A brief review of the risk assessment in Romania compared to Finland

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Abstract. Risk assessment is a foundation for successful management of Occupational Health and Safety, as well as an important key in order to decrease the number of work accidents. Moreover, risk assessment is an essential part of normal safety activity in work places and it includes positive factors such as: productivity, motivation and creativity. The first part of the paper focuses on a legislative background of risk assessment in Romania compared to Finland, based on the Occupational Health and Safety Act. The second part represents a comparative analysis regarding the risk assessment instruments used in Romania in comparison with those from Finland. The third part includes a current perspective regarding risk management in Finland and its impact of the situation in work life. The aim of this paper is to realize a brief review of risk assessment in Romania compared to Finland in order to take into consideration both the advantages and disadvantages regarding legislation, instruments used in the process of risk assessment in these countries.

1 Introduction

Risk assessment is a process that involves identifying, analyzing and estimating risk. Risk assessment can be done with varying degrees of complexity using methods from simple to complex ones. There are numerous risk assessment methods; their purpose is to help organizations in order to assess risks for protecting the employees' health.

Fig. 1. The process of risk assessment

Risk assessment represents a process of estimating gravity and probability and it is lead by the top management. Organizations may use various risk assessment methods as part of their global strategy to deal with various hazards.

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The complexity of the occupational risk assessment method does not depend on the size of the organization, but on the dangers associated with the activities of the organization [1]. The criteria for assessing occupational hazards must be defined according to their nature and scope in order to ensure that they are used in a systematic manner [2]. The purpose of professional risk assessment is to identify risk factors and dangers within an organization. Risk assessment involves a comparison of the risk level which is calculated by analysis with the risk criteria and in some cases this risk assessment may lead to the decision to undertake more in-depth analyses.

Risk management is a rigorous process; the modern methods within it promote actions of risk prediction and anticipation, in that way amplifying the preventive function and reducing the reactive one. Effective risk management contributes to the improvement of the processes and their performance, of the activities and of the efficient use of resources.

2 Legislative background of risk assessment in Romania compared to Finland

In Europe, the health and safety of the workers are protected by an approach based on risk assessment. The goal of risk assessment is specified in the UE framework directive. This framework directive allows each EU member state to establish its own sanctions regime in the field of Health and Safety at work without providing provisions for limiting legal liability in case of non-compliance with its provisions [3].

In Romania, the Law on Safety and Health at work is No. 319/2006 and it is based on the European Directive 89 / 391/ CEE. The purpose of the Law 319/2006 is to introduce measures in order to promote the improvement regarding the safety and the health of employees. Besides, the law has as major goal to set general principles in terms of employees training, elimination of risk factors and prevention of occupational hazards. The procedural and normative framework regarding risk assessment in Romania does not allow a uniform approach to national risks; in this case it is necessary to complete the process on the following issues: impact assessment, aggregation of impact criteria, use of risk scenarios and probability assessment. The provisions of the Romanian legislation on risk assessment contain aspects that can be considered starting points for the implementation at national level of the risk assessment methodology.

In Finland, the Law on Occupational Safety and Health is No. 738 / 2002 and it is based on the European Directive 89/391/CEE. The Finnish Law on Safety and Health of employees has faced psychosocial risks for many years. The Finnish law aims to eliminate the dangers regarding physical and mental health of employees and it refers particularly to the prevention of violence, harassment and reduction of workload. Law No. 738/2002 contains basic provisions and general objectives on Occupational Safety and Health. The purpose of the law is to improve the conditions and the working environment of employees in order to prevent accidents and occupational diseases. In Finland, risk assessment is a significant key in the reduction of work related accidents and, besides, it is a rigorous process of the successful management of occupational health services. A review of risk assessment in Finland will be needed if working conditions change in a significant way [3].

According to ISO 31000:2018 regarding Risk Management Standard in Finland, risk assessment contains the following steps: the first stage is risk identification, the second stage involves a risk analysis where the risk is analysed in terms of the likelihood of its production and its severity. The third stage contains a risk assessment and includes the prioritization of each risk [4]. In Finland, risk assessment can be qualitative, descriptive and quantitative compared to Romania where risk assessment can be quantitative and

qualitative. EU member states have developed risk assessment methodologies which have been adopted by the national legislation.

The European Commission has initiated a process of creating a unique methodological framework for risk assessment which consists in developing common European policies and strategies. The European Commission supports a unitary approach to risk assessment at national level such as: a better assessment of the impact of risks and also a better understanding and a unitary treatment of risks.

