israel & Mutual Interest.  
Member at OICA - **International Organization of Motor Vehicle Manufacturers**  
<http://www.car-importers.org.il>  
<https://www.oica.net>
- 2017 - PRESENT Associate Professor at ASE Bucharest  
<https://www.ase.ro/>
- 2015 - 2018 Chairman at New Kopel Romania, Bucharest
- 2014 – 2017 CEO of New Kopel Romania, Bucharest  
One of the biggest car rental, leasing and car sales companies in Romania  
<http://www.sixtgroup.ro/ro/>
- 2012 - 2014 Deputy CEO MCA Group, Israel  
Represent FCA group in Israel (Fiat- Chrysler)  
Chairman of the Israeli Bus & Trucks Section in IVIA.
- 2006 - 2012 CEO Iveco Israel  
A leading Commercial Brand in the Automotive Market in Israel  
<https://www.iveco.co.il/>
- 2004-2006 VP Sales and Marketing – N. Feldman Group, Israel
- 2000 -2004 CEO Oz Group, Israel  
Health Insurance Company

## EDUCATION AND TRAINING

**Master of Business Administration - M.B.A - Specialization in Marketing,**  
NewPort University, SUA  
**Bachelor of Business Administration**  
Navy Officers Academy - Service in Combat Duty And Intelligence  
Israeli Defense Forces, Israel

## PERSONAL SKILLS

MOTHER TONGUE(S) Hebrew

OTHER LANGUAGE(S)

UNDERSTANDING		SPEAKING		WRITING
LISTENING	READING	SPOKEN INTERACTION	SPOKEN PRODUCTION	
ENGLISH C1	ENGLISH C1	ENGLISH C1	ENGLISH C1	ENGLISH C1

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user  
[Common European Framework of Reference for Languages](#)

COMMUNICATION SKILLS  
 ORGANISATIONAL / MANAGERIAL SKILLS

- Good communication skills acquired during the national and international high level management activities.
- Leadership
- Vision & Strategic
- Planning & Creativity
- Risk management skills



**JOB-RELATED SKILLS**

- Crisis and risk management skills
- Restructure companies
- Recruiting employees

**DIGITAL SKILLS**

**SELF-ASSESSMENT**

INFORMATION PROCESSING	COMMUNICATION	CONTENT CREATION	SAFETY	PROBLEM SOLVING
PROFICIENT	PROFICIENT	INDEPENDENT	PROFICIENT	PROFICIENT

Levels: Basic user - Independent user - Proficient user

[Digital competences - Self-assessment grid](#)

