Occupational Safety and Health Management - Strategic Perspectives in Strengthening the Safety Culture in Enterprises

(Managementul securității și sănătății în muncă - perspective strategice în consolidarea culturii de securitate a muncii în întreprinderi)

PhD. thesis – Summary

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1. PhD Thesis Summary

The subject of doctoral research is definitely a process associated with general and strategic management and occupational safety and health (OSH) management in the case of organizations in Romania (in the current legislative and normative context), but about the European and global situation in the field of prevention. occupational hazards.

This doctoral thesis aims to present a set of theoretical and applied research aimed at diagnosing dimensions of characterization of OSH culture, which will identify strategic perspectives for improvement, which will fundamentally increase the efficiency of OSH management. The MAIN OBJECTIVE of the doctoral thesis was to develop a research scenario for the research of OSH culture, a scenario assimilated to a diagnosis of relevant cultural dimensions that would create premises for improvement.

Only by using a correct, all-encompassing diagnostic investigation will it be possible to generate results and viable and realistic interpretations of them to (re-) define the culture of efficient and effective OSH. Thus, the premises for a more efficient OSH management in organizations are created.

The main conceptual element of research in the thesis - security culture - has been issued as a concept and taken into account, since the International Atomic Energy Agency (IAEA), through INSAG (consultative agency - International Security Group Nuclear), concluded that "the Chernobyl nuclear accident was largely due to deficiencies in the implementation of an organizational security culture" (Chernobyl Accident: Updating the Report - INSAG-1 - Vienna 1992).

Since then, such cases of a safety culture gap have been found in the investigators' resolutions for the disastrous accident. Such accidents have a common imprint indicating an "unexpected difference between beliefs about danger and its current state" (Mengolini and Debarberis, 2012), (N. Pidgeon and O'Leary, 2000)).

Drawing a parallel with the current pandemic situation generated by Covid 19, the subject of the culture of safety and health is current, similarly observing in countless accounts bizarre differences between some beliefs about the pandemic (danger) and the current real state of this danger of spread, which undeniably attests to a very low level of collective security cultures. The difference in the approach of the pandemic security culture is that the preventive strategy are immediate and carried out at the governmental level and only subsequently are dealt with at the organizational level in a very short time.

Instead, returning to the subject of the thesis, accidents with a special impact on the collective memory, which involved major safety risks, led to the finding of explanations strictly at the organizational level. For this reason, the safety culture is localized at the management level, especially the occupational safety and health management system at the enterprise level.

The field of engineering and management, offers the opportunity to address the subject of the thesis, including this element of management related to risk management and improving prevention. The field of management, a complex and interdisciplinary field, aims to achieve a maximum level of profitability through the appropriate use of resources. A very important resource and capital in managing the interests of an enterprise are the workers in the enterprise themselves, through which, with the help of a questionnaire, the factors influencing the level of security culture are extracted.

As long as one of the first individual instinctual needs is security, according to Maslow's pyramid model, and the new trend of approaching occupational safety and health (OSH) is worker-centered, they are the optimal resource for solving these problems.

To succeed in involving each worker in the management system, as a part of it, all those involved must have a level of knowledge and awareness with similar and unitary values, materialized in a culture of security. Understanding, assuming jointly and at the same individual level, the security culture, is the hypothesis from which we start in this study. Having fulfilled these prerogatives, they compete for the efficiency of the functioning of a work safety management system. Similarly, management generally deals with issues in a unitary, common and not individual, isolated way. Only for the identification of the effect caused connection of the management system is necessary in the first isolated stage for the individual study of the problem.

This research is built on the same principle, which aims to isolate an insufficiently implemented security issue, but very important - the security culture - to research and improve it through strategic perspectives that will influence management in general. The importance of the security culture is given by the ability to create effects directly on the edifice of the management construct. Therefore, according to E. Hollnagel's "Synesis"[1] theory, it is not enough to refer only to security, as a singular criterion of the performance system, but we must look at the influence and unpredictability as a whole an unexplored criterion, in unitary treatment together. with the other criteria of the system: productivity, quality, reliability, sustainability, customer satisfaction, etc.

