

How labour inspectorates and prevention services contribute to occupational safety and health compliance

Report

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List of acronyms

Abbreviation	Meaning
AB+	Alternative Supervision Project (Alternative Betreuung +, Germany)
ACT	Portugal's Working Conditions Authority
AI	Artificial Intelligence
ANDST	National Association for Workers with Work-Related Disabilities and Injuries (Portugal)
AR	Augmented Reality
ASAE	Food and Economic Security Authority (Portugal)
BGN	Statutory Accident Insurance for Food and Hospitality (Berufsgenossenschaft Nahrungsmittel und Gastgewerbe, Germany)
Cobots	Collaborative robots
CoP	Community of Practice
COVID-19	Coronavirus, referencing the 2019 outbreak and subsequent pandemic
ESENER	European Survey of Enterprises on New and Emerging Risks
EU	European Union
EU-27	Refers to the 27 European Union Member States
EU-OSHA	European Agency for Safety and Health at Work
GDA	Joint German OSH Strategy
GDPR	General Data Protection Regulation
GIO	Operational Interinstitutional Groups (Portugal)
HSA	Ireland's Health and Safety Authority
ICT	Information and Communication Technology
ILO	International Labour Organisation
KEGS	Safe handling of carcinogenic hazardous substances (Krebserzeugende Gefahrstoffe, Programme of German OSH Strategy)
KUG 2	Germany's Microenterprises and Risk Assessment
MSD	Musculoskeletal disorders
MSE	Micro and Small Enterprises
SME	Small and Medium Enterprises

Abbreviation	Meaning
NAK	National OSH Conference (Germany)
NAV	Labour and Welfare Administration (Norway)
NSE	Non-standard employment arrangements
NIOM	Nofer Institute of Occupational Medicine (Poland)
NISO	National Irish Safety Organisation
OHS	Occupational Health Service (Norway)
OiRA	Online interactive Risk Assessment
OSH	Occupational safety and health
PIP	Poland's National Labour Inspectorate
PLN	Polish zloty
PPMS	Prevention Process Management System
RVO	Regional Safety Representatives Scheme (Norway)
SESAME	Safe Small and Micro Enterprises consortium
SLIC	Senior Labour Inspector Committee
SME	Small and Medium-Sized Enterprise
SWOT	Strengths, weaknesses, opportunities, threats
UVT	Statutory Accident Insurance Institution (Unfallversicherungsträger)
VR	Virtual Reality
WEC	Working Environment Committees
WHO	World Health Organisation

Executive summary

Enhancing compliance with OSH regulations has been a long-term goal at both European and national levels. To advance this objective, the European Agency for Safety and Health at Work (EU-OSHA) initiated the 'Supporting Compliance' OSH overview project in 2020, primarily aimed at policymakers, practitioners and researchers. The project aimed to provide high-quality data to enhance understanding of compliance support and inform better policy decisions. This report is the final component of the project, providing a comparative analysis of how labour inspectorates and prevention services in Germany, Ireland, Norway, Poland and Portugal support compliance with occupational safety and health (OSH) regulations. It aims to inform policy and practice by identifying effective strategies, innovative approaches and transferable lessons to enhance OSH compliance across the EEA¹.

Labour inspectorates and prevention services face several key challenges including (but not limited to) resource constraints, the changing risk landscape, and regulatory complexity and fragmentation. These challenges have stemmed from several drivers of change within the OSH landscape, including the rise of the service economy, technological change and globalisation. The COVID-19 pandemic further exposed regulatory gaps and accelerated digital transformation.

The report also analyses 31 case studies that address the challenges noted above, grouped into five strategic categories.

- Risk-based approaches that demonstrate the use of data analytics and machine learning to target inspections and interventions where risks are highest, improving efficiency and impact.
- Responsive enforcement calibrates interventions that adapt to enterprise size and context, balancing persuasion and sanctions.
- Co-enforcement and collaboration that include multi-agency and industry partnerships to address complex, cross-cutting workplace risks and extend regulatory reach.
- Digital approaches that show how digital tools and platforms can provide accessible and scalable OSH guidance and support.
- Capacity-building initiatives that strengthen inspectorates, professional networks and internal OSH capacity and provide support for vulnerable workers.

