

# Managing of Work Risk in Small and Medium-Size Companies

Janusz K. Grabara, Bartłomiej Okwiet, Sebastian Kot

**Abstract**—The purpose of the article is presentation and analysis of the aspect of job security in small and medium-size enterprises in Poland with reference to other EU countries. We show the theoretical aspects of the risk with reference to managing small and medium enterprises, next risk management in small and medium enterprises in Poland, which were subjected to a detailed analysis. We show in detail the risk associated with the operation of the mentioned above companies, as well as analyses its levels on various stages and for different kinds of conducted activity.

**Keywords**—Job safety, small and medium-size companies, SME, work risk, risk management.

## I. INTRODUCTION

CURRENTLY, professional risk and job security is the part of management, which is still actual and having significant meaning. It is characterized as having a major impact on the operations of the entire enterprise. Companies from the small and medium business sector consist of over 90% of all enterprises operating in Europe. Small and medium-sized enterprises are a driving force of the European economy. They are a primary source of employment, and rouse the spirit of entrepreneurship and innovation in the EU, and hence have a key importance for increasing competitiveness and employment.

Unfortunately, every type of activity of a company brings with it occupational hazards in the form of threats to life and the health of employees, with factors such as mechanical, chemical, biological or the negative influence of the environment on work conditions, which is relate to the presence of work-related accidents to a large extent. Every accident or the almost resultant event carries negative consequences, both for the person involved directly in the accident and for the enterprise itself. The most serious consequence of the accident is death of an injured person. The accident means incurring measurable costs both economic and social for the enterprise, as well as for society as a whole. Therefore, proper counteraction and effective risk management are so important.

## II. THEORETICAL ASPECTS OF THE RISK

In the literature we can find a lot of definitions of risk. W.A. Rowe defines the risk as the "potential negative consequences of a certain event or action"; however, a lot of authors define

the risk as the "size of the probability of increasing adverse events" [1]. Some researchers determine the risk as the chance of the event about negative character [2].

After Holton's, there are two elements needed to create a risk - the first element is uncertainty which concerns the potential outcome of the experiment, whereas an assurance of usefulness is the second element [3]. It is known that jumping out the plane without parachute is connected with falling and death, so it is not a risky action because here the elements of uncertainties do not appear, and as a matter of fact, the element of the usefulness also does not appear.

Four main components constitute risk [4], the probability of the appearance of the event, poignancy, the ability for changes and degree of independence. Without these four components no event can be considered as a risk.

Next, Smith suggests that it is possible to divide the risk into three categories [5]:

- Known risk - adding the additional stoppage at the production in case of the unpredictable event can be an example of this category,
- Knowledge about the unknown - an example can be knowledge concerning production stoppage, but ignorance about when the given stoppage can take place,
- Ignorance about the unknown - at the beginning of every new production, one should take unpredictable events into account, however it remains unknown, when they will appear and what characteristics they will have,

Risk is a phenomenon, which is possible to be measured, however, only in situations when full access to required information exists, allowing for estimating the plausibility of the appearance of damages or losses connected with a given action. A combination of the probability is included in a risk.

Risk appears in all areas of the activity of a company, because all action brings some probability of the appearance of the negative, as well as positive effects (however, positive effects are very rarely included in the characteristics of risk) and also the appearance of certain threats for taken action. The risk taken by an enterprise should have logical grounds. "Taking a risk means the positive decision as for the subject of the risk, the decision of taking active actions connected with performing tasks needed for getting benefits and minimizing potential losses" [6]. Risk is a threat of the appearance of outcomes of a taken action other than planned. In the enterprise, risk has a special character, because a situation in which a risk is being taken in full consciousness in expectation of higher profit, often appear. In order to optimize profits and cash, one should agree on full approval of certain levels of risk, which are growing proportional to the level of the growth

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of the made profits. It is popularly said that "the greater risk, the bigger the profit" [7].

### III. RISK IN THE ENTERPRISE

The risk and the probability - some definitions are only and exclusively concentrated on the probability of the appearance of a certain event, however definitions more compound take into consideration not only the fact of the existence of the probability, but also consequences of the event. In this way, it is assumed that an earthquake itself has little plausibility of its appearance, however its catastrophic effects classifies it as an event having a large degree of risk [8].

