

THE NEED OF TOOLS CREATION FOR RISK ASSESSMENT IN THE SLOVAK REPUBLIC

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Abstract: *The importance and need to pay sufficient attention to health and safety is undeniable. Accidents at work that also arise due to insufficient risk assessment negatively affect not only the employee but also the company as a whole. It is therefore essential that occupational risk assessment becomes an integral part of the corporate philosophy. However, the available tools for risk assessment in the environment of companies are financially demanding and therefore in order to simplify these activities for companies in the Slovak Republic are prepared free modules, the design and creation of which is the content of the project APVV-20-0603 "Development of risk assessment tools for purposes of selected companies and professions in the Slovak Republic in accordance with EU requirements".*

Keywords: risk, risk assessment, tools, OiRA, OSH.

1 INTRODUCTION

Occupational health and safety ("OSH") is an important part of corporate culture in both the European Union ("EU") and the Slovak Republic ("SR"). Adherence to its basic principles is required not only by the legislation of each Member State, but also by technical standards in increasing the competitiveness of each company and entrepreneur. The justification of its solution is given mainly by the non-decreasing number of work accidents and the repetition of the same errors due to which accidents occur. It is for this reason that it is necessary to pay due attention to the preparation, i.e. training in health and safety, as well as the subsequent risk assessment directly in the enterprise.

2 ACCIDENTS AT WORK IN THE EU

Accidents at work are divided into fatal and serious. Statistics on them are processed by European Statistics on Accidents at Work.

An accident at work is, in ESAW's view, an event during work that results in physical or mental harm. Fatal accidents at work are those that lead to the death of the victim within one year of the accident. Non-fatal accidents at work are those that result in at least four full calendar days absent from work (sometimes referred to as "serious accidents at work"). Non-fatal accidents at work cause considerable damage to the workers concerned and their families. They have the potential to force people, for example, to live with permanent disabilities, to leave the labor market or to change jobs.

Graphically, the numbers of no fatal and fatal accidents at work are shown in Figures 1 and 2. However, in the case of non-fatal accidents, the fact that they do not directly reflect the actual situation must be taken into account. This means that a country

that has reported more accidents may only have stricter rules for reporting and controlling such incidents than others. In the case of fatalities, of course, this is different, as these are cases that cannot be reported.

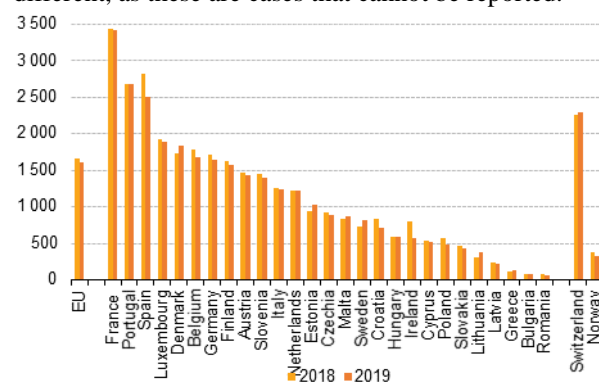


Figure 1 Non – fatal accidents at work (per 100 000 employers in 2018 – 2019)

Source: [1]

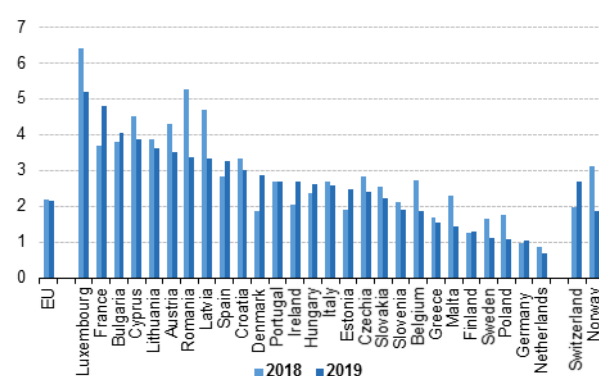


Figure 2 Fatal accidents at work (per 100 000 employers in 2018 – 2019)

Source: [1]

3 CLASSIFICATION OF ACCIDENTS BY TYPE OF ACTIVITY

An important indicator in terms of assessing the current need for the development of risk assessment tools is the distribution of accidents by type of business. In accordance with the NACE classification, these are divided into the categories shown in Fig. 3.

