Sustainability in the Workplace: A Global Concern

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Abstract

Health and safety in the workplace should be an integral part of any sustainable organization, regardless of its size, sector and geographical sphere of operations.

To ensure and maintain a healthy and safe work environment, companies should constantly identify and prevent all factors that could provoke work-related injuries and diseases. In particular, in today's rapidly changing context, companies should carefully consider not only the traditional risks to the employees' health and safety, but also the emerging ones associated with the ecological transition, the increasing digitalization of business processes, and the impact of climate change on working conditions.

Adopting a theoretical approach, this study aims at explaining the relationship between occupational health and safety and corporate sustainable success.

Keywords: Sustainability; Health and Safety in the Workplace; Risks; Global Competition; 2030 Agenda; Circular Economy; Digitalization; Climate Change

1. Occupational Health and Safety as the Core of Sustainable Success

Health and safety in the workplace, also known as occupational health and safety, is a fundamental part of a company's sustainable management (Boileau, 2016; Evangelinos et al., 2018; Brondoni & Bosetti, 2018; Brondoni & Ricotti, 2022; Kavouras et al., 2022). Facing occupational health and safety issues in a responsible way is crucial to the achievement of long-term success, which requires a fair balance between the corporate financial performance and the well-being of people engaged in business activities.

Although the assurance of safe and healthy conditions for all workers and contractors is imposed by law and it is broadly perceived as a matter of corporate social responsibility, the frequency of work-related injuries and diseases is still too high and provokes serious consequences for the individuals who are directly affected, their families, and society at large. On a strictly economic basis, the International

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Labour Organization (ILO) estimates that more than 4% of the world's GDP is lost every year because of accidents at work and occupational illnesses (International Labour Organization, 2022). Besides, work-related health problems give rise to major expenditures for governments and enterprises.

The lack of occupational health and safety can also imply social disparity. Deaths and disabilities resulting from hazardous work are the main cause of poverty for many families. Moreover, as poor countries are those with the highest concentration of work-related injuries and diseases, the absence (or inadequacy) of measures to deal with them may even widen the gap between developing nations and advanced ones.

According to the International Labour Organization (2022), a vicious circle emerges from insufficient health and safety in the workplace and involves workers' economic and social spheres. In fact, poor health reduces people's working capacity, with repercussions for their productivity and salaries, on the one hand, and life expectancy, on the other. Obviously, all of this also affects the quantity and quality of human resources that companies may employ, as well as the amount of financial resources available for investment in health and safety, which could even decrease when productivity and economic results worsen.

Governments, which are expected to combat social inequalities and poverty, should therefore adopt remedies for irregular and low-quality employment and lack of social protection. Moreover, governments are responsible for implementing measures to increase productivity (through a reduction of absenteeism and turnover), contain public healthcare expenditure, and encourage private investment in harmless work methods and technologies.

Labor and business organizations should also act in order to spread a culture of health and safety in the workplace, so that it really becomes a priority in the pursuit of sustainable development worldwide.

Not surprisingly, occupational health and safety is one of the fields covered by the 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015 in order to achieve 17 Global Goals (also known as the Sustainable Development Goals, or SDGs) concerning peace and prosperity for people and the planet (Reis et al., 2020; Ávila-Gutiérrez et al., 2022; Kavouras et al., 2022; Salvioni & Almici, 2022). This emphasizes the global scope of health and safety issues, which involve countries and businesses throughout the world, and it stimulates a cooperative approach to overcome troubles.