A division into the financial and a nonfinancial risk is a division most popular and most often met. A nonfinancial risk is a risk, which was disregarded behind the financial risk.

Major groups of risk in the enterprise are: [9] risks of the technology, risks of the organization, risks of the management, financial risks. A risk of reputation is an independent group; it is connected with the perception of the enterprise by the external environment.

An operational risk is an independent risk – such kinds of risk are connected with the realization of functions by the given enterprise [10]. An operational risk is also disruptions in managing crucial areas of the enterprise or its stores, into which one can include: real, financial and intellectual capital. Here one should consider that the value of the entire enterprise consists of its financial and immaterial sources [11].

Sources of the risk in the enterprise are most often [12]: internal fraud consisting of tax evasion or misappropriating assets; outside fraud consisting of theft of information, falsification of information; incorrect personnel policy, e.g. employee discrimination, lack of the right policy in workplace safety and hygiene; customers, products and business practices of competitors, as well as the very enterprise; natural disasters or terrorism are sources of risk in the damage of material assets; all disruptions to the activity of a company and system faults (breakdowns of the software and equipment failures); incorrect management of operational, transactional processes and supplies, causes the appearance of mistakes of different kinds and effects manifesting in the loss of assets of customers for the enterprise.

The susceptibility of the enterprise to the risk is being determined by a sequence of factors: the complexity of the organizational structure, the degree of the complexity of the activity of the company, having the right IT system or also having an appropriately qualified staff. An enterprise with appropriate staff is able to minimize operational risk, but above all, can identify areas in which this risk appears.

Risk management can be perceived as a process which consists of individual stages [13]:

- Identification of appropriate risk factors;
- Measurement of exposing the enterprise to the risk;
- Measurement concerning the probability of the proliferation of the risk;
- Calculation of the volume of measures of the risk, reducing the risk and risk management.

Risk management begins with the task, for which, the

purpose is an identification of all risk factors. Some risk factors can be directly observed and measurable using macroeconomic variables, e.g. GDP. The remaining risk factors cannot be directly observed because they consist of many variables. Next, measurement in what level identified risk factors can spread is made. The final step in risk management is the establishment of a system having the task of risk management and limiting it [14].

Analysis and the risk management is a great challenge for every manager, although he has an unrestricted access to the information of the enterprise and tools supporting the process of the risk management.

Delivering tools enabling better control over the functioning of the enterprise is an aim of risk management. Thanks to the identification of potential hazards or risks appearing in the future, the enterprise has the opportunity to take action aimed at prevention of the appearance of the threat or reduction of the risk [15].

### IV. RISK MANAGEMENT IN SMALL AND MEDIUM COMPANIES

A feature of small and medium enterprises, with reference to the risk management, is the fact that these enterprises more slowly and more poorly identify the risk appearing in them. It also causes slower reaction, both to the financial risk identified earlier or also to the operational risk. These enterprises are also characterized by a greater tendency to ignore the appearing risk, as well as for belittling its role and meaning in the process of forming strategies for the enterprise [16].

Risk management for small and medium enterprises is included in four principal areas: health, safety, fire protection and legal risk. Outlining these areas was at first, a base for creating the risk management system and then developing it in order to analyze and manage the risk appearing in all areas of the enterprise. Thanks to adding elements being aimed at a measurement of the effectiveness of the given risk management system, this system became a very precise tool for managing an enterprise, as it is perfectly matched with the profile of activity of a given company.

Every enterprise manages risk in some way, but not always in a truly transparent, recurrent or permanent way, in order to support the proper decision-making. Ensuring that the enterprise or the organization use the system in a profitable way is the task of the risk management system, and the very process of the management consists of many well defined phases. The aim of the risk management is support in decision-making, which can be improved on account of a better understanding of the appearing risk and its influences on the given enterprise [17]. Risk management can also constitute a control tool. Meulbroek [18] regards the maximization of the value of shares in a business as the main destination of risk management. Risk management can be accustomed to every type of activities of enterprises, and additionally it is possible to be implemented in small, medium or large, long- or short-term projects, taken by the enterprise.

