

## MEASURING THE QUALITY OF SOCIAL DIALOGUE AND COLLECTIVE BARGAINING IN THE FIELD OF OCCUPATIONAL SAFETY AND HEALTH

### Introduction

The European Agency for Safety and Health at Work (EU-OSHA) is developing the EU OSH Info System that addresses different aspects of occupational safety and health (OSH) in all EU Member States plus Iceland, Norway and Switzerland. This is a strategic, long-term activity for EU-OSHA, based on collaboration and consensus with key stakeholders: the Directorate-General (DG) for Employment, Social Affairs and Inclusion, National Contact Points, data providers and data-holding EU institutions as well as data providers and data-holding institutions at national level.

The EU OSH Barometer, which is one of the two components of the EU OSH INFO System, the other being the periodic 'OSH in the EU' report, is available online, and currently addresses 14 major themes related to OSH.<sup>1</sup> One of the tasks for the barometer's improvement involves strengthening the section on social dialogue. This theme contains four quantitative indicators, based on the European Survey of Enterprises on New and Emerging Risks (ESENER), that show the presence (in %) of OSH institutional forms of employee representation in a company: joint consultative, employment forum or similar; trade union representation; health and safety representative; and health and safety committee. In addition, the barometer features country profiles containing qualitative information on social dialogue and a data visualisation tool (DVT) providing a qualitative description of the EU Member States' social dialogue systems.

To improve the EU OSH Barometer on social dialogue, EU-OSHA has commissioned the applied social research centre Notus to carry out the following tasks:

1. a brief literature review on social dialogue and OSH;
2. a review of existing sources for building quantitative indicators on social dialogue and OSH;
3. identification and assessment of existing and potential quantitative indicators on social dialogue and OSH against quality criteria;
4. assessment of the advantages and disadvantages of building a composite quantitative indicator on social dialogue and OSH.

This paper summarises the outcomes of those tasks. First, the paper defines the main concepts, namely OSH and industrial relations, including collective bargaining and social dialogue. The second section provides a brief literature review on industrial relations and OSH. The third section presents a conceptual approach for defining the quality of industrial relations in the field of OSH. Building on this framework, the fourth section identifies and assesses existing and potential quantitative indicators aimed at measuring the quality of industrial relations in the field of OSH, and other indicators which may provide valuable contextual information. Finally, the last section assesses the aims and advantages and disadvantages of different analytical tools for working with those indicators, in particular building a dashboard and a composite indicator, and further exploring other statistical analyses.

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<sup>1</sup> See: <https://visualisation.osha.europa.eu/osh-barometer/>

# 1. Main concepts

## 1.1 Occupational safety and health

The European Agency for Safety and Health at Work (EU-OSHA) defines occupational safety and health (OSH)<sup>2</sup> as an interdisciplinary activity concerned with preventing the occupational risks inherent in each work activity. The main aim is to promote and maintain the highest degree of safety and health at work, thereby creating conditions to avoid the occurrence of work accidents and ill health, including physical and mental issues. Therefore, OSH not only relates to the avoidance of work accidents or occupational diseases; it is also the result of taking actions to identify their causes (existing hazards at the workplace) as well as the implementation of adequate preventive OSH control measures.

Employers have the responsibility to ensure the safety and health of their employees by preventing their exposure to occupational risks, thus averting occupational accidents and diseases. To achieve this goal, employers have to implement safety and health measures based on risk assessment and legislation. Within the EU, this obligation was set by Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (also known as the OSH Framework Directive 89/391/EEC)<sup>3</sup> Achieving this objective also requires the commitment of workers and their representatives to OSH principles.

Over time, the understanding of OSH has evolved, shifting from a narrow focus on safety and physical risks to the adoption of a broader approach that takes into account psychosocial risks and encompasses the physical, social and mental well-being of workers, that is, the 'whole' person (International Labour Organisation [ILO], 1996). Physical risks can arise from many different hazards (for example, exposure to dangerous substances or physical agents, or heavy lifting and repetitive movements). Psychosocial risks can stem from the way work is designed, organised and managed as well as from the economic and social context of the work, and can result in increased levels of stress that can lead to a serious deterioration in mental and physical health (EU-OSHA, 2007).

Furthermore, it is increasingly acknowledged that physical and psychosocial risks are interrelated. A case in point is the evolving understanding of the causes and prevention of work-related musculoskeletal disorders (MSDs).<sup>4</sup> Historically, efforts to reduce the risk of MSDs in the workplace have focused on physical factors. However, the relation between MSDs and psychosocial factors such as excessive workloads or lack of support from colleagues or managers appears to be crucial. Psychosocial risks can exacerbate MSDs, and MSDs can be associated with psychosocial factors (EU-OSHA, 2021).

## 1.2 Industrial relations

### 1.2.1 Diverse definitions and competing approaches

The subject of industrial relations is a widely accepted area of academic study. However, defining industrial relations is complex, because of the abundant literature and current debates on the boundaries of the discipline and its analytical focus. The diversity of definitions partly reflects different theoretical foundation bases or 'frames of references' (Heery, 2015): the authors supporting either of the two most influential theoretical traditions, namely pluralism/institutionalism and Marxism, provide competing definitions on the topic and are associated with different research agendas.

Marxist and critical scholars studying industrial relations typically concentrate on the process of control over work or employment relationships (Hyman, 1975) or on evolution and phases of the 'permanent conflict, now acute, now subdued, between capital and labour' (Miliband, 1969, p. 80). For the critical tradition, participation and cooperation between employers and employees (collective bargaining, social dialogue, and so on) only serves to reinforce exploitation or is likely to collapse due to the inherent conflictive nature of employment relationships (Heery, 2015). Consequently, critical scholars tend to focus their research either on labour process control (Kellog et al., 2020) or on trade union practices and revitalisation strategies (Frege and Kelly, 2003; Martínez Lucio et al., 2021).

<sup>2</sup> See OSH WIKI: [https://oshwiki.eu/wiki/OSH\\_in\\_general](https://oshwiki.eu/wiki/OSH_in_general)

<sup>3</sup> European Council, 'Council Directive 89/391/EEC of 12 June 1989 on the introduction of measures to encourage improvements in the safety and health of workers at work (Framework Directive)', Official Journal L 183, 29/06/1989, 1989, pp. 0001-0008.

<sup>4</sup> MSDs refer to health problems affecting the musculoskeletal system (that is, muscles, tendons, ligaments, nerves, discs, blood vessels). This term encompasses a wide range of mobility problems and multiple or localised pain syndromes affecting the upper limb extremities, the neck and shoulders, the lower back area and the lower limbs. Work-related MSDs are the main work-related health problem in the EU. Data from the Sixth European Working Conditions Survey (2015) show that almost half of European workers suffer from MSDs (Source: OSH WIKI [https://oshwiki.eu/wiki/Introduction\\_to\\_musculoskeletal\\_disorders](https://oshwiki.eu/wiki/Introduction_to_musculoskeletal_disorders)).