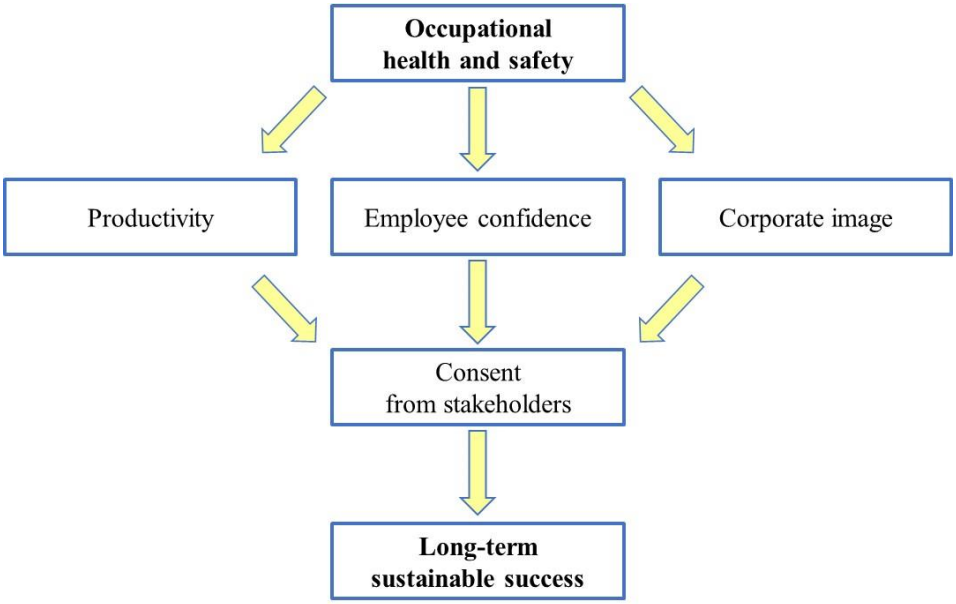
Health and safety in the workplace is mainly related to two of the Global Goals, namely SDG 3 and SDG 8, to be achieved by 2030.

SDG 3 concerns 'Good health and well-being' and it is classified as a 'health goal'. Among others, SDG 3 includes Target 3.9, which aims at a substantial reduction in the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination. Evidently, this requires rethinking the industrial processes that still use dangerous substances and replacing these latter, in order to minimize the number of workers exposed to harmful consequences, whether immediately or in the long term.

SDG 8 regards 'Decent work and economic growth'; therefore, it is considered a 'jobs goal'. SDG 8 comprises Target 8.8, which calls for the protection of labor rights and the promotion of a safe and secure working environment for all workers, including migrant workers, in particular women, and those in precarious employment. An organization that effectively addresses this matter can turn the vicious circle described above into a virtuous one, which generates advantages not only for workers, but also for the company itself and society.

Indeed, an organization that provides healthy and safe working conditions creates a positive climate for its employees, which increases their attachment to work and their productivity in performing tasks; in addition, it plays a pivotal role in trust building, thus making internal relationships easier. External relations also benefit from a healthier and safer workplace, because this improves the company's image; therefore, it is also a competitive factor that can strengthen the company's position in global markets (Brondoni, 2008). Finally, an authentic concern for employees' health and safety supports the obtainment of stakeholders' approval, which is essential for sustainable success (Figure 1) (Salvioni et al., 2016; O'Riordan, 2017; Dmytriyev et al., 2021).

Figure 1: *Impact of Occupational Health and Safety on Corporate Success*



2. Occupational Health and Safety as a Global Issue

Health and safety in the workplace is a fundamental right of any worker and it should be a primary goal of all organizations (Koradecka, 2010; Burke et al., 2016;

Reese, 2016). Ensuring workers' welfare and preventing work-related injuries and diseases are also the main objectives of strategic programs that complement mandatory law provisions in a number of countries.

In the international context, the activities of the International Labour Organization (ILO), the World Health Organization (WHO) and the Organisation for Economic Co-operation and Development (OECD) are central for achieving a sound cooperation between governments, trade unions and employer organizations, so that occupational health and safety can actually be implemented within firms. However, health and safety at work is still an open question, despite the broad debate on work-related issues that constantly occupies political, economic and social agendas of institutions all over the world.

All business organizations are therefore supposed to play an active role, establishing processes aimed at managing occupational risks in order to eliminate or at least reduce incidents. Incidents consist in accidents, if an injury or illness actually occurs, and near-misses, if no injury or illness occurs (Marek & Bugajska, 2010). Investigating and understanding the causes of near-misses is fundamental to avoiding future accidents.

Occupational injuries are wounds or damages to the body, which can be originated by physical, chemical, biological or psychosocial factors. For example, occupational injuries include burns due to chemical substances or fire, and muscle pain caused by lifting, pulling, pushing and carrying materials or equipment.