3 Advantages and disadvantages of the risk assessment instruments used in both countries

In Romania the selection of risk assessment instruments must display the following characteristics [5] :

- the results and instruments used must be comparable;
- their use in a repeatable and detectable manner;
- providing results that allow understanding the nature of the risk;

Risk assessment instruments in Romania are selected on the basis of certain factors such as [5]:

- the type and range of risks assessed;
- availability of information;
- objectives of the study;
- the need to update the risk assessment;

Table 1. Risk assessment instruments used in Romania

Risk assessment instruments used in Romania	Description	Advantages	Disadvantages
INCDPM METHOD [6]	The method consists in identifying all risk factors at the analyzed workplace using pre-defined control lists and quantification of the risk size for each risk factor on the basis of the combination of the severity and frequency of the maximum possible consequence.	<ul style="list-style-type: none">• Ideal instrument for staff awareness;• Simplicity in applying the method;• Useful at monitoring the implementation of preventive measures;• Participatory and didactic method;• It is not a complicated method, allowing reflections on the elementary risk components.	<ul style="list-style-type: none">• A numerically-expressed risk assessment allows the prioritization of action, but it cannot take into account the aspects of psychological and ergonomic risks;• Experts in the field have highlighted the limitations of this method that they consider to be incomplete, unfaithful, with a much too pronounced subjective character; they propose that it be applied only as a complementary instrument.

Risk assessment instruments used in Romania	Description	Advantages	Disadvantages
FMEA	It is a method of risk minimization and analysis. The method is a basic instrument used in project management, maintenance and total quality.	<ul style="list-style-type: none">• It manages risks;• It identifies failure modes, causes and effects of the system;• It identifies issues appearing early in the design process;• It improves means of prevention;• It improves communication between customers and suppliers.	<ul style="list-style-type: none">• The method can be difficult to apply to complex multi-layered systems;• The studies within this method can be costly and time-consuming;• It can be used to identify fault modes but not combinations of fault modes;• It establishes neither protection measures nor actions.
LOPA	The aim of this method is to reduce the risks and to prevent dangerous events. It is used in risk assessment as a semi-qualitative method.	<ul style="list-style-type: none">• It prevents dangerous events;• It reduces risks;• It applies to dangerous scenarios;• It allows assessment of control means;• It reduces risks in installations to an acceptable level;• It allows evaluation of controls and their efficiency.	<ul style="list-style-type: none">• It does not establish protective measures for the removal of the consequences of a possible accident;• It requires prior results of other evaluation methods;• It does not establish protective actions for the removal of the consequences of a possible accident.

In Finland, risk assessment instruments need to :

- comply with the risk assessment standards
- lead to improvements in health and safety at work
- be generalized and detailed in order to be applied at the workplace
- be simple and easy to use

Table 2. Risk assessment instruments used in Finland

Risk assessment instruments used in Finland	Description	Advantages	Disadvantages
FAULT TREE ANALYSIS	This method allows the connection of faults from a system to a logical scheme.	<ul style="list-style-type: none">• This method identifies the causes of system failures before their occurrence;• It applies to a complex system;• It is a quantification method.	<ul style="list-style-type: none">• The quantification of this method requires a high level of expertise;• The method may be time-consuming;• The method analyzes only a specific event.

Risk assessment instruments used in Finland	Description	Advantages	Disadvantages
DELPHI	This method can be used to develop strategies and scenarios. The aim of this technique is to help planning and making decisions and to facilitate problem solving within an organization.	<ul style="list-style-type: none">• It offers the possibility of providing feedback;• It offers the opportunity to review opinions;• It reduces risks;• It is used primarily as a forecasting technique;• It is a technique used within a group.	<ul style="list-style-type: none">• It is not recommended to use this method in complex situations;• The method is costly and time-consuming;• The quality of the results depends on the experts' competence;• Conflicts may remain unresolved in certain situations.
HAZARD AND OPERABILITY	HAZOP is a hazard identification technique, and at the same time a risk assessment instrument.	<ul style="list-style-type: none">• Risk assessment using this method is performed by a specialized team;• The method identifies not only the hazards but also the operation problems;• This method includes a detailed review of the process;• The method is used for technical defects and human errors;	<ul style="list-style-type: none">• Dangerous scenarios are analyzed by quantitative risk analysis;• The documentation of the HAZOP method is not always written in a user-friendly style;• The method is costly and time-consuming;• It requires coverage of the deviations through checklist.