For pluralist and institutionalist authors, the analytical focus of industrial relations has tended to be on the rules and regulatory sources of work and employment. The topic of rules or job regulation was central to the classical definition of industrial relations elaborated by authors such as Dunlop (1958, p. 2), who defined industrial relations as ‘the network of rules which govern the workplace and the work community’, or Clegg (1979, p. 1), whose analytical focus was the ‘study of the rules governing employment, together with the ways in which the rules are made and changed, interpreted and administered’. Contemporary definitions anchored in these theoretical traditions have also delimited the analytical focus of industrial relations to the ‘collective regulation (governance) of work and employment’ (Sisson, 2010), or put more simply, to all governance mechanisms relying on social dialogue, collective bargaining and information and consultation procedures at company level (Marginson, 2017; Meardi, 2018). Thus, **from a pluralist approach, social dialogue and collective bargaining are conceived as the main regulatory sources enabling employers and workers to participate in the regulation and governance of employment.**

A similar institutionalist or pluralistic approach was followed by Eurofound (2016, 2018) in its principal attempt to develop an analytical framework to study and measure the quality of industrial relations. Eurofound defined industrial relations as ‘the collective and individual governance of work and employment’ (2016, 2018) and identified four key analytical dimensions, namely:

1. **industrial democracy;**
2. **industrial competitiveness;**
3. **quality of work and employment;**
4. **social justice.**

The conceptual approach based on those key dimensions was certainly an encompassing approach which could even be considered an ‘exercise of industrial relations imperialism’ (Meardi, 2020), broadening the coverage of the discipline beyond its classic borders (job regulation by collective actors). It is also important to highlight that in this conceptual approach, a clear distinction is made between industrial democracy and the other key dimensions. The basic tenet of Eurofound’s analytical framework is that a balanced and mutually reinforcing pursuit of efficiency (industrial competitiveness) and equity (social justice and the quality of work and employment) is the most desirable industrial relations strategy for both employers and employees. To render such a strategy effective, both sides of industry need to develop their collective capacity to influence decision-making (industrial democracy).

From this perspective, industrial democracy refers to actors and governance processes, while the other three dimensions refer to alleged outcomes. Thus, in line with previous pluralist approaches, Eurofound conceived industrial democracy as central to this conceptual framework, supporting the other three dimensions. This entailed a clear normative approach which gave prevalence to regulatory or governance approaches relying on shared decision-making between management and independent employee representation over other alternatives for the regulation of work and employment (market, human resource management (HRM), worker control and government regulation).

Finally, it is worth mentioning the controversy around the inclusion of HRM within the borders of the discipline. For many industrial relations scholars, HRM is a disconnected, largely distinct field that deals with individual, non-union and direct forms of worker participation (Dobbins and Dundon, 2014). Overall, contemporary pluralist literature has remained relatively sceptical about these direct forms of involvement as a way to promote workers’ interests effectively. Moreover, compared to industrial relations approaches, HRM scholars tend to concentrate on the links between employee involvement and performance, thus neglecting the potential positive contribution of employee involvement in other dimensions such as health and safety (Wilkinson et al., 2014). Indeed, HRM approaches in the most radical unitarist variants only accept worker participation if it entails benefits for employers (Johnstone and Ackers, 2015).

### ***1.2.2 A pluralist approach to industrial relations: social dialogue and collective bargaining***

In this paper, we rely on a pluralist or institutional understanding of industrial relations. Accordingly, industrial relations are understood as a governance approach for the regulation of work and employment which rely on **collective bargaining** and **social dialogue**. Collective bargaining and social dialogue are therefore conceived as the main regulatory tools. While both tools ensure industrial democracy, thus allowing the participation of workers and employers in the regulation of employment and working conditions, they each have specificities which should be acknowledged.

**Collective bargaining** is the process of negotiation between unions and employers over the terms and conditions of employment and over the rights and responsibilities of trade unions (Eurofound, European Industrial Relations Dictionary). It is a process of rule-making, leading to joint regulation, which can be concluded at various levels



(cross-sectoral, sectoral or company level). Multi-employer or sectoral collective bargaining ensuring comprehensive regulation of employment and working conditions is a key pillar of the European social model of industrial relations (Marginson, 2017). Nevertheless, empirical evidence suggests a general erosion of multi-employer collective bargaining (Eurofound, 2018). In western and southern Europe, decentralisation of bargaining has been a key trend, in some cases (Ireland, Greece and Spain) favoured by state-adopted neoliberal policies (Waddington et al., 2019). Moreover, in countries where the proportion of workers covered by multi-employer agreements has remained comparatively high, widespread use of opening clauses has eroded the content of collective agreements (Baccaro and Howell, 2017). In central and eastern Europe, the centralisation of collective bargaining was not achieved because of employers' actions and the limited capacity of trade unions (Waddington et al., 2019).

Compared to collective bargaining, **social dialogue** has a broader scope. Generally, social dialogue encompasses negotiations, consultations, joint actions, discussions and information-sharing involving employers, worker representatives and/or governments (Eurofound, European Industrial Relations Dictionary). Social dialogue involves a variety of actors at various levels. Social dialogue takes place either at cross-sectoral or sectoral level, and four key levels can be distinguished:

- **European social dialogue:** EU social dialogue is a component of the European social model. It is the result of the reinforced role for social dialogue provided in the Maastricht Social Agreement (later Articles 138 and 139 of the EC Treaty<sup>5</sup>, and now Articles 153, 154 and 155 in the Treaty on the Functioning of the European Union (TFEU)), and of the transformation of the 10 joint committees and 14 informal working parties into homogenous 'sectoral social dialogue committees' by a Commission decision in May 1998 (Dufresne, 2006). EU social dialogue encompasses discussions, negotiations and joint actions carried out by European social partners within sectoral social dialogue committees and/or European institutions. While the key actors involved are European stakeholders, the multi-governance perspective has highlighted the importance of vertical articulation between European and national actors for properly understanding the functioning of EU social dialogue (Marginson and Keune, 2012; Leonard, 2008). EU social dialogue can produce a great variety of outputs such as agreements, joint opinion or process-oriented texts (codes of conduct, guidelines, and so on) (Degryse, 2015).
- **National social dialogue:** this involves all types of negotiation, consultation or information-sharing between national social partners (bipartite national social dialogue) or between national social partners and governments (tripartite national social dialogue) on issues of common interest (Eurofound, European Industrial Relations Dictionary). National-based social dialogue can be concluded at cross-sectoral or sectoral level and produce different outputs on a great variety of topics (for example, cross-sectoral social pacts on labour market or welfare policies, and non-binding sectoral agreements on OSH protocols). Moreover, it can be conducted through different types of social dialogue institutions, the form and regulation of which vary greatly across countries (Guardiancich and Molina, 2021).
- **Regional/local social dialogue:** this involves negotiations, consultations and joint actions between regional/local social partners (bipartite national social dialogue) or between regional/local social partners and regional/local governments. As applied to national social dialogue, it can also be concluded at cross-sectoral or sectoral level. The literature suggests that regional/local concertation has tended to address a greater variety of topics than national social dialogue such as employment policies, local development, local/regional welfare, inclusion policies or enforcement policies (Regalia, 2004; Sanz de Miguel, 2021).
- **Company social dialogue:** this covers all indirect or collective forms of worker participation (work councils, shop stewards, trade union sections, OSH committees, and so on) for the purpose of information, consultation or co-determination. Company social dialogue based on information and consultation has been a key defining feature of the European industrial relations system since the enactment of Directive 2002/14/EC of the European Parliament and of the Council of 11 March 2002 establishing a general framework for informing and consulting employees in the European Community (Marginson, 2017). The status and rights of work councils (or similar structures) is regulated by national law and there is great variation from one country to another. In some countries, the law confers co-determination rights to work councils or similar structures (for example, Germany or Sweden); however, in others, the work council rights are not mandated by law or the law does not establish legal sanctions in the case of non-observance of those rights (for example, Bulgaria, Cyprus and Czechia). Similarly, research indicates that social dialogue performance at company level varies greatly across countries and industrial relations models (Van Gyes, 2016; Eurofound, 2018; Sanz de Miguel et al., 2020).