Work-related diseases result from exposure to one or more risk factors arising from work activities. Occupational illnesses can be classified into skin diseases or disorders (contact dermatitis, rash, ulcers, etc.), respiratory illnesses (silicosis, pneumonitis, rhinitis, asthma, etc.), poisoning (by mercury, arsenic, carbon monoxide, etc.), hearing and vision loss, work-related cancer, stress and mental health disorders.

Occupational injuries and illnesses can be fatal, when they lead to the death of the victim within one year of the accident, or not-fatal, when the victim survives (Eurostat, 2013). Nonfatal accidents can have temporary or permanent effects on the worker's health, including living with a disability. Firm-level and macroeconomic consequences can also derive from nonfatal accidents, such as absence from work; in the most serious cases, workers may be forced to change job or even leave the labor market.

Unfortunately, health and safety at the workplace still requires great efforts from companies all over the world, as proved by the following data:

a) Occupational injuries and work-related diseases determine 2,300,000 deaths worldwide every year; moreover, 313,000,000 nonfatal injuries result in extended absence from work (International Labour Organization, 2022).
b) In 2020, the EU-27 witnessed 2,735,566 nonfatal accidents (determining at least four calendar days of absence from work) and 3,355 fatal accidents, corresponding to an incidence rate of 1,444 nonfatal accidents and 1.77 fatal ones per 100,000 persons employed. Moreover, work-related accidents more frequently involved men (66.5% of nonfatal accidents) than women (33.5%), due to two main factors: the large employment of men in highly hazardous

sectors like mining, manufacturing and construction, and the frequent resort to part-time contracts by women, who usually spend fewer hours in the workplace than men do (Eurostat, 2022).

c) In 2020, the US private sector reported about 2,700,000 nonfatal injuries and occupational illnesses, with a total incidence rate of 2,700 per 100,000 full-time equivalent workers. Moreover, 4,764 workers died from an occupational injury, accounting for 3.4 per 100,000 full-time equivalent workers. About 47% (2,258) of fatalities in private industry were in transportation and construction (Bureau of Labor Statistics, US Department of Labor, 2022).

The situation is probably even more alarming, because accidents are not systematically reported to the competent agencies of countries, such as Sweden and the Netherlands, where the legislation does not provide financial incentives to do so (Brück & Lissner, 2017).

3. Managing Health and Safety Risks in the Workplace

Responsible and sustainable management of companies should aim at avoiding every type of work-related accidents. The prevention of occupational injuries and illnesses is strictly connected to the adoption of a proactive policy and the implementation of a risk management system (Taylor et al., 2010; Bosetti, 2015; Wilderer et al., 2018; Saidon & Said, 2020).

Companies of any size and sector should develop a regular assessment of their occupational risks, based on the positive collaboration between employer and workers. This activity should also follow the guidelines of specialized public agencies and organizations, such as the European Agency for Safety and Health at Work (EU-OSHA), the US Occupational Safety and Health Administration (OSHA), and the International Organization for Standardization (which released the ISO 45001 Standard in 2018).

With reference to health and safety in the workplace, the risk concept involves the combination of the likelihood that hazards actually harm workers, and the expected severity of impact, i.e., how serious the consequences can be for the workers and, therefore, for the company. Managing occupational risks means identifying and removing materials and equipment, as well as rethinking work methods that could potentially provoke injuries to workers, or cause illnesses with immediate symptoms or with occurrence in the long term.

Occupational health and safety risk management, which is an employer's primary duty and responsibility, consists of five fundamental phases, as described below (European Agency for Safety and Health at Work, 2007).