It is this fact - the division into categories of activities is also related to the number and distribution of work accidents by gender, as the positions and activities performed mainly by men are those where a larger share of work accidents is also registered.

Within the EU, the construction, transport and storage, manufacturing, agriculture, forestry and fishing sectors together accounted for approximately two thirds (64.4%) of all fatal accidents at work in 2019 and more than two fifths (43.9%) of all accidents at work without fatal consequences. In 2019, more than one-fifth (22.2%) of all fatal accidents at work in the EU occurred in construction, while the transport and storage sector (15.0%) had the second highest share. [1]

Non-fatal accidents were relatively common in manufacturing (18.7% of the EU in 2019), wholesale and retail trade (12.3%), construction (11.8%) and health and social care activities (11.0%). [1]

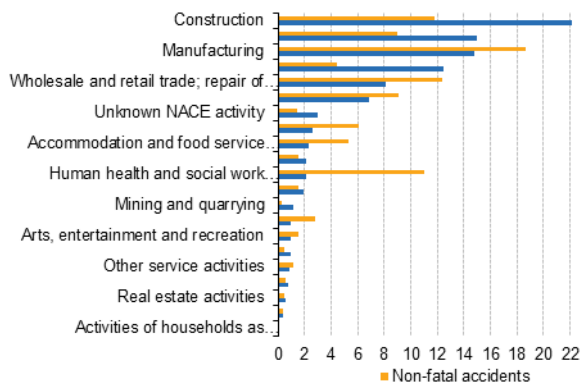


Figure 3 Fatal and non – fatal accidents at work by NACE in 2019
Source: [1]

4 RISK ASSESSMENT CONDITIONS IMPROVEMENT FOR THE COMPANIES IN THE SLOVAK REPUBLIC

Occupational risk assessment and subsequent management is not only required by law, but must be an integral part of the organization's documentation and philosophy. It creates awareness of the existence of hazards and, based on its results, the employee concerned is made aware of the risks. In the Slovak Republic, occupational risk assessment is one of the most important requirements of Act No. 124/2006 Coll. on health and safety. The results of the risk assessment are part of three basic documents processed by

companies in the field of occupational safety and health in the Slovak Republic:

- Risk assessment for all activities - in accordance with §6 par. 1 letter c) of Act No. 124/2006 Coll. on occupational safety and health and § 4 of the Regulation of the Government of the Slovak Republic no. 395/2006 Coll.
- Assessment of hazards arising from the work process and the work environment in accordance with § 6 para. 2 letter a) of Act no. 124/2006 Coll. on occupational safety and health, § 4 of the Government Regulation no. 395/2006 Coll.
- Guidelines for the hazard, threat and risk assessment process.simulation of the decision process along the life of the project.

After processing these documents, the results are transposed into the company's documentation. This documentation may be processed by the security technician directly at the organization or by a security service supplier.

It is not specified what procedures and methods can be used to assess the risk in the company. The most used methods are checklists, FMEA, the point method and, finally, the risk matrix. Many health and safety companies have already shown interest in the new technologies and opportunities they offer. In recent years, a number of software tools and online applications have been developed for OSH needs. The need for a simple and user-friendly way to comply with the law and strengthen the safety and health culture is a major stimulus in its development - especially for small businesses, which are trying to save money, especially today.

For organizations or individual users of a software tool, whether online OSH applications add value by helping them identify hazards and risks in the workplace faster, more efficiently and more objectively, they are easy to use, interactive and easy to access, they simplify the assessment process simplify business and access.