<sup>5</sup> Commission Decision 98/500/EC of 20 May 1998 on the establishment of Sectoral Dialogue Committees promoting the Dialogue between the social partners at European level (notified under document number C(1998) 2334) (Text with EEA relevance). <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A31998D0500>

## 2. Industrial relations and OSH: literature review

Research on industrial relations and OSH has analysed, in particular, the impact and influence of employee representative structures, social dialogue and collective bargaining on OSH rules and policies. This literature has focused chiefly on the company level, and to a lesser extent on the European, national and local/regional level.

The role **European social dialogue** has played in setting up OSH rules has barely been researched. Nevertheless, OSH features as one of the main themes addressed by European social partners. An important number of outcomes have been produced in this field, as drawn from the European social dialogue text database. However, most of the outcomes achieved fall within the scope of the ‘new generation text’ (guidelines, tools, and so on), which does not lay down binding regulation. Indeed, only three framework agreements have been concluded in this field.<sup>6</sup> Some of the challenges for effective EU social dialogue on OSH identified in the literature relate to diverging stakeholder perspectives and structural weaknesses of workers (Ertel et al., 2010). Currently, the most important tripartite social dialogue process in the field of OSH is the ongoing consultation action on the renewed Strategic Framework on Health and Safety at Work 2021-2027 regarding the best ways of implementing the new strategic framework. Subject to the outcome of this consultation process, the Commission will put forward legal proposals in 2022 to further reduce workers’ exposure to hazardous chemicals including asbestos. In addition, the European Commission has opened consultation processes to discuss EU interventions in other policy fields with implications for OSH. For instance, in 2021 the European Commission launched the consultation of European social partners on improving working conditions in digital labour platforms, which was implemented in two phases.

**National social dialogue** can contribute to the updating or improvement of statutory legislation, through tripartite or bipartite pacts. This potential contribution of social dialogue is partly determined by the institutional framework, which differs from country to country. Many western and eastern European countries have cross-sectoral tripartite social dialogue bodies such as Economic and Social Councils. However, consultation with social partners in these bodies is a government legal obligation in some countries only (for example, in France or Spain); in others, consultation is based on agreement approaches (for example, in Austria) (Kovač, 2017). While cross-sectoral tripartite institutions can foster social dialogue by favouring mutual trust and facilitating the emergence of a shared diagnosis, they do not guarantee social concertation (Guardiancich and Molina, 2021). Social concertation strongly depends on the actors’ motivation to engage in negotiations, and in particular, on the availability of each actor to exchange resources. According to some authors, one of the main challenges for national tripartite social dialogue lies in the current economic context of austerity, which has limited the space for political exchange between governments and trade unions (Baccaro and Galindo, 2018). It is also worth considering that tripartite social dialogue is not the main level for concertation in all European countries. In Scandinavian countries (and to some extent, in Germany), bipartite social dialogue is the prevailing level (Sanz de Miguel et al., 2020). Moreover, in many European countries, sectoral social dialogue is the most developed level (Kovač, 2017).

Overall, few studies analyse the role played by **national social dialogue** on OSH. Most recent comparative research on national social dialogue (Eurofound, 2021; ILO, 2020a) has analysed the involvement of social partners in the design and implementation of policy responses to the Covid-19 crisis. These studies show that some governments have informed, consulted or agreed with social partners on lockdown and, later on, on the requirements for a safe return to work. In some European countries, these involvement processes were carried out within well-developed tripartite bodies (for example, in Belgium or Luxembourg). In other countries, ad hoc bodies were created, some of which also involved civil society organisations (for example, in Poland), against the trade union and employer organisations’ preference for genuine tripartite social dialogue (Eurofound, 2021). In some EU countries, social partners were satisfied with the degree of involvement; however, in most EU countries, social partners complained that involvement was chiefly limited to information-sharing (Eurofound, 2021). Examples of tripartite social dialogue good practices identified by the International Labour Organisation (ILO) in EU Member States include a joint protocol regulating measures to combat and contain the spread of Covid-19 in workplaces (Italy) and a generic guide for combatting the spread of Covid-19 at work (Belgium) (ILO, 2020a).

Beyond cross-sectoral social dialogue, previous research showed that sectoral social dialogue has produced relevant outcomes in the field of OSH by providing tailor-made solutions for OSH issues which are, in some cases, sector specific. For instance, for the construction sector, several examples of sectoral social dialogue addressing OSH are found in the literature: these are from countries such as Spain, Austria or Poland. In Austria and Spain

<sup>6</sup> Framework Agreement on Workers Health Protection through the Good Handling and Use of Crystalline Silica and Products containing it (2006/C 279/02); Framework Agreement on work-related stress (8/10/2004); Framework Agreement on the protection of occupational health and safety in the hairdressing sector (2016), see: <https://osha.europa.eu/es/legislation/guidelines/european-framework-agreement-protection-occupational-health-and-safety>

(at regional level), social partners from the construction sector and state authorities have concluded social pacts on co-enforcement of OSH standards. In Poland, the Agreement for Safety in Construction (ASC) was concluded in 2010 by leading construction companies and the Chief Labour Inspector. This agreement aims to promote a culture of safety that raises awareness of the dangers related to work on construction sites, and thereby reducing potential risks. With this aim, it fosters key companies in the sector to introduce autonomous occupational health and safety (OSH) regulation (Sanz de Miguel and Haidinger, 2020; Sanz de Miguel, 2021).