The process of risk management in the enterprise does not depend only on the functioning of the highest management,

but also the commitment of its employees. So it is possible to draw a conclusion that unless a single person, e.g. somebody from the highest management or somebody from the outside can conduct the whole process of risk management, the entire crew of the enterprise works for the success of the whole undertaking. The processes of risk management can assume only a paper form without the creation of the commitment of employees and without stimulating them for certain actions. It also shows that employees of a company constitute an integral and inseparable part of the process of risk management in an enterprise. But it also proves the second support hypothesis, saying that processes associated with managing the occupational hazard which constitutes an integral part of the operation of every enterprise, irrespective of its size, industry or location.

Evaluation and risk analysis is a very useful tool, thanks to which it is possible to identify the kinds of threats and the risk appearing in an enterprise; additionally, it offers the possibility of determining a solution to problems associated with them. Analysis and risk assessment are entering the part of the processes of the risk management and includes the phases of determining the income, the identification of threats and the risk assessment. Analysis and risk assessment ensure data enabling to take of the essential decisions, as well as to meet the requirements set by current effective laws and regulations.

The general purpose of analysis and risk assessment is a provision of information, on the base of which it will be possible to make decisions in relation to risk in the enterprise. However, its main purpose is an improvement of the working conditions and protection of the health of workers. The effectiveness of the functioning of the system of managing security and protection in the enterprise depends on the way any given evaluation is conducted.

Analysis and risk assessment play a very important role in the whole process of managing the risk and providing information, which are essential to plan corrective or precautionary actions.

#### V. RISK MANAGEMENT IN SMALL AND MEDIUM ENTERPRISES IN POLAND

The market economy is characterized by a predominating number of the private enterprises and a significant participation of small and medium enterprises (SME) in production and services. They have material meaning in the market economy, because these, rather than large concerns, are deciding on the economic strength of highly developed countries. Their virtue is the fact that they very much effectively invent and enter market niches, are also able to quickly adapt to the needs and requirements of customers. Below, an analysis of risk management in small and medium enterprises in Poland relating to the EU will be described.

The results from Fig. 1 show the number of registered enterprises in Poland in 2012 amounted to 1.523 million. It also shows that the Polish economy is characterized by a great level of entrepreneurship. Among all EU countries, only Italy, France, Greece, Spain and Great Britain are characterized by the highest level of entrepreneurship.

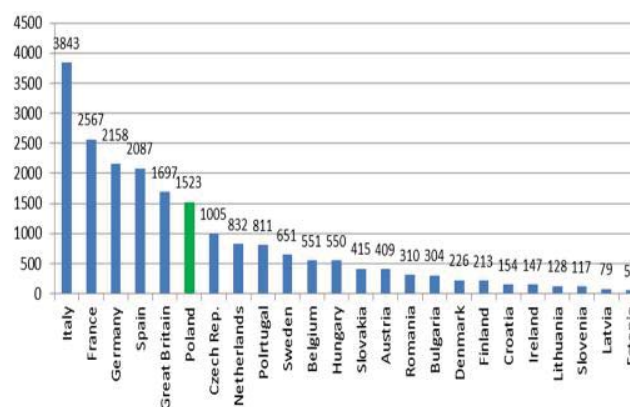


Fig. 1 Number of enterprises from the SME sector in Poland and chosen EU countries in 2012 (in thousands) [23]

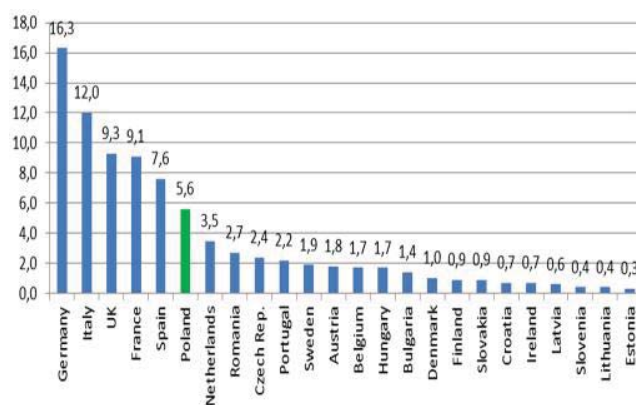


Fig. 2 Number of employees in SME enterprises in chosen EU countries in 2012 (in million) [22]

From the time of Poland's accession to the EU, employment in SME enterprises increased by about a third, in comparison with the level of all employed. It allows Poland to posit oneself in the sixth place among all EU countries (Fig. 2). The greatest increase in employment was in small enterprises (growth dynamics amounted to 24%) and in microenterprises (growth dynamics amounted to 12%) [19].