In Finland risk assessment instruments are an important part of the decision-making process. There are many risk assessment instruments in Finland, worth mentioning being: bow-tie analysis, failure modes and effects analysis, hazard and operability, fault tree analysis, hazard analysis and critical control points [7]. All these risk assessment instruments are based on the principles of risk identification, analysis and assessment.

Both countries use the FMEA (Failure mode and effects analysis) method in various industries for hazard identification and risk analysis. The second method, named Fault Tree Analysis is used in both countries and it has the purpose of identifying the causes of the system failures and of determining event combinations.

4 Risk management in Finland and its impact of the working life

Risk management applies to a wide range of activities, processes, strategies and decisions throughout the whole life of an organization [8]. Risk management is a continuous process whose purpose is to identify potential events that affect the organization and to allow the government and organizations to reach a reasonable level of fulfilling the objectives [9]. The standard of the European Federation of Risk Management Association (FERMA) establishes a strategic process from the general objectives and aspirations of the

organization up to identifying, evaluating and minimizing the risks within the organization.

Enterprise Risk Management (ERM) is a holistic approach to risk management; it focuses on integrating ERM into all organizational processes and into decision making. Enterprise Risk Management can be defined as a culture of the organization and it has the goal to control the risks in an organization [9]. ERM includes the following: control of activities, risk monitoring, risk response, event identification, risk assessment, efficient communication, internal environment and setting goals.

According to the Finnish Risk Management Association, risks can be classified into four categories: strategic, operational, economic and failure risks. The emphasis on risk management is the treatment and identification of risks. There are guidelines and frameworks regarding risk management, one example being the ISO 31000 standard. The major purpose of this ISO 31000 standard is to help organizations develop a risk management strategy and develop a culture of risk management within organizations. The implementation of the ISO 31000 standard in an organization helps to increase its performance and allows for more effective decisions within it. Another important aim of this standard is to help employees become aware regarding the importance of managing and monitoring risks. Of particular importance is the safety at work of employees in Finland. Employers are responsible for familiarizing the new employees with the health and safety instructions and are compelled to act accordingly. In Finnish organizations a wide range of experts work in the field of occupational safety and health. In Finland, it is possible for adults to improve their professional skills via different types of vocational training such as: in-service training, apprenticeship training and skills testing. As far as the participation rate in vocational training is concerned, this is the most extensive form. In Finland, there are many laws, methods and regulations that improve the health and safety of employees.

Considering the importance of the professional life of employees in Finland, I have realized a SWOT analysis, the results being centralized in Table 3.

Table 3. SWOT analysis of the professional life of employees in Finland [10]

Strength	Opportunities
<ul style="list-style-type: none">• The quality of professional life in Finland consists of four aspects: innovation, productivity, trust and cooperation;• Flexibility at work requires employees to feel relaxed and balanced;• The balance between family and professional life is one of the strengths of Finnish employees;• The possibility of training and learning at work;• Creating strong social relationships at work;• The right to equality of each individual;• The ability for each individual to develop different skills at work;• Low degree of corruption;• The existence of strong professional ethics;• The adaption of a democratic style in decision-making at work;• The use of working hours in a productive and intelligent way;	<ul style="list-style-type: none">• Developing managerial skills;• Low level of stress;• Increasing productivity;• A better balance between work and family life;• Introducing new technologies within organizations;• The development of professional reconversion programmes;• Organizing workshops within companies;• Building social relationships around the world;• Developing key skills of employees and facilitate the process of learning within an organization.

Weaknesses	Threats
<ul style="list-style-type: none">• The lack of face-to-face communication when the employee works from home;• High labour costs;• The low number of immigrants;• The emergence of an isolation tendency when the employee works from home.	<ul style="list-style-type: none">• Distraction from work tasks;• Lack of self-discipline and motivation;• Negligence of physical and mental health;• Emergence of mental illnesses;• Existence of a defective management.

5 Conclusions

Risk assessment is the foundation for effective management of the safety and health of all employees. The first part of the paper includes general theoretical aspects regarding the risk assessment process, its purpose and the role of risk assessment methods. The second part of the paper focuses on a comparison between the Romanian risk assessment legislative background and that of Finland, based on the law of safety and health at work. This part also includes some aspects related to the ISO ISO 31000:2018 Risk Management Standard.

The third part of the paper presents the advantages and disadvantages of the risk assessment instruments used in the two countries, along with a brief description of those instruments. The fourth part contains a current perspective on risk management in Finland. Moreover, a SWOT analysis has been carried out regarding professional life of employees in Finland. The overall aim of the paper was to give a short overview of the Romanian and the Finnish risk assessment, focusing on the legislative background, the risk assessment instruments and the importance of risk management.

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