With the approach of the subject of a security culture that interferes at all levels of a performance system, it is possible to enhance, through strategic solutions, in a relatively medium or long time, the change of the paradigm by which the worker is the problem (speaking of human error). that man is the solution, knowing or coming from him the perceptions that confer the solution.

In this context of performance and strategic management, we can identify elements related to security, in addition to the one on Occupational Safety and Health (OSH), and there are branches of financial security, human resources, environment, sustainability, etc.

Security management is alive, constantly adapting, updating, and improving, and the theme of the thesis comes to contribute to streamlining the field of security management, by scientific substantiation of sets of intangible assets embodied in strategic perspectives for continuous improvement of security culture.

Along with holistic and strategic approaches, according to the particularities of systems theory defined by cause and effect connections called "Cynefin Network" by Dave Snowden (Kurtz and Snowden, 2003), the OSH Management System (OSH MS) is observed, analyzed for the design of strategic solutions. taking into account the perceptions, attitudes, and emotional

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[1] https://erikhollnagel.com/ideas/synesis-2020

intensity[2] resulting from the questionnaire and their causality.

The research approach integrates several fields of knowledge (assimilable to research perspectives), as presented in Fig. 1: strategic management, knowledge, human resources management (by considering staff training, management, and group behavior) in the context provided by OSH management and its specific normative-legislative framework. The purpose of this interdisciplinary knowledge framework is to identify and improve those cultural dimensions related to OSH, which have the greatest potential for global improvement of the security culture.
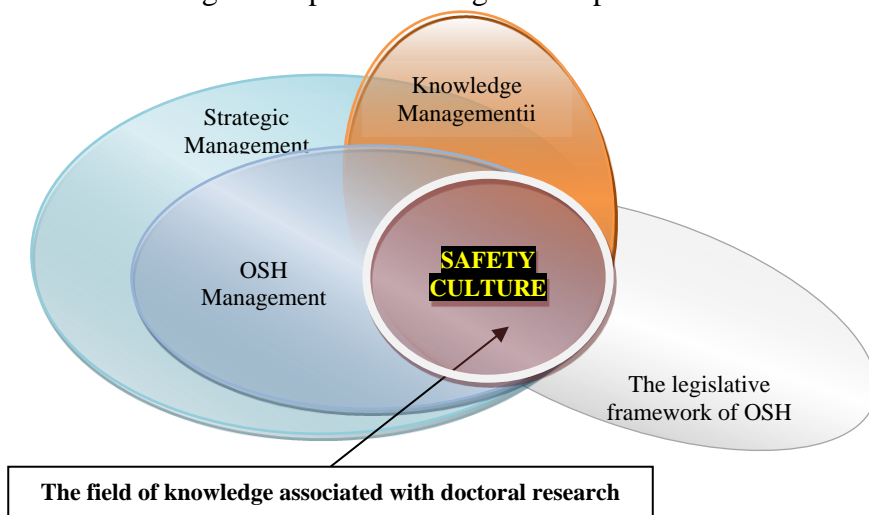

Fig. 1 Visualization of the field of knowledge associated with doctoral research

At the same time, a relevant aspect of the research is that of the continuous improvement of the OSH culture that takes into account:
- the legislative-normative context (which acts as a catalyst in consolidating perceptions);
- technical-scientific, technological progress associated with the processes within the organizations;
- developments in the approach and treatment of occupational risks (progress in the field of risk management);
- the evolution of society in general;
- climate, the know-how of organizational behavior;
- the holistic operational field of OSH management.