Workers employed in every operating enterprise are exposed to work-related accidents. The frequency and kind of accident depends mainly on mechanisms of health and safety used at work, as well as the implemented and obeyed safety rules and workplace hygiene. However, despite applying the most effective measures of safety at work, work-related accidents occur in enterprises.

The definition of work-related accident was included in the law from 30 October 2002 about the social insurance on account of work-related accidents and occupational diseases. According to its content work-related accident can be "sudden event caused by outside reason triggered injury or death, which took place in relation to the work":

- During or in relation to carrying out normal activities or orders of superiors by the employee;
- During or in relation to conducting activities for the employer by the employee, even without direction;



- When the employee is traveling between their residence and the place where they perform their duties, and thus, is available for the employer [20].

Accidents are also regarded as situations that the employee experiences [21]:

- During a business trip, unless the accident was being caused by the misconduct of the employee, who strayed from performing the duties entrusted to him,
- During self-defense training,
- While performing tasks which were commissioned by the employee by trade union organizations acting in the registered office of the employer.

In Poland, work-related accidents are being registered by the Central Statistical Office and are published in statistical yearbooks annually. However, Eurostat records work-related accidents appearing in all European countries. The European definition of work-related accident does not diverge from the Polish definition, and means "sudden event during the course of work, which causes physical or psychological injury". However, the definition of fatality is different. It defines itself as an accident causing the death of the injured within one year of the accident (six months in Poland). Fig. 3 presents the work-related accidents toll (expressed in 100 thousand employed in SME enterprises), which took place in enterprises operating in Poland and other countries of the European Union in 2012.

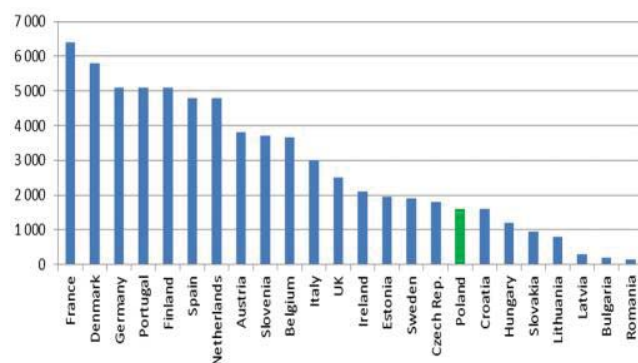


Fig. 3 Number of work-related accidents (expressed in 100 thousand employed in SME enterprises) in EU countries in 2012 [22]

The data show that in Poland, where in 2012 over 5.5 million persons were employed in SME enterprises, the rate of work-related accidents for every 100,000 people employed was 1,549, which is almost four times less than France. Fig. 4 presents the accident toll (including fatalities), which took place in Poland and other countries of the European Union in manufacturing industry in 2012.

In the case of the industrial sector, Poland is in seventh place, with the number of industrial accident at 29,439, while Germany had the highest rate at 223,000, and Romania recorded the lowest rate among EU countries in 2012, with only 1,275 industrial sector work-related accidents.

Fig. 5 presents the accident rate (for 10,000 employed persons), which took place in Polish enterprises in the SME sector in 2012.

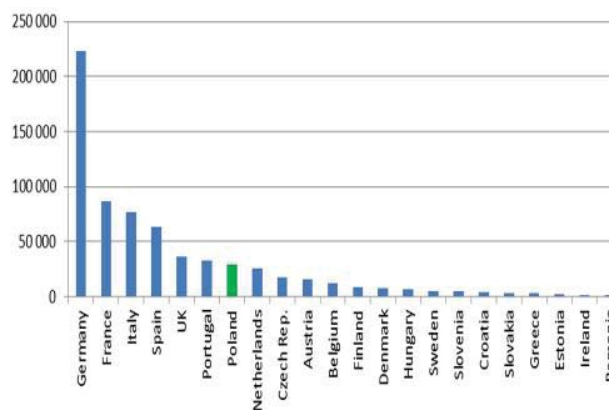


Fig. 4 Number of accidents (including fatalities) in EU countries in industry in 2012 [22]

