

## THREAT WITH BIOLOGICAL FACTORS IN THE WORK PROCESS IN THE ASPECT OF COVID-19 - OCCUPATIONAL RISK MANAGEMENT

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**Abstract:** The functioning of an enterprise in times of the market (and international) economy is exposed to various types of mechanisms which may change the scope of an operation. While an entrepreneur can predict certain symptoms of a change, e.g. in law, trends, etc., there may be situations that cannot be fully foreseen. Change management is now an important part of the management field. Adapting to the changing reality makes the company adjust to changing circumstances, which means it has a better chance to survive or gain a competitive advantage. In this paper the issues related to occupational risk management in a crisis in enterprises related to the COVID-19 pandemic will be discussed.

**Keywords:** occupational risk management, biological hazards, enterprise management

### 1. INTRODUCTION

Enterprises encounter many barriers and problems during their operation, which can be solved by implementing a number of activities, for instance, by changing the business profile, changing or modernizing technologies, limiting human resources, etc. It is important that change management takes place through a deliberate action. It is an implementation and supervision of new management principles and practices in the enterprise in order to improve results or introduce a strategic change. However, when applying the elements of change management in line with the modern approach to management, it should be noted that these are well-thought-out activities that an enterprise can benefit from (Parker M., 2002).

Change management can be strategic (long-term decisions that cover the entire enterprise. It is related to the aspects of quality, innovation and the value of human resources and meeting customer needs) or operational (refers to new systems, procedures, structures or technologies that will have the immediate impact on the work system in a given part of the enterprise) (Rosak-Szyrocka J., Abbase A., 2020; Mazur M. 2018).

The approach to managing change is currently changing. In times of the situation related to the global COVID-19 pandemic (in Poland from March 2020), it is difficult to

adjust the functioning of an enterprise to the economic, social and political reality. It is difficult to maintain a strategic approach to change management. In the era of a pandemic, virtually every activity of an enterprise can be considered as an aspect of operational management because (depending on the industry) an entrepreneur is often forced to take immediate actions, is obliged to implement new systems, procedures or create new structures adapted to reality.

The functioning of an enterprise within a market economy is related to cooperation with other enterprises. The modern business model is based on outsourcing, cooperation, or connections in supply chains, etc. Therefore, operational management in the COVID-19 time is extremely difficult. The fundamental role of an entrepreneur is to ensure the continuity of functioning, therefore, in the first place, they should take care of their human resources. The entrepreneur has no influence on the actions of the government, which makes the functioning of some industries difficult or practically impossible. However, the economy is still trying to function in a crisis situation. Therefore, it seems important to protect workplaces and those employees who can perform their professional duties in a situation of permanent crisis (Pacana, A., Czerwińska, K., Bednárová, L.).

An employer, pursuant to Art. 207 of the Labor Code, cares for the health and safety at work on the basis of their knowledge, skills as well as financial and organizational capabilities. In the event of a COVID-19 threat, an employer is obliged to adjust the working environment so that, in their opinion, it meets the health and safety requirements. It should be noted that since the occurrence of the coronavirus threat, there have been no changes in the normative acts regarding occupational health and safety. There are still only recommendations from regulatory bodies (NLI (National Labor Inspectorate, CSI (Chief Sanitary Inspectorate), etc.) or the government.

## **2. OCCUPATIONAL RISK MANAGEMENT**

The basic requirements of occupational health and safety (related to occupational risk) were defined by the European Community in two directives:

- Council Directive of June 12, 1989 on the introduction of measures to increase the safety and health of workers at work (Directive 89/391/EEC)
- Council Directive of June 14, 1989 on the approximation of the laws of the Member States relating to machinery (Directive 89/392/EEC)

The European Community pays great attention to the nature of health and safety in enterprise management. Pursuant to the Regulation of the Minister of Labor and Social Policy, occupational risk is "the probability of occurrence of undesirable work-related events causing losses, in particular adverse health effects to employees as a result of occupational hazards in the work environment or the manner of performing work".

One of the basic activities related to the organization of safe and hygienic work is the proper assessment of occupational risk at individual work stations. According to the definition quoted, an employer is obliged to define all the risks that may appear in the work environment. An employer, with the help of the health and safety inspector, managers and the employees themselves, should strive for a proper assessment of the risks that may occur at the workplace. Art. 226 of the Labor Code indicates that: The employer "1) assesses and documents the occupational risk related to the work performed and applies the necessary preventive measures to reduce the risk, 2) informs employees about the occupational risk associated with the performed work, and

principles of protection against threats” (Saja P., Woźny A., Pacana A., Dobosz M., 2017).