The following aspects contributed to the substantiation of the research topic:
✓ Personal experience in the field of OSH, as a training lecturer for the occupation of Inspector in the field of OSH, activity in which I had the opportunity to identify over time various gaps in staff training in OSH, but also ignorance of legislation and its poor application, in the case of medium and large SME companies from the Western Region of Romania. Through training and consulting activities, he contributed to the creation of his database with potential contributors to the research (partial definition of the research sample);
✓ Previous training as a lawyer that allowed me to form my vision of interpreting the behavior of organizations and their managers in the current normative-legislative context of OSH. Thus, the experience and practical knowledge gained in the last 15 years have allowed me to effectively guide theoretical and applied research, as well as formulate feasible measures to improve the culture of OSH;
✓ Satisfying a practical need to define a scenario for diagnosing the culture of security in organizations (focused on new trends in human capital development, but also on the specifics

[2] http://cognitive-edge.com/ blog/complex-systems-strategy-thinking-aloud/

of activities) in the cultural, legislative and economic and social development in Romania.

As a result of the overview of the relative problems of the importance and motivation of the research topic, the research objectives were defined (Fig. 2).
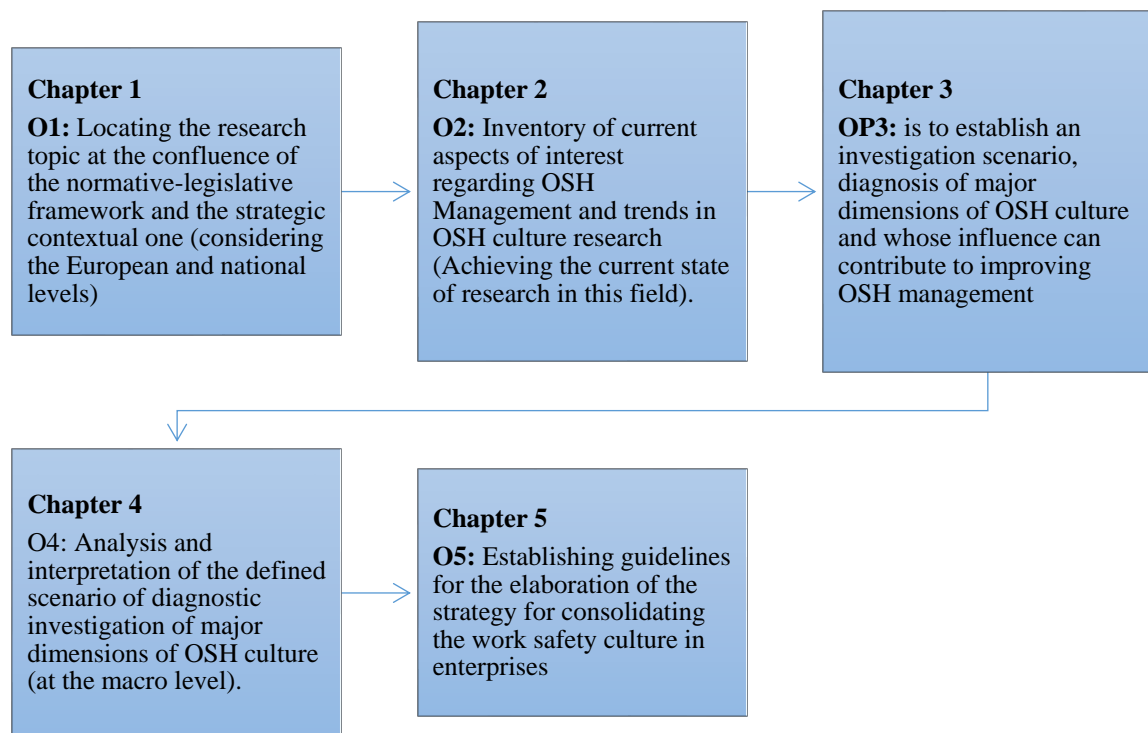
Chapter 1
O1: Locating the research topic at the confluence of the normative-legislative framework and the strategic contextual one (considering the European and national levels)

Chapter 2
O2: Inventory of current aspects of interest regarding OSH Management and trends in OSH culture research (Achieving the current state of research in this field).

Chapter 3
OP3: is to establish an investigation scenario, diagnosis of major dimensions of OSH culture and whose influence can contribute to improving OSH management

Chapter 4
O4: Analysis and interpretation of the defined scenario of diagnostic investigation of major dimensions of OSH culture (at the macro level).

