

MANAGEMENT OF PREVENTION AND PROTECTION ACTIVITIES IN THE CONTEXT OF OCCUPATIONAL HEALTH AND SAFETY

(Managementul activităților de prevenire și protecție
în contextul sănătății și securității ocupaționale)

A Thesis Submitted for obtaining the Scientific Title of PhD in Engineering

from

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1. Summary of the doctoral thesis

The doctoral research, dedicated to solving the theme: “**Management of prevention and protection activities in the context of occupational health and safety**” was started in 2018 when the normative-legislative framework of the field was enriched with the emergence of a new standard **ISO 45001:2018, Occupational Health and Safety Management Systems**. It has created a profound change in approach to OSH activities, placing safety at the heart of organizational principles and strategy. This facilitates the proactive development of occupational risk management to continuously identify hazards and ensure the maintenance of an effective Management System of OHS.

ISO 45001:2018 applies to organisations of any size. Through a contextualised risk management process, companies can adapt their OHS management to their needs and workforce expectations. However, the transition from OHSAS 48001:2001 to ISO 45001:2018 may require several changes to core business models and approaches to demonstrate and renew an organisation’s commitment to OSH. In addition, the differences between OHSAS 48001:2001 and ISO 45001:2018 could have several practical implications for organisations in transition, as well as for agencies and authorities auditing and inspecting organisations according to the new standard (Neag and Gaureanu, 2019; Neag, 2019).

The phenomena accompanying the migration towards the implementation of the new ISO 45001:2018 standard (with an estimated duration in 2018 of 3 years) are attractive from the point of view of research, because the discovery of how industrial organisations (and not only!) are able to manage the implementation of the new requirements, as well as their responsibilities in forming genuine OSH leaders capable of redefining relationships and actions with all workers and stakeholders, are aspects of unprecedented organizational dynamics. In this new regulatory context, ISO 45001:2018:

- Concerted on the interaction between an organisation and its business environment;
- Is based on the procedural approach (and not through procedures);
- Take into account both occupational health and safety risks and opportunities and other risks and opportunities of the management system;
- It requires consideration and implementation of stakeholder management.

The research topic needs to be solved in an interdisciplinary manner, drawing on knowledge from the following fields: occupational health and safety engineering and management, risk management (with emphasis on emerging ones), strategic management, audit, communication, stakeholders, human resources, etc., as well as mathematical statistics, computer science, etc. (Fig. 1). Researching and analysing aspects of the new context generated by ISO

45001:2018 and of the specificities of behaviour of organizations in OHS management will have effects in the management of prevention and protection activities, thus in the operational plan of management, with “echoes” and “reverberations” at the level of inter-human relations. These implications were emerging during the pandemic crisis, which led to an expansion of the scope of investigations.