At a time when all businesses are struggling to save and still have to comply with all legal requirements, software tools and online applications that would be available for free appear to be the solution

However, Slovak companies do not have such tools at their disposal. The European Agency for Safety and Health at Work (EU-OSHA) is helping micro and small enterprises to assess risks with the "OiRA" tool - a web-based platform that enables the development of sectoral risk assessment tools. These tools are gradually being developed in all Member States, while modules are absent for the Slovak business environment.

OiRA - online interactive risk assessment is a freely available web application designed for micro and small businesses to perform a step-by-step risk assessment, from preparation, through identification

and evaluation, development of an action plan to reporting.

However, the EU does not explicitly specify that states use the OiRA tool to assess occupational risks. It also supports the initiative of other Member States in developing such tools.

As mentioned, the conditions of the Slovak Republic lack such a tool. What this means in practice is that there is no free tool for companies to assess risks. The goal of the currently solved project is to create several modules, with regard to the most risky areas in the Slovak Republic.

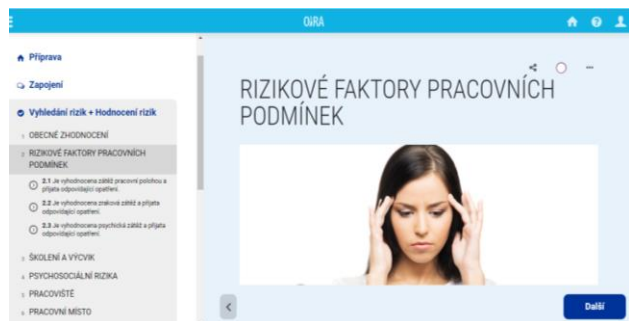


Figure 4 OiRA tool – in Czech republic
Source: [2]

In Fig. 4 is a screenshot for working in one of the tools available in the Czech language. It is a clear and structured process that helps the manager understand, gives him help and guides him step by step through the risk assessment process.

5 DEVELOPMENT IN THE FIELD OF OCCUPATIONAL SAFETY AND HEALTH AND THE USE OF MODERN TECHNOLOGIES

The need for digitization is also necessary for OHS. EU-OSHA has set targets based on digitization for 2020-2021 which offers the potential for innovative and exciting developments in the workplace, but also presents new challenges. By anticipating the potential challenges for occupational safety and health (OSH), we can maximize the benefits of such new technologies, while ensuring that working environments are safe. If well managed, digitization can reduce occupational risks and create new opportunities for improving working conditions. This is what EU-OSHA is committed to supporting.

In addition, however, we must not forget the quality training of health and safety employees, which also has a large aim to reduce the number of accidents at work, and thus especially to protect lives and health, as well as the property of employers and employees [3].

Within the hierarchy of effectiveness of forms of education, it is known that classical lectures are much less effective than forms where trained staff can actively try out what they are learning [4]. It is the

forms such as virtual reality, mixed reality or augmented reality that give room for such learning.

There are many reasons, why is using VR in OHS training appropriate. First, better trained employees cause less accidents, it means, less accidents contribute to decreased injury expenses and production delays and better safety means lower compensation costs. Using VR gives an opportunity to practice realistic and dangerous scenarios without exposing to danger and also, it is a pleasant way of learning which could be compared to video games. VR is simpler way how to present complicated issues and situations [5]. VR can also be a solution to another problem. Traditional courses require organizational issues and an accurate preparation for training a certain scenario. In case of VR, a virtual world can be created at any place and time.

6 CONCLUSION

Investing in real options is a way to preserve the number of accidents at work in the EU, as well as directly within the Slovak Republic, points to the need for risk assessment in companies, including small and medium-sized enterprises. The preparation of a free and user-friendly tool in the form of online modules is the goal of the APVV project, which is mentioned in this article. Due to the fact that the project is still in the first stages of the solution, it is not possible to present specific tools, however, their importance is already positively assessed directly from the European Agency for Safety and Health ("EU-OSHA"), which takes place in cooperation and which already welcomes the initiative of the project team to cover the most risky areas in terms of the number of accidents at work with the aforementioned OiRA tools.

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