Chapter 5
O5: Establishing guidelines for the elaboration of the strategy for consolidating the work safety culture in enterprises

Fig. 2 Research objectives

Each chapter describes the research carried out and the results obtained as follows:

The first chapter of the thesis, CONTEXTUAL BOUNDARIES. OBJECTIVES AND LOGIC OF THE RESEARCH include conceptual clarifications regarding terminological and conceptual elements of occupational safety, occupational health, safety culture, and safety management from the perspective of the traditional theory of legislation, good practices (standards), and own vision. Also, historical landmarks with future perspectives, syntheses of knowledge management concepts, the efficiency of investment costs in OSH with impact on organizational performance, problems related to risk assessment, legislative framework are presented. Also, conclusions are presented regarding the bibliographic research undertaken.

Chapter 2, THE CURRENT STAGE OF KNOWLEDGE IN THE FIELD OF OCCUPATIONAL SAFETY AND HEALTH, is allocated to research on the bibliographic reference (bibliographic analysis and synthesis). The issues of this chapter include definitions and approaches, terminological clarifications and models of OSH management, and the concept of OSH culture in relation to the concept of organizational management, sustainability, social responsibility with involvement in the strategic management of organizations. The chapter ends with a series of conclusions made based on intuitive practical activity that converges to the theoretical and applied research that have been described in the following chapters of the thesis.

Chapter 3, THEORETICAL RESEARCH FOR THE DEVELOPMENT OF THE SCENARIO FOR RESEARCH ON THE CULTURE OF SAFETY AND HEALTH AT WORK, includes the description of creative, innovative activities that have defined the model and methodology of research (including the delimitation of the context and these researches). As a result of the research on the bibliographic reference presented in chapters 1 and 2, it was possible to formulate the research objectives (general and operational, related to each chapter of the thesis.

The method of the survey based on an original questionnaire (assimilated to exploratory

diagnostic research) applied to respondents at the national level is the methodology that required a large volume of work, including comparisons with similar methods, extraction, refining, and validation of elements capable of shaping culture by OSH as a whole holistic.

Chapter 4, ANALYSIS AND INTERPRETATION OF RESULTS REGARDING THE INVESTIGATION OF THE DIMENSIONS OF THE CULTURE OF HEALTH AND SAFETY AT WORK, includes the presentation of calculations, analyzes, statistics that were made in several stages, which were aimed at influencing the cause. After analyzing and establishing within the system the cause and effect, we proceeded to the analysis on distinct structures of interest (demographic study, common factors, structuring based on the similarity or connection of influencing factors, analysis of factor chapters), which allowed validation of strategic perspectives at the macro level, with applicability at the individual and organizational level.

Chapter 5, BENCHMARKS FOR THE DEVELOPMENT OF STRATEGIES FOR STRENGTHENING THE CULTURE OF OCCUPATIONAL SAFETY IN ENTERPRISES, includes the benchmarks on national and European strategies, setting out macroeconomic perspectives based on the causality of perceptions discovered and structured in the previous chapter. Strategic solutions at the microeconomic level, at the level of enterprises, useful until the perspectives can be applicable, are also drawn. To these strategic solutions at the microeconomic level are added approach benchmarks related to tools, specific actions, specific regime, resilience, and profile of workers and enterprises.

Chapter 6, CONCLUSIONS. PERSONAL CONTRIBUTIONS, FUTURE PERSPECTIVES OF THE RESEARCH, present the conclusions of the bibliographic, theoretical, and applied research and highlight the original, personal contribution of the author in the field of OSH management, especially its efficiency with strategic perspectives to increase the level of OSH culture. Also, research directions, practical implementation, with potential for further development are presented.

At the end of the paper is a list of bibliographic references, annexes containing details of the processes and questionnaires used in applied research, followed by an annex with the doctoral student's CV and one on the list of scientific papers published by the doctoral student under UPT affiliation.

The results of the research undertaken were disseminated through 19 scientific papers/articles published in journals and volumes of international events in the country and abroad, indexed in international databases, as follows: 12 papers indexed in the ISI Thomson / Clarivate database Analytics 7 papers indexed in BDI (SpringerLink, EconPaper, CEEOL). These define the journalistic activity of the author of the present doctoral thesis, but also the way of his involvement in different research groups.