A health and safety inspector who, at the request of the employer, estimates the occupational risk, should observe the working environment and obtain all information regarding the workplace, e.g. scope of duties and activities, tools and devices used, etc. Different activities, as well as individual characteristics of employees shape different levels of risks in the position work.

When collecting information, one must not forget about the characteristics of the employees themselves, as it sometimes is an element that differentiates the degree of exposure to a potentially dangerous event. It is also worth analyzing the time of exposure to a given threat (in the case of COVID-19, not only in the workplace).

When comparing workplaces where activities are performed, the work environment is not always the same. The post of a carpenter can be an example. During the furniture production stage, individual workstations occupied by carpenters are characterized by different activities. By which it should be understood that each production stage (assuming that different devices are used and only designated employees operate these devices) has a different working environment. The scope of activities is varied, which automatically results in a different level of occupational risk, which must be determined separately for each carpenter – employee (David M.D., Bell M., 1997).

When assessing occupational risk, it is the health and safety inspector who has the knowledge, skills and competences to pay special attention to all hazards, which is why he often uses various types of checklists to help him prepare a detailed sheet of hazards in the work environment. They are usually made on the basis of a division into threats:

- Physical,
- Chemical,
- Biological,
- Psychophysical.

The next step is to properly interpret the hazards and indicate their sources and the impact of employee exposure on the hazards. At this stage, it also indicates what steps the employer can take to reduce the negative effects on the hazard.

It should be pointed out that the literature on the subject distinguishes many evaluation methods. The OHS inspector should choose the method which, in his opinion, will be the most appropriate for a given workplace, or the specificity of the enterprise. Proper occupational risk assessment really contributes to the improvement of working conditions because, by determining the real threat, it is possible to implement corrective, preventive and reducing negative effects in the threats indicated in the document (Gazda, A., Pacana, A., Malindžák, D., 2002).

Occupational risk assessment is a process activity that should be implemented in a thoughtfully. Therefore, this issue should be approached in a procedural way. An example of a proper approach to occupational risk assessment may be the use of the algorithm presented in fig. 1.