**Company-level social dialogue** is probably the most important level when it comes to OSH management. It can contribute to the development of rules and policies on safety and health at work (preventive policies, risk assessment plans, and so on) through co-determination, consultation or simply information exchange. Moreover, it can ensure effective compliance of companies with legal OSH standards. In this regard, some literature suggests a positive association between OSH worker representation structures and the implementation of measures to prevent psychosocial risks in companies (Walters, 2011; Payá Castiblanque and Pizzi, 2020; Payá Castiblanque, 2021). For instance, a recent study conducted by Payá Castiblanque (2021) has analysed the impact of worker representation on psychosocial risks, both at aggregate level and across different systems of industrial relations in Europe. Results show that the presence of worker representatives guarantees higher standards of psychosocial risk management, by fostering managers' commitment to the management of psychosocial risks as well as the more active participation of workers in the design of preventive measures. Moreover, these impacts have been found to be stronger in workplaces with joint OSH committees. Research has also explored the relationship between employee representation bodies and preventive actions on OSH. For instance, Ollé-Espluga et al. (2015) explored the differences in the association of 'self-reported preventive action' between workers reported to have an OSH representative and those who do not have or were unaware of their existence at the workplace. The analysis builds on the Spanish Working Conditions Survey for 2011 (N=5,562) for a sample of companies with more than five workers, which is the legal threshold for the appointment of an OSH representative at company level in Spain. The results confirm that higher levels of preventive action (information on risk assessment and implementation of subsequent measures) were reported by workers who were aware of the existence of OSH representatives, compared to the other worker groups mentioned above.

However, recent studies highlight the obstacles and challenges that employee representatives face in participating in and exercising influence on OSH rules and policies. In this sense, Walters and Wadsworth (2019) provide evidence of erosion of the more autonomous forms of representation and a shift towards a more unitary management approach to OSH issues. Their research analyses the operation of workplace representation arrangements on OSH through a qualitative study (follow-up of ESENER-2) conducted on a sample of 143 establishments of different sizes in 7 EU Member States (Belgium, Estonia, Greece, Spain, the Netherlands, Sweden and the United Kingdom<sup>7</sup>). The authors find that only a minority of cases show effective representation arrangements that feature work councils' subcommittees for health and safety as well as representatives who feel confident and adequately trained to address these issues with managers. In most cases, the authors found evidence of three main factors negatively influencing the practice of representation of OSH at workplace level. First, in many cases, worker representatives pointed to different aspects in which their functions were limited by managers, such as limited time allowed for undertaking their functions or constraints in access to training because of work intensification. Second, many representatives felt marginalised by a managerial preference for direct participation of workers, both in small and large establishments. It is also worth mentioning the study conducted by Ollé-Espluga et al. (2019), in which the authors analyse the relationship between workers and OSH representatives from a qualitative perspective, based on interviews from a sample of Catalan workers conducted in 2013 and 2014 (N=22). Their results point to a general lack of awareness of the existence of an OSH representative. In most cases, workers not only were unaware of the person acting as OSH representative, but were also unaware of the role associated with this legal figure. Even among those who knew of the existence of an OSH representative, lack of knowledge about the functions of the person holding this position was widespread. Workers' lack of awareness correlates with limited interactions with OSH representatives. Most participants reported that they were informed on OSH risks and preventive measures by management representatives. The results of the study suggest that workers commonly associate union activity with labour rights and employment conditions, but not with OSH.

Finally, the role played by **collective bargaining** when setting OSH rules is a topic which remains relatively unexplored beyond some specific national studies (Héas, 2017). Information on collective bargaining clauses on OSH is only available on national administrative registers, which do not provide harmonised data for comparative research. Moreover, the data this type of source offers do not generally conform to statistical standards (ILO, 2020b).

<sup>7</sup> The United Kingdom was still an EU Member State at the time.



### 3. Assessing the quality of industrial relations in the field of OSH: a conceptual framework

In order to assess the quality of industrial relations in the field of OSH, the paper adopts a pluralist approach that recognises and places the goals of employers and employees on an equal footing, and considers social dialogue and collective bargaining the main regulatory tools for OSH governance.

Ideally, the quality of industrial relations in the field of OSH can be assessed at the different levels on which social dialogue and collective bargaining takes place (European, national, sectoral, regional/local, company, and so on). However, the literature review did not reveal any international or EU databases covering statutory regulation, collective bargaining or social dialogue in the field of OSH<sup>8</sup> – this means that it is only possible to address the quality of industrial relations at company level. By contrast, the analysis indicates that several EU surveys provide valuable information on the quality of industrial relations in the field of OSH at company level. This information comes from different sources: a representative of the company, a representative of the company in the field of OSH, an employee representative or an employee. For this reason, we propose to focus our conceptual framework exclusively on the **company level**. Although this choice is attributable to data availability, it is also worth noting that in the literature, the company level is considered the most important with regard to social dialogue and OSH.

The starting point for the analysis of the quality of industrial relations in the field of OSH is to focus on their purpose (Budd, 2004). From this perspective, it can be established that **the key objective of industrial relations in the field of OSH at company level is to ensure the participation of employers and employees (via trade unions, works councils, shop stewards or other forms of employee representation) in the governance of OSH including the regulation, implementation and enforcement of OSH standards, based on a shared understanding of OSH aims and a mutual commitment to fostering safety and health at work in the broadest sense.**

In this context, three main dimensions are considered as regards collective actors and processes:

- **Representation:** the right of employees to seek a union, working committee or delegate to represent them for the purpose of regulating, implementing or enforcing OSH standards. Employee representation is rooted in EU Member States' labour law on trade unions and representation of workers at the workplace. It is associated with various forms of worker representation such as trade union sections, work councils and shop stewards.
- **Participation:** this refers to employee involvement in regulating, implementing or enforcing OSH standards at company level through indirect forms of representation. Participation at company level can be mapped along a continuum from no participation to co-determination. Intermediate levels include participation practices in which, in line with Directive 2002/14/EC, employees receive information, or in a further step, are consulted.
- **Influence:** influence is linked to the relative bargaining power and ability of employee representatives to exert influence over the governance of OSH, that is, the actual impact of employee representatives in the regulation, implementation and enforcement of OSH standards at company level.

The three dimensions related to actors and processes are interrelated. It is assumed that representation of workers is a precondition for any form of social dialogue and collective bargaining at company level. In other words, representation allows participation. Participation in turn enables influence, although the extent of influence is not only related to the established channels of participation, but more generally to the relative bargaining power of employee representatives – which may be exerted through a variety of means including industrial conflict.

It is worth noting that ESENER, the only source which deals in depth with OSH management, does not allow information to be obtained on the content of social dialogue in this field. However, it provides a wealth of information on the quality of OSH management, and in particular on the extent of involvement of employees and managers. It is widely recognised that comprehensive and effective OSH management requires the involvement of both employees and their representatives; direct involvement of employees is especially relevant in areas such as the design and implementation of risk assessment or in dealing with causes and measures to address psychosocial risks. It goes without saying that the quality of OSH management requires that top management consider OSH a relevant issue. With this in mind, inclusion of a fourth dimension is proposed:

**Involvement in OSH governance:** this refers to the extent of involvement of management and employees in the design and implementation of OSH at company level, including the relevance for management and the means

<sup>8</sup> At EU level, the European Social Dialogue Text Database provides information on the different types of social dialogue outcomes in the field of OSH. There are not databases offering this type of information for the national level.

provided by management for the effective involvement of employees and their representatives in the governance of OSH.