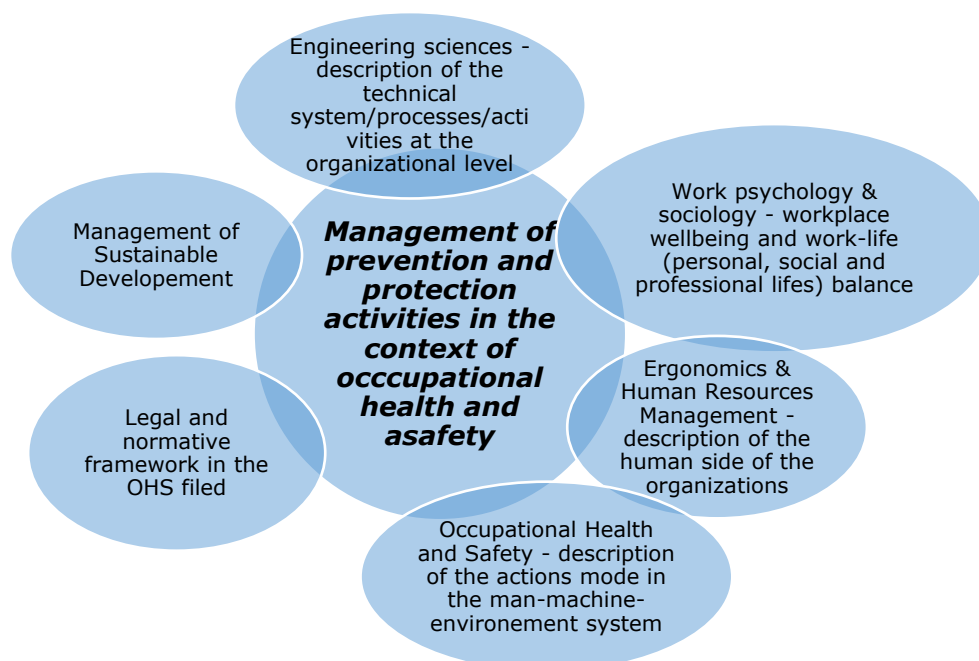


Fig. Eroare! În document nu există text cu stilul precizat.1. Defining the field of interdisciplinary knowledge of doctoral research

It should be noted that the most interesting aspect, from the point of view of scientific research, is not the content of the standard itself, **but the manner in which ISO 45001:2018 is adopted in the practice of organisations and how it will alter the OSH behaviour of their organisations and managers, but also of human operators (workers)**. Are organisations prepared for this transition? The answer is **the de facto subject of the thesis**, but which in 2018-2020 was planned to be clearly addressed through quantitative and qualitative investigations highlighting the “availability and appetite” of managers and employees for this new “democratic” OSH context.

The perspective of approaching the subject, the research has changed radically with the outbreak of the pandemic crisis! Thus, after OSH became a priority for all organisations that wanted to continue their economic activity in a certain form, during the pandemic, the doctoral research approach of the theme “**Management of prevention and protection activities in the context of occupational health and safety**” became more current than ever, which led to a reorientation of research, a reformulation of research objectives and questions for the period 2020-2023, as will be seen from the content of the doctoral thesis. In Fig. 2 shows the staggering of research activities over time.

The dynamics of the research environment, but also of the organizational one in recent years (2020-2023) have led to an increase in the complexity of the research, simultaneously with the manifestation of increased flexibility, agility of the researcher. **As a result, this doctoral thesis can be defined as a “collection” of convergent scientific research to demonstrate how organisations (according to their employees and managers) have succeeded in developing the culture of prevention over the last five years.** This is, in fact, the declared goal of global research.