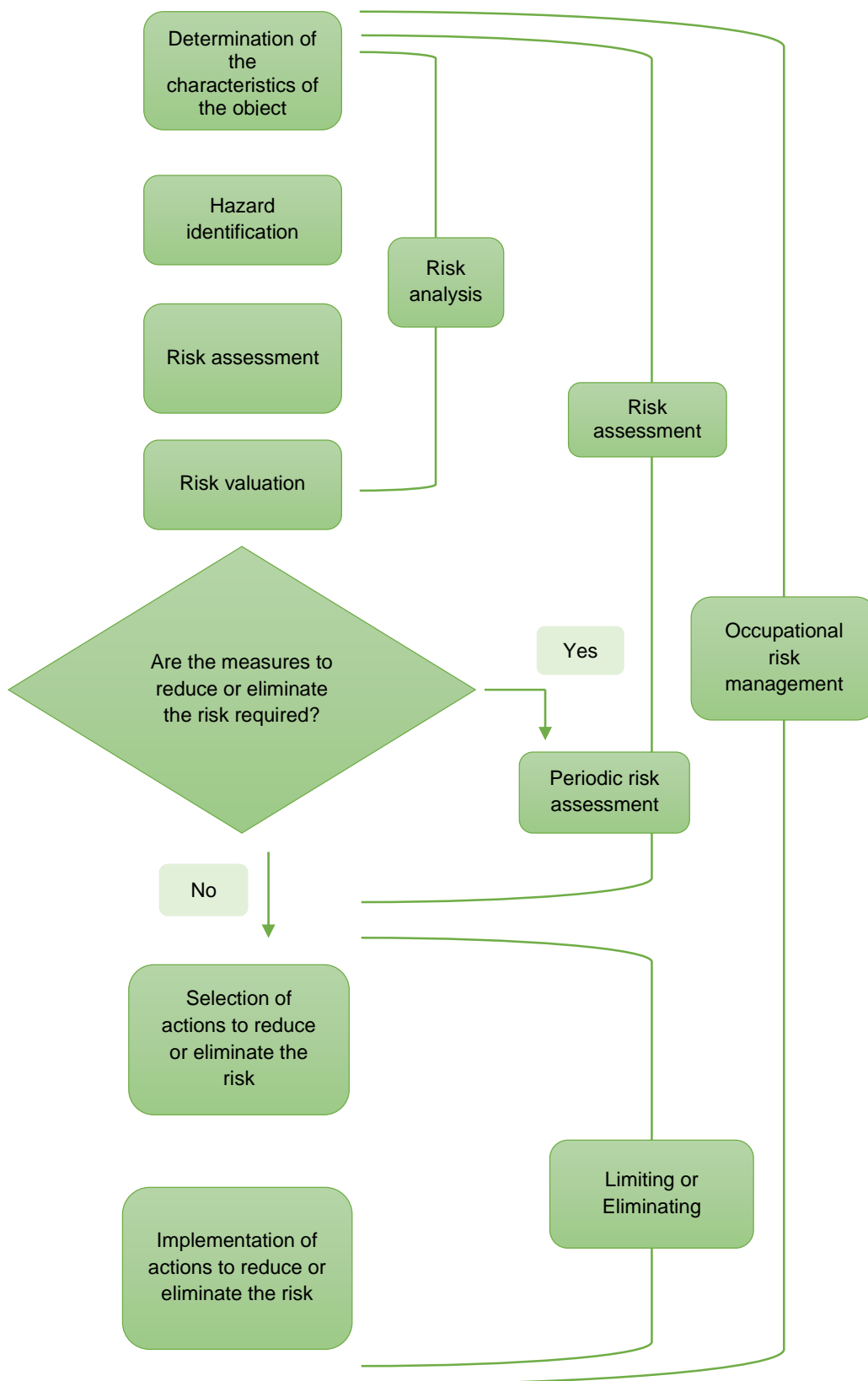


Fig. 1. Algorithm of occupational risk assessment

When starting the occupational risk assessment, the method of informing employees about the occupational risk should be clearly defined. As a rule, an employee is familiarized with occupational risk assessment during the general introductory training. Ignorance of the issues discussed in the risk assessment may result in a misinterpretation of the results by an employee, therefore it is important that the health and safety inspector should participate in the process of informing about occupational risk. The method of documenting employees' familiarization with the occupational risk is usually done by signing a list (Woźny A., Pacana A., 2017).

### **3. SAFETY MANAGEMENT DURING THE COVID-1 PANDEMIC**

In the case of company management, the occurrence of a special situation related to the coronavirus pandemic (COVID-19) caused a number of negative consequences that in the long run threaten not only economic consequences, but also threaten the functioning of the company in general. Therefore, attention should be paid to whether the coronavirus pandemic caused the state of emergency in most companies in Poland. The inability to conduct business activity or limiting its freedom, as well as the implementation of certain sanitary restrictions generates a significant cost for the entrepreneur himself.

The coronavirus pandemic has caused many problems for most employers. Preventive measures as well as prohibitions and orders imposed by the state administration (government, relevant ministries, etc.) meant that some enterprises had to stop or limit their operation at all due to sanitary restrictions. In the case of limiting meetings, business trips or keeping a distance, e.g. between another person, it seems understandable, although suspending the operation of certain types of business activity is unfavorable not only for economic reasons, but also for the citizens' sense of security. An employer who did not stop his activities during the COVID-19 pandemic had many dilemmas in the area of safe work organization. The issues related to the reduction of contacts and the lack of access to occupational medicine doctors resulted in limited availability to new employees and problems related to the implementation of the employer's tasks in relation to employees already taken on. Due to the lack of access to occupational medicine doctors, employers could not allow newly hired employees to work. The lack of a medical statement from the preliminary examination disqualified the employee from commencing work. The National Labor Inspectorate in its recommendations did not allow a situation in which a newly hired employee would start work without preliminary medical examinations and general initial training.

The only situation in which an employer could admit an employee without examinations and completed health and safety training is an employee who works and is not on sickness leave for more than 30 days. If an employee was nearing the period of periodic examinations and an employee was unable to do them, the employer was obliged to issue the employee a referral for medical examinations before the end of previous examinations. At that time, the National Labor Inspectorate recommended that such an employee (despite the lack of periodic examinations) could be admitted to work, and medical examinations could be performed immediately after opening occupational medicine. It is important that the National Labor Inspectorate indicated that during this time the employee should refrain from work that significantly exposes him to loss of health or life, and should refrain from heavy and dangerous work.

Due to the prevailing situation, National Labor Inspectorate recommended a similar situation in the case of periodic health and safety training. Periodic OHS training for

employees could be conducted online. Each employee could undergo periodic training organized online, although National Labor Inspectorate obliged employers to take the training exam immediately after the pandemic is over or the restrictions related to restrictions on contact with people are lifted.