3.1. Information Collection and Analysis

Occupational risk management starts with the collection and analysis of appropriate information on the hazards in the workplace. Typically, the relevant information, which can be obtained from direct observation of the workplace, employee interviews, technical data on equipment and materials, and reports on occupational accidents and diseases, covers the following aspects:

- The workplace layout. For example, is there enough space to walk from a workstation to another without being hit by pieces of machinery or furniture?
- The equipment, tools and materials used. For example, do the processes use chemicals that could release toxic gases?
- The jobs performed. For example, what risks to health and safety can be associated with the activity of a carpenter, a building constructor, a driver, a lab researcher, a surgeon, etc.?
- The presence of vulnerable workers, such as pregnant women, new or young workers, migrant workers, and people with disabilities or illnesses.
- The hazards identified in the past and the measures already in place to deal with them.
- The accidents and near misses occurred to the company's personnel or in the company's sector in the past.
- The latest scientific and technological studies describing new and emerging risks and those suggesting more advanced solutions for already known risks.
- The evolution of health and safety laws, with emphasis on the new requirements introduced.

3.2. Hazard Identification

Once the information has been collected, the employer must use it to identify what hazards really exist in the company. Some of them can be found in any organization (for example, the risk of slips and trips), whereas other ones are job-based and sector-based (for example, the risk of stress for a call center operator, due to the lack of control on timing and frequency of incoming calls).

Work-related stress, caused by an excess of pressure at work, should also be accurately considered (Health and Safety Authority, 2011; Biron et al., 2012). In fact, work-related stress can lead the employee to depression and it can provoke physical discomfort, disorders and illnesses. Moreover, it can affect the organization's productivity and climate, especially if stressed workers become careless or slow in performing their tasks and refuse to cooperate with their colleagues.

3.3. Risk Assessment

Given the costs of implementing an extensive occupational risk management system, the employer has to prioritize health and safety risks in order to establish which ones really require to be managed. The decision depends on the outcomes of

risk assessment, which estimates risk likelihood and impact by means of qualitative and quantitative techniques (Dougherty, 1999; Frame, 2003). In this phase, previous experience is useful to establish the likelihood that a specific hazard will materialize and the impact it will produce in terms of employees harmed, types of injuries occurred (fatal or nonfatal ones, with temporary or permanent impairment) and working days lost. Broader considerations should also regard the estimated cost of reputational damage that can follow an accident.

Priority will be given to the occupational risks with the highest probability of occurrence and the most severe estimated effects; by contrast, risks with very low probability and limited impact will not require any treatment.

3.4. Risk Treatment

When an occupational risk is not tolerable by the company, a risk response is adopted to eliminate it at all or to reduce its likelihood and/or impact.

In order to plan the most adequate risk treatment, the employer should take into account the latest advancements in science, medicine and technology, which could have emphasized the existence of risks that were not known in the past, and could have provided new solutions.

At first, the employer should adopt collective protective measures, in the broad interest of all the employees: for example, the modification of work methods, the replacement of dangerous substances, a different organization of working time and breaks, and better ventilation. Also, training is a significant collective measure to protect the health and safety of the personnel, as trained workers become more aware of the risks associated to their duties.

For risks that cannot be eliminated or properly reduced through collective measures, the employer must provide the workers with personal protective equipment (PPE) and teach them how to use it. Goggles, visors, helmets, earplugs, face masks, safety boots and shoes are the most common PPE.

3.5. Risk Reporting

Occupational risk management ends with a written, in-depth report on the different steps of the process carried out, the persons involved and the outcomes. The report should also examine the risks occurred to the employees' health and safety. Furthermore, all accidents should be investigated, possibly by independent auditors, to discover their causes and take action to prevent them in the future.

Risk reporting is important for demonstrating the commitment of the employer to assure adequate health and safety conditions in the workplace, in compliance with law and in accordance with the expectation of primary stakeholders, such as the personnel, trade unions and public agencies entrusted with the supervision of occupational issues.

4. Occupational Health and Safety Risks in a Changing Environment

The evolution of the economic system and the changes that are taking place in the natural environment can generate new types of risks to employees' health and safety.

Nowadays, policy makers, regulators and investors urge for an ecological and digital transition of the economy and society, underlining the potential advantages of such a reshaping. In this regard, primary institutions such as the European Agency for Health and Safety at Work (EU-OSHA) recommend careful consideration of the possible impact on working conditions, balancing benefits against disadvantages.

Climate change also determines important effects on health and safety conditions for workers operating in different regions of the world.