2. Conclusions and Research Results

a) In terms of research on the bibliographic reference (chapters 1 and 2) there were various directions of approach that led to the following conclusions:

- In Romania, there is an adequate legal framework for consolidating the OSH culture, but there are aspects to be regulated that do not allow skidding or circumvention of the provisions that stimulate the OSH culture, as well as aspects that adapt to new socio-economic trends.
- Until the realization of awareness, it is recommended to increase the level of OSH culture through accountability stimuli that affect individual heritage or freedoms, to which there will inevitably be compliance reactions. The use of means of coercion, higher coercion, applied more drastically and intolerantly not only to employers but also to workers, come to shape the emerging legal framework to be adopted for effective results in increasing the culture of security.

- The increased quantitative interest for the topic is demonstrated, through the high score of the Web of Science Analitycs statistics, but also from a qualitative point of view resulting from the quotations of the specialists who contribute to this field of interest.
- The aim of the research is focused on the well-being of workers at work and the reduction of work events regardless of whether they refer to work accidents or occupational diseases (physical or mental). These can be improved only by positively influencing the behaviors that have their roots both in the private environment where the workers come from and in the organizational one, in which the manager can directly influence this aspect.
- The OSH culture represents the support on which deftness, attitudes, and comportment (D.A.C.) are built, which become the basis for the construction of a high-performance OSH Management System, which provides the foundation for sustainable profitability and competitiveness.
- The effectiveness of OSH management depends on managerial, cultural, and normative factors. The holistic approach, integrated of all these factors, is possible through an OSH MS, which is given the role of directing and weighting the synergistic influences, in order to adequately transform the perceptions of those in the workplace.
- The Safety - Health binomial needs to be better addressed in a balanced way in the OSH MS because, as an example, in the standardized framework provided by the transfer from OHSAS 18001 to ISO 45001, epidemiological information is not sufficiently taken into account. Likewise, the shortcomings regarding the audit of the OSH culture are felt at the standards, the object of the evaluations following mainly the organizational behavior, without taking into account the extra-organizational influences.
- Identifying OSH management barriers, due to differences in levels of awareness of OSH issues between company managers, OSH managers, and each employee, This syndrome transcends the less effective policies that are developed at the governmental - legislative level.
- The OSH culture should illustrate and be anchored in social transformations, requiring a socio-technical approach to research that would counteract criticisms and visions of excluding the importance of the concept in the organizational and social context. Therefore, it is erroneous to assume that this culture of OSH is considered the responsibility of organizations, omitting its burden with behaviors induced by the environment or region from which workers come.
- OSH culture refers to intangible and often ambiguous problems of employee behavior, but with a managerial knowledge and influence threshold based on data, information, knowledge, and wisdom gained by the organization, based on an interdisciplinary approach to managing occupational risks, thus leading to the identification of the most effective ways to promote security in the organization.
- The OSH culture is seen as a means of improvement as professional development, as a "self-healing process", reaching specific management of the OSH culture that organizations need to be adaptive.
- The working principle for the implementation of some factors of positive influence within the OSH culture is that: by optimizing the situation, the behavior of the workers can be optimized. In turn, as desirable behaviors become habitual, different psychological factors will become more positive.
- The development of OSH culture and management go hand in hand for the definition and continuous implementation of good OSH practices in the organization, OSH culture being complementary and supporting, enhancing the implementation of an efficient OSH MS
- Following the study of the literature in the field of OSH management, it was observed that almost all research processes, investigation of how security culture is defined, adopted, aware, developed, etc., today are based on the survey method based on a questionnaire, whether it takes the form of a focus group (a survey applied, according to a pre-established

protocol, to a group of 10-15 people) with its opinion leaders, or an extensive survey of several industries, companies, categories of workers and so on.

b) In terms of theoretical research (chapter 3) the following should be emphasized:

⇗ Through the theoretical research approaches, two aspects were pursued:
   - elaboration of a model for the diagnosis of perceptions, based on the previous scientific experience of other researchers, corroborated with the current realities in Romania;
   - revealing from the model the punctual causality of the influences of the security culture, to adequately treat them through specific measures.