It should be noted that the link between the 'involvement' dimension and the other three dimensions related to actors and process is yet to be empirically explored. In principle, it can be assumed that they should be related. However, it might be the case that this relationship is weaker or not significant, considering the diversity of managerial and trade union cultures. For example, a company's management might favour HRM policies and direct participation of employees in OSH issues to the detriment of social dialogue and collective bargaining with worker representatives. In another scenario, both management and worker representatives might adopt a traditional approach towards OSH issues, neglecting the relevance of employee involvement for effective prevention and risk management in the broadest sense.

Figure 1 below illustrates the four dimensions in the definition of quality of industrial relations in the field of OSH.

**Figure 1. Dimensions of industrial relations in the field of OSH**



Source: Authors' elaboration

Insofar as it is concerned with actors and processes – that is, representation, participation and influence – this definition of the quality of industrial relations in the field of OSH is an adaptation from the broader concept of Eurofound's quality of industrial democracy (Eurofound, 2018). In our view, the inclusion of an additional dimension specifically related to OSH governance is consistent with the importance of management's and employees' effective involvement in OSH.

In our view, this definition has several advantages. First, it draws on a solid theoretical approach which enables quality measurement and the building of a composite indicator (over time) which could be included in the EU OSH Barometer.

Second, from a normative point of view, it is in line with the key institutional pillars of the industrial relations approach of the European social model, which recognise universal rights or worker participation at company level for information and consultation (Marginson and Sisson, 2006). This normative approach also acknowledges the importance of the commitment of workers and their representatives to the prevention of unsafe working conditions, in line with the general principles set by OSH Framework Directive 89/391/EEC, which have been continuously restated in the EU and further developed in other documents such as the Luxembourg Declaration on Workplace Health Promotion in the European Union.<sup>9</sup>

Third, it is a multidimensional and comprehensive definition which analyses quality in terms of institutional settings (employee representatives' structures and rights) and processes (participation and influence). In addition to this focus on actors and processes, it also acknowledges the relevance of an OSH approach which favours direct involvement of employees in the identification and prevention of OSH risks.

The main disadvantages of this approach relate to the lack of available information, as is explained in greater detail in Chapter 4. First, it only considers the company level, because there is no quality information for supra-company levels. Second, it focuses only on actors, processes and involvement in OSH governance, without addressing the content of social dialogue and collective bargaining in this field. Third, other shortcomings exist as regards the available information in the four dimensions considered, which limits the scope of the analysis.

Finally, it should be highlighted that providing a conceptual framework and identifying an initial set of potential indicators is only the first step for building both a consistent dashboard and a composite indicator. In other words, further statistical analysis is needed to assess the overall consistency of the data set against this conceptual framework. We will address this point in section 5.

<sup>9</sup> See: [https://www.enwhp.org/resources/toolip/doc/2018/05/04/luxembourg\\_declaration.pdf](https://www.enwhp.org/resources/toolip/doc/2018/05/04/luxembourg_declaration.pdf)



## 4. Quantitative indicators for industrial relations in the field of OSH: a proposal for normative and contextual indicators

### 4.1 Source and type of indicator: generic or specifically related to OSH

EU surveys at company level provide the relevant information to assess the quality of industrial relations in the field of OSH through quantitative indicators. We think it is also important to include other indicators showing the overall relevance of social dialogue and collective bargaining at company level. Accordingly, indicators have been classified as either generic or specifically related to OSH.

The list of selected indicators is based on the following sources:

1. **OECD/AIAS ICTWSS database:** the Organisation for Economic Co-operation and Development (OECD)/Amsterdam Institute for Labour Studies (AIAS) database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS), originally created by Professor J. Visser of the University of Amsterdam (UVA), provides indicators on the following six dimensions:
  - Social partners' membership;
  - Collective bargaining coverage;
  - Statutory minimum wages;
  - Organisation of collective bargaining and wage coordination;
  - Social pacts;
  - Work councils.

This database does not contain any indicators enabling analysis of the role of industrial relations in the field of OSH. However, it provides relevant indicators for assessing some dimensions in generic terms.

2. **ECS:** the European Company Survey (ECS), managed by Eurofound, provides an overview of workplace practices in European establishments with more than nine employees. The survey targets both managers and employee representatives (ERs) (so-called ER bodies), who are defined according to national criteria. It focuses on work organisation, skills, HRM, employee participation and social dialogue. The last survey wave was carried out in 2019 by Eurofound and the European Centre for the Development of Vocational Training (Cedefop). This survey provides relevant indicators for assessing some of the dimensions, both in generic terms and specifically for OSH.
3. **ESENER:** the European Survey of Enterprises on New and Emerging Risks (ESENER) is managed by EU-OSHA and allows an analysis of how workplaces in European countries manage OSH issues. The last wave was conducted in 2019. The survey questionnaire includes a section devoted to employee participation in OSH issues which provides relevant indicators for all the dimensions. Additionally, the survey provides a wealth of information for assessing the quality of involvement in OSH management: the degree of individual/direct participation of employees in different OSH fields and the relevance of OSH for top management.
4. **EWCS:** the European Working Conditions Survey (EWCS), which is managed by Eurofound, is the main EU source of information on the quality of work and employment. The most recent wave was conducted in 2021: it is an extraordinary edition, conducted for the first time by phone, and with relevant changes in the questionnaire. The survey provides indicators relevant to both industrial relations and OSH, both generic and specifically for OSH. However, as is discussed below, the main value of this survey does not lie in the quality of industrial relations in the field of OSH, but in the OSH outcomes: that is, the degree of safety, health and well-being reported by employees, which can be related to the overall quality of work and employment. In Chapter 5, we consider the EWCS indicators that could be used to analyse these outcomes.
5. **EurWORK:** the European Observatory of Working Life (EurWORK) database on wages, working time and collective disputes was also considered. This database, which is managed by Eurofound, contains indicators on wages, working time and dispute resolution, but no specific OSH information. The information on working time setting only indicates the level at which working time is agreed (supra versus company level) or the type of social partners' involvement in setting statutory working time; it has been considered not relevant for indicators focused on the company level. On the other hand, in our view, agreed working time is relevant for OSH outcomes, but not for the quality of industrial relations in this field.

## 4.2 Quality criteria for assessing existing and potential indicators

The quality criteria for assessing both existing and potential indicators are presented in Table 1. They are based on the quality assessment and assurance framework of the European Statistical System (ESS)<sup>10</sup> and the literature on selecting and processing indicators. These were the criteria used to build Eurofound's composite indicator of industrial relations (Eurofound, 2018; Sanz et al., 2020).