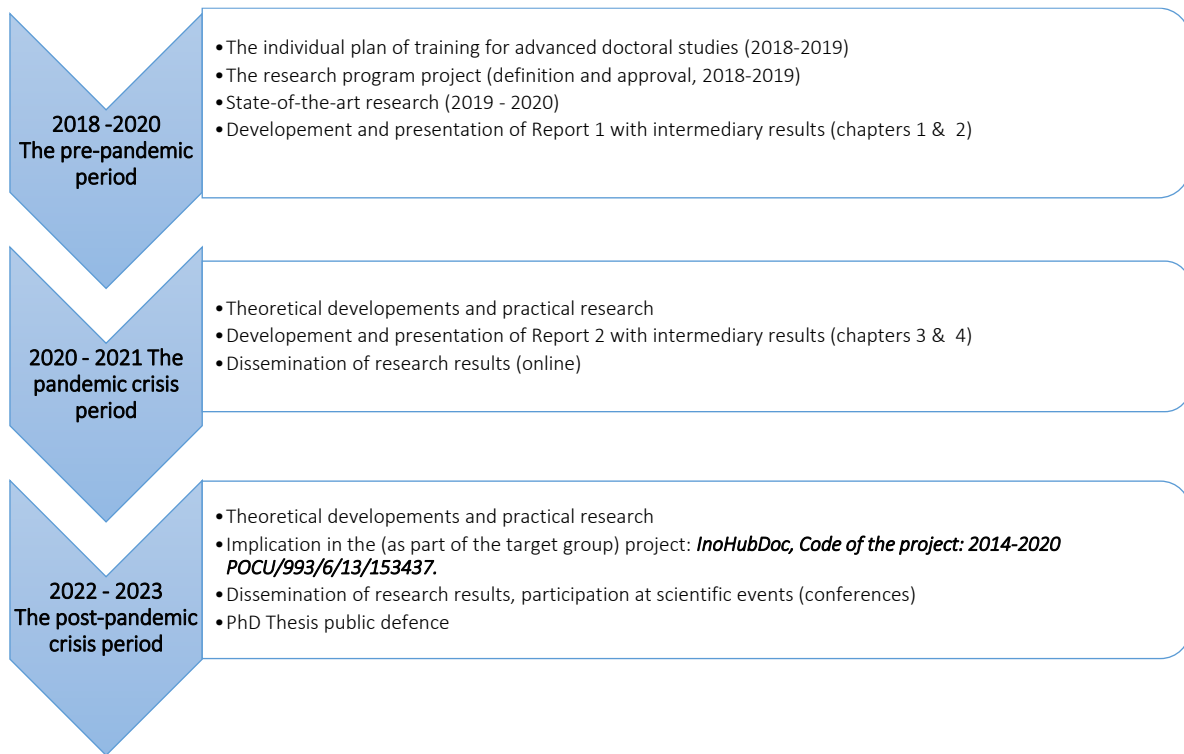
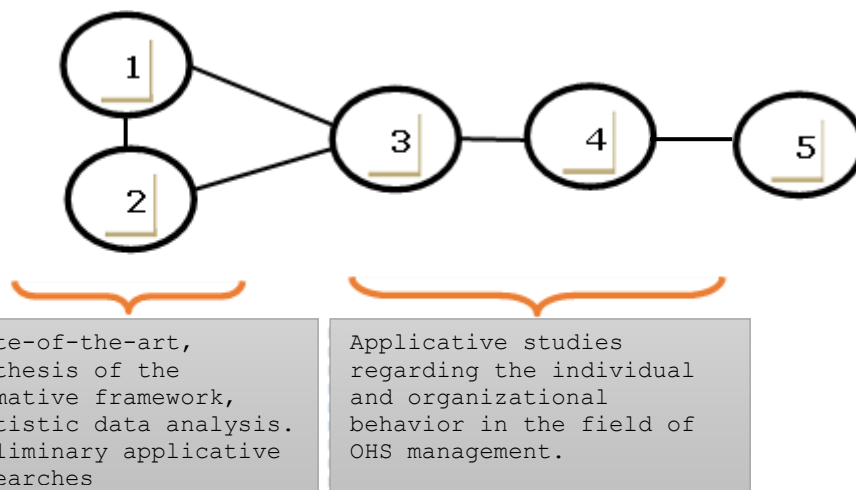


Fig. 2. Time-scheduling of doctoral research



#	Chapter title/Research stage	Operational objectives
1	THE TERMINOLOGICAL AND CONCEPTUAL FRAMEWORK OF RESEARCH. LEGISLATIVE LANDMARKS	O1.1 Definition of the terminological and conceptual framework of research O1.2 Characterisation of the legislative and strategic regulatory context in the field of OSH in Romania
2	RESEARCH IN OCCUPATIONAL HEALTH AND SAFETY PREVENTION MANAGEMENT: CULTURE OF PREVENTION AND THE ECONOMIC EFFECTS OF NON-PREVENTION	O2.1 Definition of the concept of prevention culture and its mode of manifestation O2.2 Definition of leadership concept in OSH O2.3 Highlighting the consequences of OSH culture in Romania compared to the global situation O2.4 Definition of a modus operandi in highlighting the economic effects of non-prevention
3	APPLIED RESEARCH ON PREVENTION MANAGEMENT WITHIN ORGANISATIONS	O3 Characterisation of how prevention management is manifested in different organisations
4	APPLIED RESEARCH ON CHARACTERISATION OF THE BEHAVIOR OF SOME MANAGERS IN OCCUPATIONAL HEALTH AND SAFETY	O4 Characterisation of managerial behaviour in OSH
5	GENERAL CONCLUSIONS. ORIGINAL CONTRIBUTIONS. FUTURE RESEARCH DIRECTIONS	O5 Achievement of doctoral research