⇗ To distinguish phenomenology on a scientific basis, it is interesting to synthesize the results in a value system, and the most appropriate is the cohabitation model of systems - Cynefin Network - by Dave Snowden (Kurtz & Snowden, 2003) (Fig. 3.2 and table 3.14). Within this value reference, OSH MS is recognized as belonging to the category of "complicated" systems, which involves rules, predictable planning, and analysis by an expert, for professional observation and the elaboration of adequate and efficient solutions.
   - Another feature of this complicated system, in which we included OSH MS, is the fact that we have to investigate the cause-effect relationship (causality - perception found in the questionnaire), which are separated in time and space.
   - To fulfill the research desideratum of this system, the expert must resort to direct observation (experience), bibliographic research, questionnaire-based survey (diagnosis), from where perceptions are extracted (effects), followed by analysis and quantification of the cause-effect relationship - of the causality of the diagnosis, followed by the issuance of solutions / strategic perspectives able to streamline the system.

⇗ The methodological approach adopted is based on the holistic vision connected to the current national economic reality and which sought to include the connection and influences between the culture of OSH at the organizational level and the level of society. This approach is based on Shein's assessment, which said that the values of organizational culture are insufficient to change their assumptions.

⇗ To capture perceptions and analyze causality, it is necessary to use the survey method, by using the questionnaire as a tool, which has the fruit of behavioral diagnosis, starting from its assessment (Frank W. Guldenmund, 2010), which said that the pragmatic but also analytical approach, behavior tends to become essential, due to the easier understanding of its meaning… "From this concept, we started to make a diagnosis using the questionnaire, given numerous methodologies, from which were translated key indicators, organizational influencers. These were supplemented by extra-organizational factors, transposed in the chapter of the questionnaire on psychosocial perceptions. Through this approach, the evaluation of phenomenology is a holistic one, which tends to treat causality and not just to cover the effects (perceptions) at the moment.

⇗ The models and methods that influenced the development of theoretical research and the construction of quantitative diagnosis are specified in Table 3.3. safety and personal experience, as a transformational and transactional style defined by background, philosopher's stone, adaptive management, climate relationship security behavior, intangible value, psychology, risk, and security, etc.

⇗ The questionnaire itself according to table 3.7. respects the investigation structure defined in 2000 by Frank Guldenmund (FW Guldenmund, 2000), which is correlated with the models developed by (Boughaba, et al. 2014), (Molenaar and Brown, 2002), (Cox and Cheyne, 2000)), (Frazier et al., 2013), the Nordico questionnaire, ESENER 2, etc., with references from the national OSH legislation. From these references, after successive filterings, there are 11 references of influence that must be followed and placed in the

questionnaire, which are structured in three chapters (dimensions - legal, psychosocial managerial), as seen in fig. 3.10 and 3.11.

- ✎ The measurement of perceptions **used the Likert rating scale** based on 4 scoring levels, which was **automated quantified by the SurveyMonkey survey platform**. The percentage ratings provided by the platform, which indicate an average security level of **64%, corresponding to an average level**. Defining the values of the levels of each perception, from unsatisfactory to excellent, necessary to establish the types of measures, from change to improve and even to the preservation/encouragement of correct perceptions.

c) In terms of applied and experimental research (chapters 4 and 5) the following are distinguished:

- ✎ Applied research focuses on the following two aspects:
    - o Observation, analysis, and interpretation of data by issuing specific postulates on the causality of perceptions recorded in the diagnosis (Chapter 4)
    - o Putting into practice the perspectives and strategic solutions that have the ability to deal with causality, both at the macro-economic level - nationally and at the microeconomic level applicable to enterprises (Chapter 5).
- ✎ The processes of interpretation and transposition of research are based on two axioms:
    - o Implementation and verification of results for adaptability and continuous improvement of measures is the weak link in the process of reorienting perceptions;
    - o The adaptation of the legislative framework and the legal substantiation of the unitary good practices have the power to impose implementation rules. The rules must be applied persuasively and intolerantly and be based on simplicity (online), motivation, and drastic sanctions.
- ✎ Implementation, monitoring, and analysis of the results of the application of perspectives and strategic solutions require a long time because applying these categories of interventions and treatments is expected to change the reorientation of thinking, able to change the perceptions diagnosed in a survey with a questionnaire.
- ✎ This process, based on subliminal psychological influences at the group and individual level, must change the degree of OSH culture. During the doctoral cycle, no tangible viable experimental results can be extracted that can be validated in the cause-effect postulates, because the effect pursued by implementing, following, analyzing, and drawing conclusions, involves a long cycle of sedimentation and voluntary reorientation of perceptions.

3. Original Research Contributions

From a scientific point of view, the original contributions are reflected by the results of research obtained in different stages of the doctoral program and which have been described in the doctoral thesis as follows:

a) In terms of research on the bibliographic reference (chapters 1 and 2), the following can be mentioned:

- ✎ The legal landmarks associated with the strategic framework, with the configuration of the current national and European legislative schematic reference.
- ✎ Visual projection of legal responsibilities arising from employment relationships and lead to sanctions for non-compliance.
- ✎ Bibliometric analysis and trends of interest, together with the elaboration of bibliographic syntheses containing specific references at author level, definitions, etc. These syntheses

have a triple role:
- o a basis for further reference and research;
- o teaching material for the education of specialists;
- o an awareness material usable by managers.

✧ A visual outline of the occupational health context, which is of interest in understanding the implications at work of the current measures generated by the COVID pandemic 19

✧ Synthesis of the influencing factors to be managed at the level of OSH MS (Annex 7.2)

b) In terms of theoretical research (Chapter 3):

✧ Revealing the influences of research fields, which vary from the field of engineering and management to the legal one and deepening the psychosocial field.

✧ The establishment of the area of interest of the research resulted in the concept of WW, - window in window, a concept of holistic and symbiotic approach between organizational and extra-organizational culture (fig. 3.4), which outlines the concept of MSS - Symbiotic Strategic Management of weighted mutual influence of the two areas of confluence between windows.

✧ Establishing a questionnaire in order to quantitatively determine the level of security culture, by refining the issues identified bibliographically and by determining the processes of achievement, implementation, and collection of its results (Fig. 3.9, Table 3.7, Fig. 3.12, Fig. 3.14).

c) In terms of applied and experimental research (Chapters 4 and 5) the following should be mentioned:

✧ The use for surveying of a specialized web platform SurveyMonkey, which has both a guiding role in editing, designing, calculating the results, but also a role of facilitator in fast communication through various media

✧ In the analysis of the results - the conversion of the survey results from those expressed as a percentage, into those marked on the scale from 1 to 10, which provides a means of assessing notoriety, easy to remember and usable in scaling measures according to quality standards

✧ Cause-effect analysis and tracing the fishbone diagram to highlight the image of causality in order to establish perspectives to improve OSH MS (Fig. 4.77)

✧ Complex analysis of the causality from which they are distinguished (fig. 5.2):
- o the strategic solutions that will be used in:
  - ▪ outlining strategic perspectives;
  - ▪ improving OSH MS at the microeconomic level;
- o the strategic perspectives related to the improvement at the legislative level and of the good practices, at the macroeconomic level, with strategic, political approaches, from which there are foreshadowed long-term expectations.

✧ Introduction and definition of an own concept with easy-to-remember local resonances - DAC (Deftness, Atitudes, Comportments) which is used to define the basic pillars within the Security Culture.

✧ The enumerative concretization of the strategic perspectives (Table 5.4) and of the strategic solutions (Table 5.6 and 5.7), with the original visualization of the causal interaction in order to reorient the perceptions (fig. 5.6, fig. 5.7 and fig. 5.8)

✧ Support for the implementation of strategic solutions by presenting the need for a counterbalancing and weighting of strategic solutions that take into account: implementation tools, the resilience of respondents and their profile and that of the company, already established by the questionnaire.

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