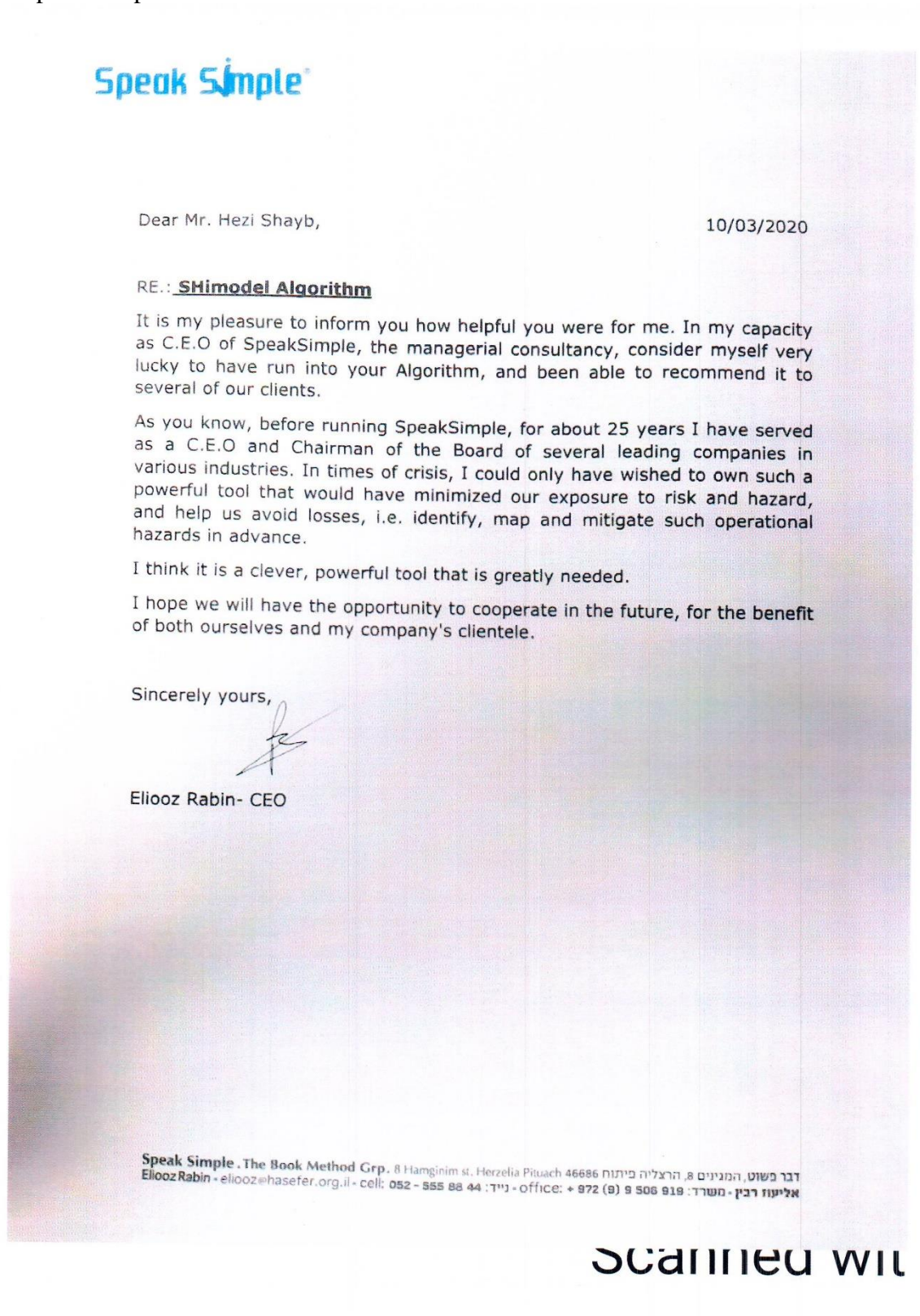
**ADDITIONAL INFORMATION**

**PUBLICATIONS**

- Articles in scientific magazines: 5
- Articles and scientific articles in international conferences : 3
- Manuals : 4
- Courses – Crisis management course: 1  
International management courses: 7

## Implementation acts

### 1. Speak Simple



### 2. ABMC management and Investment LTD

Dear Mr. Hezi Shayb

**Att: SHImodel algorithm assessment**

One year ago, we started together with a process in our organization and we aimed to identify our exposure to risk and potential crisis and to mitigate them.

According to your advice, we used the SHImodel algorithm program.

First, we did an assessment and based on that, we set an action plan.

As we used to say from time to time - "timing is everything". We finished the process in December 2019.

Few months after that, the COVID-19 pandemic hit the markets. Although that it didn't finish yet, I must say that I can see almost every day how the action plan that we set to mitigate the exposure made the company stronger and secure and help us to cross this challenge.

We took a decision to do this assessment in our company twice a year (every semester).

BR,

Aner Barashy, CEO

ABMC management & Investments LTD



איי בי אם סי ניהול והשקעות בע"מ. שלדג 11, גן יבנה. 1700-553-007. ח.פ. 515417566  
ABMC management & Investments LTD, Office: 11 shaldag st', Gan Yavne, Israel. C/N 515417566

3. New Kopel Romania SRL



Sos. Bucuresti – Ploiesti 145,  
Sector 1, Bucuresti  
Tel: 021 9400  
Fax: 021 352 44 77  
Email: office@newkopel.ro

Bucharest, 02/12/2020

To whom it may concern,

The managers of New Kopel Romania SRL examined the conclusions and recommendations presented in the doctoral thesis of Mr. Hezi Shayb and followed the implementation of the algorithm system having as object RESTRUCTURING COMPANIES UNDER CRISIS.

During the implementation we observed 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 analyzed. This makes the assessing process much faster and easy to use by any company. From the economical point of view, the importance of the ability of the companies to identify and prevent crises is very high especially in the range of small and medium companies, who usually don't have in place the right systems and structures necessary for managing the threats coming from the operational weak points.