**Table 1. Quality criteria for assessing indicators**

Relevance	Indicators should have a clear conceptual link with industrial relations in the field of OSH at company level.
Accuracy and reliability	Indicators should be accurate and reliably measure the phenomenon being analysed without being confounded by other factors. Indicators should be sensitive to changes, and changes in their values should have a clear and unambiguous meaning.
Intelligibility and easy interpretation	Indicators should be sufficiently simple so as to be intuitive and unambiguously interpreted in practice. Indicators should have a clear meaning with respect to the phenomenon analysed, either 'positive' (meaning that higher values are considered positively) or 'negative'.
Timeliness and punctuality	Indicators should be released in accordance with an agreed schedule and soon after the period to which they refer. There should be minimal time lag between the collection and the reporting of data, to ensure that indicators are reporting current rather than historical information.
Sustainability	This indicates the updating frequency of indicators. If an indicator aims to monitor progress, special one-off surveys should not be included.
Coherence and comparability	This shows whether concepts, definitions, methodologies and actual data are consistent internally and across space and time.
Accessibility and clarity	This indicates if data are available and accompanied by adequate explanatory information (metadata).

Source: Eurofound, 2018

While all these criteria are important, the assessment and selection of potential indicators has been based chiefly on two criteria: 'relevance' and 'intelligibility and easy interpretation'. The relevance criterion links the indicators with the three conceptual dimensions of the quality of industrial relations (representation, participation and influence). For each dimension, the criterion 'intelligibility and easy interpretation' is key for measuring the quality of industrial relations: quality can only be measured by indicators that can be clearly understood in a normative way (as positive or negative for the quality of industrial relations). By definition, only normative indicators can be used to build a composite indicator.

Most selected indicators have a normative interpretation. For instance:

- ESENER: regularity of discussions with employee representatives on OSH issues, ranging from 'regular discussion' to 'practically never'. The scale is interpreted from positive (regular discussion) to negative (practically never).
- ECS: the extent to which the ER bodies had a direct influence on the management of OSH, ranked from 'to a great extent' to 'not at all'. As above, the higher the degree of influence, the better.

In other cases, this normative interpretation is not clear: for instance, the existing ESENER indicators on the type of OSH representation (joint consultative, employment forum or similar; trade union representation; health and safety representative; and health and safety committee). These indicators can be included as contextual indicators, but they cannot be used for building a composite indicator of social dialogue and OSH. From a normative perspective, the relevant indicator is the percentage of establishments with any kind of OSH representation (which is computed using these four contextual indicators).

<sup>10</sup> The quality assessment and assurance framework of the European Statistical System (ESS) (Eurostat 2014, 2015) evaluates the quality of already produced statistical outputs, based on principles nos 11 through 15 of the European Statistics Code of Practice (CoP) (Eurostat, 2011).

### 4.3 Selected normative and contextual indicators

Table 2 presents the list of selected indicators. They are organised according to dimension (representation, participation, influence or involvement in OSH governance); domain (generic or specifically related to OSH) and type (normative or contextual). For each indicator, the table provides the unit of measurement, definition and source.

Most indicators rely on one survey question (when this is not the case, the indicator uses another survey question as a denominator to compute the prevalence). Building indicators that combine different questions would require work to be carried out directly with the data as well as an assessment of whether the indicator is pertinent, not only conceptually but also empirically. For instance, in the dimension of representation, an option might be to build an indicator to distinguish between establishments with any kind of OSH representation that provide any kind of training for OSH representatives from other establishments. However, it might also be the case that these two indicators (OSH representation and training) work better separately when empirically analysing the overall consistency of the data.

**Table 2. Indicators on the quality of industrial relations in the field of OSH at company level**

**Dimension:** R=Representation; P=Participation; I=Influence; G=Involvement in OSH governance

**Domain:** G=Generic; OSH=Occupational Safety and Health

**Type:** N=Normative; C=Contextual

**Unit:** P=Points; %=Percentage

Dimension	Domain	Type	Indicator	Unit	Definition	Source	Code in source
R	G	N	Rights of works councils	P	<p>0 = Works council or similar (union or non-union)-based institutions of employee representation confronting management do not exist or are exceptional</p> <p>1 = Information and consultation rights (without judicial redress)</p> <p>2 = Economic and social rights, consultation (advice, with possibility of judicial redress)</p> <p>3 = Economic and social rights, including co-determination on some issues (for example, mergers, take-overs and restructuring)</p>	ICTWSS	wc_rights
R	G	N	Status of works council	P	<p>0 = Works council or similar (union or non-union)-based institutions of employee representation confronting management do not exist or are exceptional</p> <p>1 = Works councils (and so on) are voluntary, that is, even where they are mandated by law, there are no legal sanctions for non-observance</p> <p>2 = Existence and rights of works council or structure for (union and non-union-based) employee representation within firms or establishments confronting management are mandated by law or established through basic general agreement between unions and employers</p>	ICTWSS	wc
R	G	N	Employee representation at the workplace (coverage), as reported by employers	%	<p>Percentage of employees in workplaces with any form of official employee representation body (as reported by management)</p> <p>Number of employees refers to Q1 (How many people work in this establishment)</p>	Eurofound, ECS	ECS-MGT-2019 Q49 (Q1)
R	G	N	Employee representation at the workplace (coverage), as reported by employees	%	<p>Percentage of employees in workplaces with any form of official employee representation body (as reported by employees)</p> <p>Percentage calculated considering the reported number of employees in the workplace</p>	Eurofound, EWCS	EWCS 2021 Q71C



Dimension	Domain	Type	Indicator	Unit	Definition	Source	Code in source
R	OSH	N	Employee OSH representation at the workplace (coverage), as reported by employees	%	Percentage of employees in workplaces with any kind of OSH delegate or committee (as reported by employees) Percentage calculated considering the reported number of employees in the workplace	Eurofound, EWCS EWCS 2021 Q71B	
R	OSH	N	Employee representation at the workplace (coverage establishments)	%	Percentage of establishments with any form of official employee representation body: work council, trade union representation, OSH committee and OSH representative (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019 Q 350	
R	OSH	N	Establishments where OSH representatives receive training provisions	%	Percentage of establishments where OSH representatives receive training provisions (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019 Q 354	
R	OSH	N	Establishments where OSH representatives receive training provisions in relation to OSH key topics (dangerous substances, psychosocial risks, and so on)	%	Percentage of establishments where OSH representatives receive training provisions in relation to OSH key topics (dangerous substances, psychosocial risks, and so on) (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019 Q 355	
R	OSH	C	Type of employee representation at the workplace	%	Percentage of establishments by form of official employee representation body: <ul style="list-style-type: none"> <li>work council</li> <li>trade union representation</li> <li>OSH committee</li> <li>OSH representative (as reported by those 'who know best about health and safety in the establishments')</li> </ul>	EU-OSHA, ESENER 2019 Q 350	
R	OSH	C	Appointment of OSH representatives at the workplace	%	Percentage of establishments by form of appointment of the OSH representatives: <ul style="list-style-type: none"> <li>elected by employees</li> <li>selected by the employer</li> <li>partially elected by employees</li> <li>partially selected by the employer (as reported by those 'who know best about health and safety in the establishments')</li> </ul>	EU-OSHA, ESENER 2019 Q 350	
R	OSH	C	Establishments where the company takes information on OSH issues from employers' organisations and/or trade unions	%	Percentage of establishments where the company takes information on OSH issues from employers' organisations and/or trade unions (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019 Q 358	
P	G	N	Collective bargaining coverage	%	Adjusted bargaining coverage rate: proportion of all wage earners with right to bargaining, $WCB \cdot 100 / (WSEE - WSTAT)$ , (0-100): <ul style="list-style-type: none"> <li>WCB: employees covered by collective bargaining</li> <li>WSEE: employed wage and salary workers</li> <li>WSTAT: employees excluded from collective bargaining</li> </ul>	ICTWSS, ILO ICTWSS-adjcov	