The different types of emerging threats and opportunities are analyzed in the following sub-sections.

4.1. Risks Associated with the Ecological Transition

The green transition is largely based on the transformation of business models from linear to circular, generating opportunities for all firms (Kirchherr et al., 2018; Reike et al., 2018; Schulz et al., 2019; Salvioni & Brondoni, 2020; Salvioni & Almici, 2020; Gennari & Cassano, 2020; Fornasari & Neri, 2022; Salvioni et al., 2022). In particular, it was noted that the circular economy creates new job positions, based on innovative and different knowledge and skills; therefore, positive effects on employment are expected, with benefits for the whole economic system. In addition, the modifications in the engineering profile of production processes according to circular logics, combined with the replacement of raw materials that could be dangerous to human health, can reduce the hazardousness of business activities for workers. However, this is only one way of looking at the issue.

From another perspective, we can observe that the increasing implementation of circular processes in diverse business fields also poses new risks to occupational health and safety, which companies should consider since the very initial steps of their decision to apply circular principles in management (European Agency for Health and Safety at Work, 2021).

As the circular economy builds on the collection, recycle and reuse of discarded materials and products, waste management is largely affected, as a sector itself as well as a process carried out in many industrial companies. Workers entrusted with waste collection and treatment may be exposed to health risks that did not exist in the past and now originate from items whose life cycle has been extended in an attempt to postpone their disposal. In this regard, it is important to remind that the repair, reuse and recycle of products require their submission to several reworks over time, with the consequence that toxic substances and noxious emissions may be released during the processes or at the final stage of waste management. All of this demands great attention for the employees: on the one hand, they should be provided with the most effective PPE; on the other hand, they should be specifically trained to perform their tasks in a harmless way.

Concerns over the impact of circular processes may raise not only in relation to people's health, but also their safety in the workplace. This depends on the acknowledgment that waste management has progressively moved from being a professional business undertaken by specialized firms to be an in-house activity, directly conducted by the waste producers themselves (European Agency for Health and Safety at Work, 2013). In view of the fact that waste treatment has become a constitutive element of the activities developed in many sectors, from manufacturing to construction, a company's personnel may be asked to change or expand their routine in order to include waste management operations. If such new duties involve the use of plants and machinery the employees are not familiar with, serious repercussions may happen for their personal safety. The effects may be even more severe in times of economic crisis, when companies tend to underestimate the importance of occupational safety and become prone to reduce the expenditure on the protection of employees, and these latter are led to accept any type of job for fear of remaining unemployed.

Similarly, political pressure on companies to switch to a circular business model and implement more resilient technologies may result in a rapid transformation of the firm's internal environment. In this changed context, occupational health and safety might be considered a secondary issue; therefore, it might be neglected. Moreover, the need to recruit further staff may lead to hire people who lack the necessary understanding of health and safety risks.

4.2. Risks Associated with the Digital Transition

Digitalization, including automation, robotics and artificial intelligence (AI) (Brondoni & Zaninotto, 2018; Camussone & Biffi, 2018; Boccardelli, 2019; Grima et al., 2022; Lepistö et al., 2022), may affect occupational health and safety (European Agency for Health and Safety at Work, 2018; Nguyen et al., 2022). ICT-enabled technologies certainly relieve workers of dangerous and physically demanding tasks. However, an over-reliance on robots may result in a more sedentary workstyle, followed by the loss of muscular fitness for people who have stopped to carry out specific activities. More than that, an increased use of automation may determine a sense of invulnerability for human beings, who may be tempted to proceed with less caution and take greater risks in the workplace. In particular, unanticipated situations may happen if robots are used incorrectly, thus exposing employees to unpredictable hazards. In the same way, an excessive recourse to the AI for the identification of occupational risks may reduce the workers' awareness of dangers in the workplace and weaken their ability to recognize them in advance.