Fig. 3 The logic of research. The structure of doctoral thesis

Each chapter describes the research carried out and the results obtained (achieving a specific operational objective as shown in Fig. 3) as follows:

Chapter 1 (THE TERMINOLOGICAL AND CONCEPTUAL QUESTION OF RESEARCHING. REGULATORY-LEGISLATIVE AND STRATEGIC BENCHMARKS IN THE FIELD OF OCCUPATIONAL HEALTH AND SAFETY. Preliminary EXPERIMENTAL RESEARCH) is a solid foundation in the further development of doctoral research. The main issues addressed and developed in this chapter were diverse:

- Research on the bibliographic referential for elucidations, terminology clarifications in the field of OSH and MSSM;
- Analysis of the normative-legislative framework in OHS management accompanied by a comparative (preliminary application) research of the national OSH strategy with the specifics of other strategies at European level;
- An analysis of the national OSH strategy (with the quantitative SWOT method) to identify the strategic direction to be followed by policy makers and managers in organisations.

Chapter 2 (CERECEMENTS IN THE MANAGEMENT OF PREVENTION IN OCCUPATIONAL HEALTH AND SECURITY: THE CULTURE OF PREVENTION AND THE ECONOMIC EFFECTS OF NON-PREVENTION) focuses on three important areas:

- Bibliographic research to clarify certain concepts and phenomena related to: OSH culture and prevention; responsibility and leadership in OSH; aspects of organizational behavior in the context of supporting OSH prevention culture; legislative compliance;
- A secondary study of accidents at work in Romania and comparison of the situation with others based on statistics available to other EU countries and beyond;
- An empirical research (using the personalised questionnaire survey method) dedicated to highlighting the economic effects of non-prevention and demonstrating the relationship between the costs of OSH prevention and the costs of accidents at work.

Chapter 3 (APPLICATIVE REQUESTS ON PREVENTION MANAGEMENT IN THE ONE ORGANISATIONS) is intended for MSSM investigations, prevention and OSH culture in the practice of four organisations from the Romanian real economy. Anonymisation of the name of the organisations was used, the research highlighting:

- Four different, complex investigative approaches based on an arsenal of methods and means;
- Relevant aspects of OSH practices and for supporting the development of OSH prevention culture;
- Good practices that can be easily transferred to other Romanian organisations in the industry or medical field.

Chapter 4 (APPLICATIVE CREATIONS ON CHARACTERIZATION OF THE COMPORIMENT OF A MANAGEMENT IN OCCUPATIONAL HEALTH AND SAFETY) captures, through its content, an innovative approach to investigate behavioral dimensions of different categories of managers (Top, Middle and Low) from different organisations using Covey's successful leadership efficiency model (1989). Thus, the fundamentals of human effectiveness have been highlighted and described as internalised principles and patterns of behavior that express its character and produce its effectiveness or inefficiency.

Chapter 5 presents the review of doctoral research carried out through: the general conclusions formulated, of the original contributions made in the plan of scientific knowledge, in the theoretical-applicative research plan, but also in the praxiological level, of the managerial practices and in the didactic plan. There are also some future directions for research.

2. Conclusions of the research. Original contributions

a) *General conclusions of the research carried out*

The exhaustive research presented in the doctoral thesis took place during 2018-2023, the bibliographic and theoretical-applicative researches surprising aspects, relevant phenomena regarding the development of the culture of prevention in organisations, with exemplification in the case of some of the economic space, from the Romanian reality. It should be noted that since the beginning of the research on the bibliographic referential (Chapter 1 and 2), preliminary experimental research has also been carried out, with the role of diagnosing phenomena and highlighting the state of affairs. They give a very strong praxiological dimension of the research, underlining the anchoring of the doctoral approach of research to the reality of OHS management in Romanian organizations.