Dimension	Domain	Type	Indicator	Unit	Definition	Source	Code in source
P	G	N	Information provided to ER body (incidence), as reported by ER body	%	<p>Percentage of workplaces where, in the last 12 months, management has provided the [ER-body] with any information on the following issues:</p> <ul style="list-style-type: none"> <li>A The financial situation of the establishment</li> <li>B The employment situation of the establishment</li> <li>C The introduction of new or significantly changed products or services in the establishment</li> <li>D The introduction of new or significantly changed processes to produce goods or provide services in the establishment</li> <li>E Strategic plans with regard to the establishment (for example, business targets, plans for investment, plans to expand activities)</li> </ul>	Eurofound, ECS ECS-ER-2019	Q23 Q25 Q27
P	G	N	Degree of information provided to ER body, as reported by ER body	P	<p>Mean level (1-5) of information on the following 5 issues provided by management to [ER-body] in the last 12 months:</p> <ul style="list-style-type: none"> <li>A The financial situation of the establishment</li> <li>B The employment situation of the establishment</li> <li>C The introduction of new or significantly changed products or services in the establishment (new)</li> <li>D The introduction of new or significantly changed processes to produce goods or provide services in the establishment</li> <li>E Strategic plans with regard to the establishment (for example, business targets, plans for investment and plans to expand activities)</li> </ul>	Eurofound, ECS ECS-ER-2019	Q23 Q25 Q27
I	G	N	Influence of employee representation in decision-making at the workplace, as reported by ER body	P	<p>Mean assessment carried out by employee representative (concerning the main decision made by management):</p> <ul style="list-style-type: none"> <li>1 = Not at all</li> <li>2 = To a small extent</li> <li>3 = To a moderate extent</li> <li>4 = To a great extent</li> </ul> <p>The influence concerns the decision made by management since 2016 which had, according to employee representative, the greatest impact on employees). The topics to be selected are:</p> <ul style="list-style-type: none"> <li>A The organisation and efficiency of work processes</li> <li>B Dismissals</li> <li>C Training and skill development</li> <li>D Recruitment</li> <li>E OSH</li> <li>F Working time arrangements</li> </ul>	Eurofound, ECS ECS-ER-2019	Q51
I	OSH	N	Influence of employee representation in decision-making on OSH at the workplace, as reported by ER body	P	<p>Mean assessment completed by employee representative:</p> <ul style="list-style-type: none"> <li>1 = Not at all</li> <li>2 = To a small extent</li> <li>3 = To a moderate extent</li> <li>4 = To a great extent</li> </ul> <p>The influence concerns the decision made by management since 2016 concerning OSH</p>	Eurofound, ECS ECS-ER-2019	Q53
I	OSH	N	Importance of meeting expectations of employees and their representatives for addressing OSH in the establishment	P	<p>0 = No reason</p> <p>1 = Minor reason</p> <p>2 = Major reason (as reported by those 'who know best about health and safety in the establishments')</p>	EU-OSHA, ESENER 2019	Q 262
I	OSH	C	Establishments where controversies related to health and safety issues arise often	%	<p>Percentage of establishments where controversies related to health and safety issues arise often (as reported by those 'who know best about health and safety in the establishments')</p>	EU-OSHA, ESENER 2019	Q 353

Dimension	Domain	Type	Indicator	Unit	Definition	Source	Code in source
G	OSH	N	Degree of discussion of OSH issues at top-management level in establishment	P	0 = Practically never 1 = Occasionally 2 = Regularly (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 162
G	OSH	N	Establishments where employees are usually involved in design and implementation of risk assessment	%	Percentage of establishments where employees are usually involved in design and implementation or risk assessment (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 258
G	OSH	N	Establishments where employees have been involved in identifying possible causes for work-related stress	%	Percentage of establishments where employees have been involved in identifying possible causes for work-related stress (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 303b
G	OSH	N	Establishments where employees have a role in the design and set-up of measures to address psychosocial risks	%	Percentage of establishments where employees have a role in the design and set-up of measures to address psychosocial risks (as reported by 'those who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 306
G	OSH	N	Establishments where managers have discussed with employees the possible impacts of the use of technologies on health and safety	%	Percentage of establishments where managers have discussed with employees the possible impacts of the use of technologies on health and safety (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 311
G	OSH	N	Management holds regular discussions on OSH issues in staff or team meetings	%	Percentage of establishments where managers held regular discussions in staff or team meetings on OSH issues (as reported by those 'who know best about health and safety in the establishments')	EU-OSHA, ESENER 2019	Q 357

Source: Authors' elaboration



## 5. Assessing aims, advantages and disadvantages of different analytical tools: dashboard, composite indicator and further statistical analysis

### 5.1 Dashboard and composite indicator

A dashboard is by definition a list of key indicators which provide a comprehensive approach to the analysis of a theme. In this sense, the list of selected indicators is a potential dashboard including both normative and contextual indicators deemed relevant for analysing the quality of industrial relations in the field of OSH. By contrast, a composite indicator<sup>11</sup> measures a multidimensional concept which cannot be captured by a single indicator. It is formed when normative indicators are compiled into a single index, on the basis of an underlying model of the multidimensional concept that is being measured. In our case, that multidimensional concept is the quality of industrial relations in the field of OSH, where four dimensions have been identified: representation, participation, influence and involvement in OSH governance.

A dashboard and a composite indicator have different aims. While the set of indicators included in the dashboard provide the possibility to include both normative and contextual indicators, and develop more sophisticated analyses for specific purposes, composite indicators are built to measure and summarise performance, and therefore only include normative indicators.

In this regard, a composite indicator has certain advantages and disadvantages, as does every summary. Table 3 shows the main pros and cons of composite indicators, taken from the *Handbook on Constructing Composite Indicators* (Nardo et al., 2005), developed by the OECD and the European Commission's Joint Research Centre (JRC).