The actions and guidelines of the National Labor Inspectorate had a significant impact on the functioning of enterprises, which at some point operated in a state of uncertainty and concerns about whether they would act contrary to the Labor Code. It is important that, in times of uncertainty and limited sense of security, the employer protects employees against the possibility of infection. Therefore, it is important what protection measures were used by the employer and what mechanisms and procedures were used. Note that most employers have provided employees with:

- disposable or reusable masks and shields,
- disposable gloves,
- hand disinfectant,
- separation of the zone for customers or people from outside,
- separation of the employee's position from the client with plexiglass, etc.,
- shortening the working time or organizing remote work,
- other procedures and protective measures depending on the workplace (Saja P., 2017).

#### 4. OCCUPATIONAL RISK ASSESSMENT - COVID-19 THREAT

During a crisis, the threat of COVID-19 is common. Therefore, in most workplaces, it was necessary to update the occupational risk with a biological factor, such as coronavirus. Table 1 shows the hazard identification. The possible effects of the threat were indicated as well as the measures to protect against the threat that the employer and employee should take.

**Table 1.** Biohazard identification - COVID-19.

Biohazard			
Threat	The source of the threat (cause)	Possible consequences of the threat	Means of protection against threats
Group	The way of infection		Employer
Virus Coronaviridae (COVID-19)	People, items	Diseases of the upper respiratory tract, including pneumonia, etc..	<ul style="list-style-type: none"> <li>• disposable or reusable masks and visors,</li> <li>• disposable gloves,</li> <li>• hand disinfectant,</li> <li>• separation of the zone where customers or people from the outside are present,</li> <li>• separation of the employee's position from the client with plexiglass, etc.,</li> <li>• shortening the working time or organizing remote work,</li> <li>• other procedures and protective measures depending on the workplace.</li> </ul>
group. 2, no vaccinations	Air-droplet		<p style="text-align: center;"><b>Employee</b></p> <ul style="list-style-type: none"> <li>• compliance with hygiene rules</li> <li>• adherence to employer procedures and ministry guidelines</li> <li>• use of personal protective equipment</li> </ul>

Source: author's own research

When the COVID-19 threat emerged, it was difficult to determine the type of threat. The difficulty was that it was a new biological threat which a man had not come into contact with so far. Therefore, it was difficult to identify the potential effects that could have been produced on the worker.

Table 2 presents the risk assessment using the Risk Score method. It should be pointed out that the result of the assessment relates to the general approach to the risk for an employee. It should be emphasized that the generally accepted methods do not differentiate occupational risk in terms of age, gender or comorbidities. It should also be pointed out that in the case of the factors indicated, the result of the assessment would certainly be significantly different, as the effects of virus infection are more severe for the elderly or those with comorbidities.

**Table 2.** Risk assessment by means of Risk Score method - COVID-19.

Name of the occupational hazard factor	The severity of the possible consequences "S"		Time of exposure to the hazard "E"	The probability of a case "P"	Occupational Risk Score "R"	
<b>Assessment formula: <math>S \times E \times P = R</math></b>						
Wirus Coronaviridae (COVID-19)	S=7	Average	E=6	P=3	R= 126	Average risk
	Severe body injury		Daily	Practically possible	Necessary control, recommended preventive actions	

Source: author's own research

## 5. CORRECTIVE AND PREVENTIVE ACTIONS

PPE is only a result of the hazard analysis. It is important to be aware of the threat and react appropriately to it. Entrepreneurs are required to properly organize work by:

- Information management,
- Processing information,
- information disclosure,
- Information visualization method,
- Reliability of information,
- Repeatability of information.

In the event of COVID-19 it is difficult to predict which is why the most important are organizational mechanisms that enable quick response to the resulting threat, creating an increased level of safety for employees

## 6. CONCLUSIONS

Occupational risk is one of the mechanisms that allows an employer to identify threats not only to employees, but also to the enterprise. The right approach to occupational risk management may have a positive impact on the continuity of the company operations. This is extremely important in the event of the COVID-19 threat. Proper protection of workers and the work environment reduces the risk of a virus outbreak in the workplace. This state of affairs means that despite the difficult situation in the social and economic space, the enterprise is able to function.

If safety is not handled properly by both the employer and employees, the virus may spread, resulting in a temporary suspension or cessation of activities. It is worth noting that such an effect generates high financial costs for the employer. The key issue is the

appropriate protection of employees and the workplace in connection with the occurrence of the COVID-19 threat.

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