As can be seen from the PhD Thesis content, all the objectives outlined at the beginning of the doctoral programme (Introduction, point c) have been fully achieved with success. The difficulty of achieving the doctoral request was related to the pre-pandemic, pandemic and post-pandemic context of its achievement.

The most important conclusions drawn are:

- The terminology, conceptual framework in OSH is well defined, but sometimes less understood are the international trends and mode of action, the usefulness and transferability of some international experiences (good practices, methods and means, IT platforms, etc.) at national organisational level;
- The national normative-legislative framework is mature and well-defined, but there are no initiatives and an action plan (updated annually) to support the OSH prevention culture from political decision-makers (the relevant ministry). Within the national legislation there is a good explanation and support of the legislative compliance process, largely aware at organizational and managerial level. The national OSH strategy provides the framework and support for the implementation of continuous improvement of OHS management;
- The new OHS management context provided by ISO 45001:2018 is well understood and popularised, but organisations face certain difficulties in adopting and implementing due to the specific activities, specific culture and management (determined by the management style practiced); it is aware of the proposed change and the increasing role of workers' involvement in OHS management, related to the decision and improvement processes, as well as the role of OSH leadership as facilitator and supporter of change. Multinational organisations are most interested in the rapid implementation of ISO 45001:2018, especially those in the automotive industry, in order to remain competitive, to maintain their position and prestige, notoriety in international logistics chains;
- The concept of OSH prevention culture is less aware, as a name in organisations (proven by the research presented in chapters 2 and 3 of the thesis) but organisations, managers and factors responsible for OHS management carry out preventive, varied and impactful actions among workers. Thus, there is a level of involvement of workers stimulated, motivated by different means, but which is strongly impacted by the Romanian culture (sometimes there is a lack of compliance with some internal provisions or a abandonment of the coherent application of prevention measures, which explains the high number of accidents at work). Another aspect, little known and exploited, applied at the level of organisations in Romania is that of leadership in OSH. Thus, there is no genuine movement at national level for dynamisation, developing the valuable characteristics of OSH leaders that could better support the OSH prevention culture and the easy transition to the implementation of ISO 45001:2018;

- The results of empirical research identifying the effects of non-prevention reflected by the volume of costs induced by accidents at work (Chapter 2.3) confirm that there is a direct positive relationship between OSH prevention costs (considered investments) and the decrease in accident costs; the findings of this study demonstrate a good return on ‘investments’ in MSSM (associated with prevention costs). Moreover, the results demonstrate the important role leadership plays in OHS management;
- In their entirety, the applied researches on prevention and OSH management, within some organisations, presented in chapter 3 of the thesis (3 industrial case studies and a case of a public organisation), have highlighted the state of play. From a methodological point of view, the use of an arsenal of research methods and means was used starting from surveys based on personalised questionnaires, to determinations of different risks carried out together with accredited stakeholders, responsible for the data provided. Thus, research has highlighted issues related to good practices and solutions that can be quickly transferred to other organisations, in terms of OHS management and OSH prevention culture. Emphasis was also placed on emphasising the innovative aspects related to the implementation of management system of OHS or OSH leadership practices found;
- Regarding the applied researches regarding the characterisation of behavior, effectively or not, of some managers in occupational health and safety, presented in chapter 4 of the thesis (2 consistent researches based on the translation and adaptation of the questionnaire Seven Habits® Profile Self-Scoring) led to the characterisation of the manner of manifestation of managers from industrial organisations, media and hospital organisations. In this case, the innovativeness of the research methodology used and the originality of the method of generating and interpreting the results are noted. The research has shown that Low and Middle Management managers are the most active, proving high efficiency, engagement and dedication to all aspects of working life.

b) Original contributions claimed as a result of research

Bibliographical research was designed to characterise, from the perspective of several facets, dimensions, perspectives and through research results generated with different methodologies, the OSH culture of Romanian organisations, supported by Romanian OSH managers/leaders. Thus, it can be said that the researches carried out and the obtained results are constituted not only as added value created in the field of scientific knowledge of the field of MSSM, but also as added value created for the praxiological, managerial field of OSH in Romania.