Table 3. Advantages and disadvantages of composite indicators

Pros	Cons
<ul style="list-style-type: none"> <li>▪ Reduce the visible size of a set of indicators without dropping the underlying information base.</li> <li>▪ Are easier to interpret than a set of individual indicators.</li> <li>▪ Enable users to compare complex dimensions effectively.</li> <li>▪ Can assess progress of countries over time.</li> <li>▪ Can support decision-making.</li> <li>▪ Place issues of country performance and progress at the centre of the policy arena.</li> <li>▪ Facilitate communication with general public, raise awareness and promote accountability.</li> </ul>	<ul style="list-style-type: none"> <li>▪ May send misleading policy messages if poorly constructed or misinterpreted.</li> <li>▪ May invite simplistic policy conclusions.</li> <li>▪ May be misused if the construction process is not transparent and/or lacks sound statistical or conceptual principles.</li> <li>▪ The selection of indicators and weights could be the subject of dispute.</li> </ul>

Source: Nardo et al., 2005

These pros and cons are well-known. Ultimately, as highlighted by Nardo et al. (2005, p. 17), the reliability and potential usefulness of a composite indicator depends on two main aspects:

- having a robust conceptual framework;
- having a comprehensive set of high-quality indicators measuring the different dimensions covered by this framework.

In our view, both conditions are met. The conceptual framework is theoretically sound, and the initial list of normative indicators meets the quality criteria, and in principle is considered adequately comprehensive. With this in mind, we think it is worth going ahead and beginning to work empirically on the data set.

<sup>11</sup> See: <https://stats.oecd.org/glossary/detail.asp?ID=6278>

In this sense, it is worth noting that empirical work is the only way forward, both in terms of the dashboard and the composite indicator. Although the conceptual framework is robust, the quality and consistency of the indicators has to be assessed empirically.

The first step is to fine-tune the list of indicators, by applying the full set of quality criteria (namely those related to statistical aspects such as timeliness and sustainability). These criteria are especially important when the objective is to have a data set which is regularly updated and allows cross-time analysis.

Second, additional empirical work is needed to ensure that the composite indicator measures the quality of industrial relations in the field of OSH, according to both the conceptual framework and the data properties. For this purpose, the standard approach is the internationally recognised methodology on building composite indicators developed by the JRC and the OECD (Nardo et al., 2005), which recommends using different multivariable statistical techniques for testing the overall structure of the data set against the conceptual framework and guiding the selection of indicators and the methodological choices for aggregation and weighting. In this regard, it is important to note that expertise is needed in both OSH and statistics. While statistical analysis may guide some choices, conceptual aspects are of the utmost relevance for ensuring the overall consistency of the data set and the composite indicator. For instance, in our case, a conceptual issue to be taken into account is the relative weight of generic versus OSH-specific indicators. Multivariable statistical analysis should first analyse the relation between these indicators and provide room for testing different choices based on the assessment of OSH experts.

This rigorous methodological approach aims to ensure the reliability and acceptance of the composite indicator, avoiding potential drawbacks. First, it is ensured that the selection of indicators is consistent with the conceptual framework and the data properties - and thus prevents a poorly constructed composite indicator. This process also allows to assess the relevance of contextual indicators to be included in the dashboard. Second, the main conceptual and methodological choices are validated by a range of experts in OSH and industrial relations. Third, the statistical process relies on an internationally recognised methodology and is completely transparent.

In this sense, it should be born in mind that building the dashboard and the composite indicator would be an opportunity for strengthening collaboration with other relevant actors in the field of OSH and industrial relations. Synergies with Eurofound, which has developed a comprehensive composite indicator of industrial relations seems of utmost importance. The same applies to EU-OSHA national focal points.

## 5.2 Further statistical analysis: OSH outcomes

In this final section we would like to suggest the possibility of broadening the scope of the analysis. As already stated, the proposed concept of the quality of industrial relations in the field of OSH does not include outcomes in terms of safety, health and well-being.

Although it is a theme that goes far beyond the scope of this paper, it is worth noting that Eurofound has built several composite indicators based on the EWCS 2015, dealing with different dimensions of the quality of work and employment, based on aspects of work that have an independent influence on health and well-being (physical environment, work intensity, working time quality, social environment, skills and discretion, and prospects and earnings) (Eurofound, 2017). While the new EWCS 2021 offers the opportunity to revisit this work, several new questions have been included in the questionnaire that directly refer to the impact of work on health and well-being. Table 4 presents an indicative list of some normative indicators which in our view are of special importance for dealing with this theme. It would be relevant to further explore whether the quality of industrial relations in the field of OSH is related to the overall level of safety, health and well-being of employees. Ideally, this would entail further collaboration with other EU agencies, namely Eurofound (quality of work and employment), Cedefop (skills) and EIGE (gender equality).

**Table 4. Normative indicators on OSH outcomes, and indicative list**

Indicator	Unit	Definition	Source (Code in source)
Health and safety at risk because of work	Percentage	Percentage of employees who think their health and safety is at risk because of their work	Eurofound, EWCS EWCS 2021 Q73 (Core)
Work-related physical exhaustion	Percentage	Percentage of employees who feel physically exhausted at the end of the working day	Eurofound, EWCS EWCS 2021 Q90D (M2A)
Work-related emotional exhaustion	Percentage	Percentage of employees who feel emotionally drained by their work	Eurofound, EWCS

Indicator	Unit	Definition	Source (Code in source)
			EWCS 2021 Q90G (M2A)
Incidence of bullying, harassment or violence	Percentage	Percentage of employees who report having experienced bullying, harassment or violence over the last 12 months	Eurofound, EWCS EWCS 2021 Q81 (M1B/M1C)
Unsociable working hours	Percentage	Employment at atypical working time (nights, weekends, and so on) as a percentage of total employment	Eurostat (lfsa_esegatyp)
Work-life balance	Points	Summary indicator (1-10) that measures problems related to work-life balance on three distinct dimensions, by asking respondents whether they: - are too tired from work to do household jobs - experience difficulties fulfilling family responsibilities because of time spent at work - have difficulties concentrating at work because of family responsibilities	Eurofound, EQLS 2016 European Quality of Life Survey 2016: Overview report, p. 42

Source: Authors' elaboration

### Acronyms

AIAS	Amsterdam Institute for Labour Studies
ASC	Agreement for Safety in Construction
Cedefop	European Centre for the Development of Vocational Training
CoP	European Statistics Code of Practice
DG	directorate-general
DVT	Data Visualisation Tool
ECS	European Company Survey
ER	Employee representative
ESENER	European Survey of Enterprises on New and Emerging Risks
ESS	European Statistical System
EU-OSHA	European Agency for Safety and Health at Work
EurWORK	European Observatory of Working Life
EWCS	European Working Conditions Survey
HRM	Human Resource Management
ICTWSS	Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts
ILO	International Labour Organisation
JRC	Joint Research Centre
MSD	Musculoskeletal disorder
OECD	Organisation for Economic Co-operation and Development
OSH	Occupational Safety and Health
TFEU	Treaty on the Functioning of the European Union
UVA	University of Amsterdam



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This discussion paper was commissioned by the European Agency for Safety and Health at Work (EU-OSHA). Its contents, including any opinions and/or conclusions expressed, are those of the authors alone and do not necessarily reflect the views of EU-OSHA.

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