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 could be identified, a tool that would make 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.

Sixt New Kopel Romania appreciates the high support of Mr. Hezi Shayb in carrying out the project, and in conclusion records the first positive results of the implementation of the researcher's recommendations.

We also welcome the interest of the researcher Hezi Shayb to cooperate with the business environment, the orientation of research on the needs of enterprises and the cooperation of entrepreneurs and researchers in order to restructure the risks of companies in crisis situations.

Sincerely,  
CEO



#### 4. Union Motors Car Sales SRL





To whom it may concern,

The managers of Union Motors Car Sales SRL considered the experience of Mr. Hezi Shayb necessary to restructure the company under crisis using the following methods: documentation, analytical method, synthesizing method, comparing method, qualitative and quantitative analysis. As a tool, there has been used the SHIModel Algorithm, a software application, registered as an invention patent with ORDA, Bucharest, in June 2017.

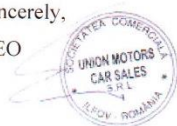
As regarding to the broader context in which the operational exposure of the company was assessed, the business and financial performance of the company registered a positive evolution over the analyzed period of three years, which gives the management the proper context to focus on improving the operational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

Due to the measures taken as a result of applying the algorithm in assessing the exposure to operational risk of the company, it was able to improve its overall situation in terms of crisis prevention with 30%. 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.

We also welcome the interest of the researcher Hezi Shayb to cooperate with the business environment, the orientation of research on the needs of enterprises and the cooperation of entrepreneurs and researchers in order to restructure the risks of companies in crisis situations.

Sincerely,

CEO



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5. Bucharest University of Economics, Romania

DEPARTMENT OF INTERNATIONAL BUSINESS AND ECONOMICS  
BUCHAREST UNIVERSITY OF ECONOMICS

To Whom It May Concern:

We confirm by the present declaration that Mr. Hezi Aviram Shayb has been for three years an invited professor at the Department of International Business and Economics, Faculty of International Business and Economics, Bucharest University of Economics.

Mr. Shayb has been involved in teaching disciplines such as „*International Business Environment*” and „*Global Business and Economics*” at the bachelor degree programs as well as „*Operational Risk Management*” at the postgraduate level starting with 2017.

In this capacity, Mr. Shayb has been lecturing based on this tremendous business experience in Europe and Middle East as well as on his research agenda (associated with his PhD program) dealing with the implementation of crisis management models that he developed on his own.

You can contact me anytime for further details at [radu.musetescu@rei.ase.ro](mailto:radu.musetescu@rei.ase.ro).

Date

2nd December 2020

Prof. Radu-Cristian Muşetescu, PhD.

 Head  
Department of International Business and Economics

6. JBS PRO CONSULTING SRL, Romania

JBS PRO CONSULTING SRL

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#### SCRISOARE de RECOMANDARE

**Ref: implementarea recomandarilor cercetarii stiintifice efectuate de catre Hezi Shayb in teza de doctorat in stiinte economice cu tema "Enterprise crisis management"**

In calitate de consultant pe probleme economice am analizat concluziile si recomandarile prezentate in teza de doctorat in stiinte economice cu tema "Enterprise crisis management" cu privire la identificarea riscurilor pe care le intampina companiile si la prevenirea eventualelor crize prin folosirea modelului algorithmic SHIModel.

Analizand solutiile propuse de modelul algorithmic SHIModel am constatat ca acestea pot fi puse in practica foarte usor pe orice model de business. Am folosit algoritmul in cateva din proiectele de consultanta pe care le-am implementat in contextul crizei produse de pandemia cu COVID 19. Rezultatele obtinute au fost foarte satisfacatoare.

Recomand lui Hezi Shayb sa continue proiectul inceput si sa transforme instrumentul SHIModel intr-un instrument accesibil tuturor companiilor.

Totodata, recomand mediului de afaceri folosirea instrumentului propus de Hezi Shayb pentru identificarea riscurilor si mitigarea acestora in vederea prevenirii crizelor care pot pune in pericol supravietuirea companiilor.

Administrator JBS PRO CONSULTING SRL

Iuliana Busca

01.09.2020