In the field of bibliographic research, the content of the doctoral thesis demonstrates the extension of the knowledge of the OSH management field. The most valuable original contributions in this regard are:

- Conducting a state-of-the-art in the field of OSH (Chapter 1.1);
- Analysis and synthesis of relevant issues related to the implementation of ISO 45001:2018 (Chapter 1.3.1)
- Carrying out a comparative study of the national OSH strategy with others in the EU (1.3.2);
- Carrying out a bibliographic analysis and synthesis to define OSH responsibility and OSH prevention culture, as a supreme value in the development of OSH culture (Chapter 2.1.1 and Chapter 2.12);
- Carrying out a bibliographic analysis and synthesis to identify organizational and managerial behavioral dimensions to support the development of OSH prevention culture (Chapter 2.1.3);

- Carrying out a bibliographic analysis and synthesis of the leadership in OSH concept (Chapter 2.1.4);
- Analyze, based on national legislation, how to achieve awareness of the culture of prevention through legal compliance (Chapter 2.1.5).

In the theoretical and applicative research plan (which most of the time were carried out together), the elements of originality realised (developed and implemented) are:

- Quantitative SWOT analysis of the national OSH strategy and identification of the strategic direction to follow, for future policies, action plans or operations, but also for organisations (Chapter 1.3.3);
- Carrying out an analysis of accidents at work in Romania, based on secondary data, clarifying how to declare them (Chapter 2.2.1);
- A comparative analysis of the dynamics of accidents at work in Romania with those in other countries based on data available in the ILOSTAT and EUROSTAT databases (Chapter 2.2.2 and Chapter 2.2.3);
- Methodology and results of experimental research on highlighting effects, impact of prevention costs (Chapter 2.3);
- The research approach and the results of the applied research carried out at SC XXX SRL (Chapter 3.1);
- The research approach and the results of the applied research carried out at SC 2XX SRL (Chapter 3.2);
- The research approach and the results of the applied research carried out at SC 3XX SRL (Chapter 3.3);
- The research approach and the results of the applied research carried out in sanitary units with beds (Chapter 3.4);
- The research approach and the results obtained through its application in order to characterise groups of OSH managers using the Covey model (1989) (chapter 4).

An important contribution of the research carried out is **managerial through the methodologies designed and applied and the results obtained**, so they provide management factors and decision-makers solutions to some problems in the field of MSSM and behavioral models. Research can also provide a guide for more effective involvement of decision-makers in supporting the culture of OSH prevention at national level.

Last but not least, the researches carried out prove their **contribution in the didactical filed**, to the subject of teaching of Ergonomics (from all undergraduate programs in Engineering and Management, 3rd year of study) and Occupational Health and Safety (from the master program Quality and Competitiveness Engineering and Management, in English) by providing completely conceptually and methodologically grounded topics that can be the subject of debates from seminars, laboratories or what can be extended through specialised projects.

c) Potential future research directions

As a result of the preliminary conclusions set out at the end of each theoretical-applicative research sequence, the following research directions have been identified with the potential to be addressed in the future:

- Creating a guide for popularising the most effective OSH leaders (the most effective proactive behaviors) and good practices for developing the culture of prevention in Romanian organisations;
- Expansion of research in the field of logistics systems (so strong in the Western Region);
- Trying to investigate the possibilities of implementing ISO 45001:2018 in the case of public institutions;

- Investigating the possibilities of implementing ISO 45001:2018 in the case of SMEs, with the development of methods and means to support this type of organisations in the development of OSH culture;
- Addressing the problem (empirical research) the interdependence of prevention costs, leadership style and OSH performance of firms.

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