Digitalization frequently involves a more flexible work organization, but this is not always an advantage for the employees' health. For example, digitalization makes it possible for people to work from home, which is often considered a benefit. However, remote working can generate feelings of loneliness, associated with risk of depression, and it can affect individual schedules to match the needs of colleagues and customers who live in different time zones, thus modifying the sleep-wake

rhythm. In addition, the working day of people who fulfill their tasks from home, basically using a pc, often lasts longer than established in their contracts. Besides, digitalization enables a systematic and pervasive monitoring on employees' activities, thanks to the great amount of data on individual performance that can be collected and processed in real time. All this can produce high stress levels for workers, who may even experience physical and psychological disorders.

4.3. Risks Associated with Climate Change

In the present context, occupational health is also threatened by climate change (Martens et al., 2016; Nautiyal et al., 2016; Sakhel, 2017; Moda et al., 2019; Khatana et al., 2022). Indeed, people working in a warmer environment are more exposed to the risk of ailments and illnesses like dehydration, acute drops in blood pressure, fainting, headache, nausea, skin, eye and cardiovascular diseases, stroke and kidney failure. Humidity, which often accompanies the increased mean temperatures and heat waves, worsens the risks for employees' health, as it hinders the body's ability to self-cool through perspiration.

Illnesses and deaths related to hot temperatures have become a very serious issue since the end of the twentieth century.

> □ *For example, from 1992 to 2017, heat stress injured more than 70,000 workers and killed 815 laborers only in the United States of America (US Department of Labor, Occupational Safety and Health Administration, 2021). The highest intensity of fatalities due to heat exposure characterized the last decade: 344 deaths occurred between 2011 and 2019, and 16.6 per cent of them regarded workers aged 55 to 64 (Bureau of Labor Statistics, US Department of Labor, 2021). However, these data may even underestimate the real situation, because many work-related injuries and illnesses are not always recognized as induced by excessive heat; therefore, they are frequently attributed to more common factors.*

According to the International Labour Organization (2019), the expected increasing in the global temperature of 1.5°C by the end of this century will cause a heavy fall in work hours by 2030. Probably, 2 per cent of total work hours, corresponding to 72 million full-time jobs, will be lost worldwide because of excessive heat, albeit with regional and sectoral differences.

> □ *In some areas of the world, the impact of climate change on work hours is expected to be much more significant than in other regions. In this regard, it is likely that Southern and Western Asian countries will lose 4.8 and 4.6 per cent of work hours respectively, while the effect in Northern American and European countries will*

> *account for only 0.2 per cent and less than 0.1 per cent respectively.*
>
> *Outdoor activities will be the most affected by higher temperatures, with the greatest danger for workers engaged in agriculture, construction, fishing, and forestry. Heat will also impact on people working indoor, especially in poor countries where the scarcity of resources often limits the possibility of implementing refrigeration and air conditioning plants (International Labour Organization, 2018).*

Another consequence of the rise in temperatures may be the instability of chemical substances, which could threaten the health and safety of the workers who handle them.

Climate change also provokes extreme weather events like storms and floods, which have indeed taken place with alarming frequency in recent years (Brondoni et al., 2019; Kron et al., 2019; Bosetti, 2022). Therefore, civil protection and emergency workers all over the world are now exposed to an increased risk of accident and stress while they perform assistance interventions. Threats to their health and safety may derive from the contact with infectious agents, the recovery of bodies, and even crowd control, if panic spreads among the population of disaster areas (International Labour Organization, 2019).

5. Emerging Issues

The continuous evolution of work-related risks to employees' health and safety emphasizes the need for a constant review of the risk management procedures in place within a company. In this sense, risk management should never be considered completed and concluded.

Workers have not only the right to operate in a healthy and safety environment, but also the responsibility of providing a constructive contribution to its implementation. A genuine and intensive dialogue between employer and employees is indeed fundamental for the enhancement of occupational health and safety risk management.

Benefits are evident for the personnel, as well as for the company. This latter faces fewer lost working days and fewer threats of legal action due to work-related accidents. Moreover, it can rely on more satisfied and motivated employees and it can develop better relationships with trade unions and public agencies. In some countries, firms with low occupational accident rates also obtain tax reduction and public grants.

To conclude, companies that care for their personnel's health and safety are perceived as socially responsible, and this has a positive influence on both their reputation and their relations with banks, suppliers, customers and the society at large.

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