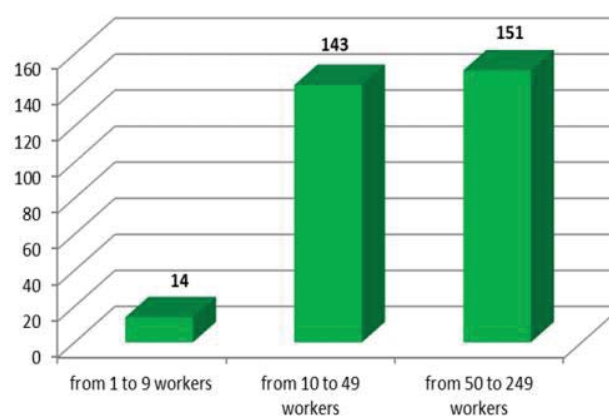


Fig. 5 Number of work-related accidents (for 10,000 employed) in Poland in SME enterprises in 2012 [22]

In Poland, the highest work-related accidents toll was in medium enterprises, averaging 150 work-related accidents for every 10,000 employed persons. Small enterprises are in second place, with 142 work-related accidents, and finally, microenterprises recorded less than 14 work-related accidents for every 10,000 people employed in the sector. Fig. 6 presents the number of work-related accidents in SME sector enterprises by individual categories of activity for 2012.

Most work-related accidents took place in the manufacturing, construction and services sectors, while the mining and extraction, farming, fishery and hunting sectors recorded the least number of accidents. Additionally, unless the accident toll in these two first sectors is over 58,000, it does not exceed 2,000 in the two remaining sectors. The greatest number of SME enterprises sector operates in the manufacturing, construction and services industries, which can be an explanation for such huge difference.

Fig. 7 presents the structure of work-related accidents regarding workers' status of employment. The first graph presented below shows the number of workers employed on normal employment contracts (so-called full-time workers) with a division into individual groups of worksites. It is also due to the fact that these workers constitute the majority of employees experiencing work-related accidents.

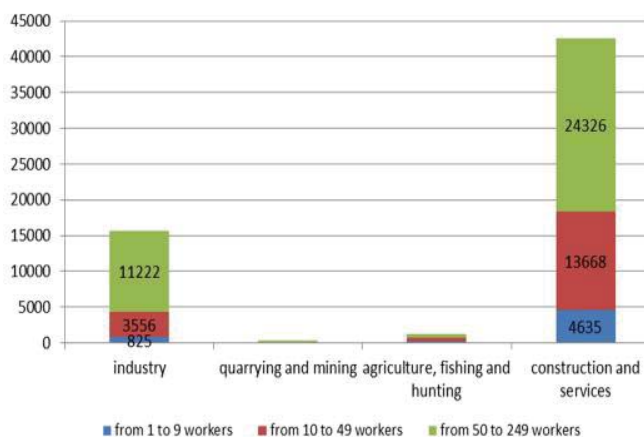


Fig. 6 Number of accidents (including fatalities) in Poland in SME companies with the division into individual categories of activity in 2012 [22]

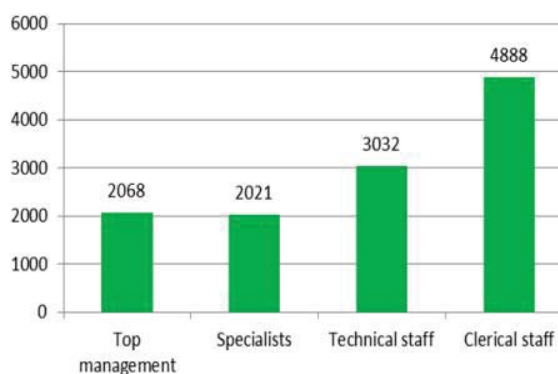


Fig. 7 Number of accidents (including fatalities) in Poland in SME enterprises with the division into the type of employment and worksites in 2012 [22]

Clerical staff, which constitutes 40% of all full-time workers, most frequently experience accidents. Technicians and those from middle management level are in second place. Their share in the accident toll constitutes 27% of the total number of full-time workers. In case of specialists, high-ranking officials and managers, the number of work-related accidents situates on the similar level - over 2,000 accidents in 2012.

Fig. 8 shows the number of work-related accidents by the type of injury experience by Polish workers in 2012.

The data show that almost 30,000 employees (50%) suffered injuries and superficial injuries, of which, some 10,000 were absent from work from a week to 13 days, while almost 6,000 accidents resulted in absences lasting from two weeks to 20 days, while over 1,500 superficial injuries caused absences from four to six days. Dislocations and strains were another frequent injury resulting from workplace accidents. In 2012, almost 15,000 employees sustained dislocations or strains, constituting 25.5% all workers. Over 2,200 of dislocations or strains resulted in absences lasting from two weeks to 20 days. Over 1,500 dislocations or strains resulted in absences lasting from a week to 13 days, and 333 of them were the reason for absences lasting from four to six days.

Over 12,000 employees (21.68%) sustained an injury connected with a bone fracture. From these employees almost 1,000 were absent from four to 20 days on account of the sustained injury connected with a bone fracture. Amputations are in the last place. Over 1,200 employees suffer an amputation at work, which is 2.23% of all employees. Amputations constituted 2% of all injuries in relation to remaining injuries experienced by employees in 2012.

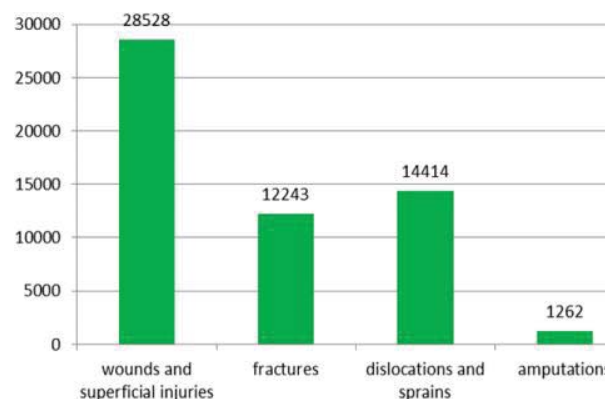


Fig. 8 Number of accidents (including fatalities) in Poland in SME enterprises with the division into sort of the injury in 2012 [22]

The inability to work is presented in the number of calendar days and attests to the level of severity of accidents; in statistics the following ranking was accepted:

- unknown number of days of absence;
- total number of days of absence (less than 6 months);
- permanent inability to work or minimum 183 days of absences (6 months or more); and,
- fatality.

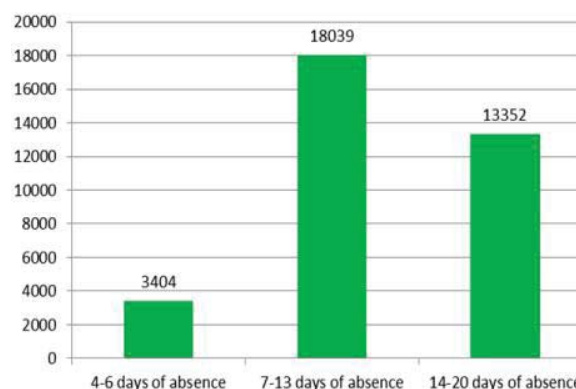


Fig. 9 Number of accidents (including fatalities) in Poland in SME enterprises with the division into the number of the absences in work in 2012 [22]

Absence concerning the period from a week up to 13 days is the most frequent period of the absence at work caused by the work-related accident. In Poland this period of absence constitutes 21%. In case of absence lasting from two weeks to 20 days its percentage share amounts 15%, however periods of absence lasting not more than 4 days and not longer than 6 days constitute 4%.

## VI. SUMMARY

To sum it up, the indicator of SME in Poland places itself on a high level. The employment in SME enterprises increased for about a third from the time of the accession of Poland to the EU. In comparison with the level of employment, it places Poland in the sixth position among all EU countries. In the case of the analysis of factors causing work-related accidents in Polish enterprises, it is possible to notice that the accident toll is very high. The highest accident toll appears in the sectors of construction, manufacturing and services, when we take into consideration its division into sectors of activity. Work-related accidents in Polish enterprises caused absence lasting not less than seven days, but not more than 13 days.

Actions associated with managing occupational hazard and job security should constitute an integral part of operations of any small or medium-size enterprise. Every kind of activity conducted by an enterprise is burdened with the risk of the appearance of factors threatening the safety of workers, as well as factors that are dangerous to their health. These mentioned above, shown in the results from the analysis conducted, can take place in enterprises irrespective of the industry of their activity, size or position.

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