Overall, the research demonstrates that while traditional regulatory approaches remain important, innovation — particularly in digitalisation, collaboration and capacity-building — is essential for addressing the challenges posed by the complex OSH landscape of the 21st century. The experiences of Germany, Ireland, Norway, Poland and Portugal offer valuable and transferable lessons for all EU and EFTA Member States, highlighting both achievements and areas for further development in ensuring safe and healthy workplaces for all.

Key findings

The importance of new technologies to enhance OSH enforcement and promotion

Digitalisation and data-driven targeting are essential for maximising limited resources and improving inspection effectiveness. All five countries face challenges related to inspector-to-workforce ratios and limited OSH resources that make comprehensive labour inspectorate coverage impossible and undermine OSH promotion capabilities. The innovative approaches demonstrate how technology and data analytics can multiply regulatory impact.

The shift from OSH enforcement to promotion

The traditional command and control enforcement model is evolving towards more nuanced approaches that recognise the diverse capacities, constraints and contexts of different enterprises. This is a shift from OSH enforcement to promotion, with sanctions used for breaches in legislation and being viewed as a last resort.

¹ EEA = European Economic Area, this includes EU27 and 3 EFTA countries Norway, Iceland Lichtenstein

The importance of collaborative networks

Collaborative networks were highlighted as an effective method to improve OSH as no single institution can effectively address modern OSH challenges alone. Co-enforcement models, industry-led safety agreements and communities of practice demonstrate how strategic partnerships can extend regulatory reach and create self-sustaining improvement mechanisms. These collaborative approaches are particularly crucial for reaching micro, small and medium enterprises (SMEs) and vulnerable workers who often fall outside traditional regulatory frameworks. This also applies to industry-led collaborative networks that demonstrate how strategic partnerships can extend regulatory reach and create self-sustaining improvement mechanisms.

The digital transformation of OSH support

Remote and digital approaches have moved from emergency pandemic responses to permanent features of the regulatory landscape. These tools, including video consultations and artificial intelligence (AI)-powered chatbots, offer scalable solutions to persistent challenges of geographic dispersion and resource constraints. However, their effectiveness depends on thoughtful integration with traditional approaches rather than complete replacement.

The importance of capacity building

Sustainable OSH improvements depend on developing internal capabilities within organisations and among employers and workers. The diverse capacity-building approaches examined demonstrate that building knowledge and skills requires multiple complementary strategies tailored to different contexts and target groups.

1 Introduction

1.1 Supporting compliance

Enhancing compliance with occupational safety and health (OSH) regulations has been a long-term goal at both European and national levels. The fast-changing work environment poses challenges to achieving this goal. In 2020, the European Agency for Safety and Health at Work (EU-OSHA) initiated the ‘Supporting Compliance’ OSH overview programme primarily aimed at policymakers, practitioners and researchers. The project aimed to provide high-quality data to enhance understanding of compliance support and inform better policy decisions.

This report is the final component of the project, providing a comparative analysis of national approaches to OSH through labour inspectorates and prevention services, aiming to advance compliance with OSH regulations. It had five key aims:

To identify and analyse the main intervention strategies in the area of supporting compliance by labour inspectorates and prevention services, in order to identify approaches for which there is evidence that they work well as well as the relevant context for these. The intention is to inspire a mutual learning process between the countries, not to rank them against each other.

- To investigate the interactions/collaborations between labour inspectorates and prevention services (if any) that support compliance and promote OSH.
- To analyse the role of the broader context, such as the national social/employment insurance model for the delivery of prevention services and labour inspection.
- To provide information on the approaches followed by labour inspectorates and prevention services in order to deal with traditional and new challenges at work posed by technology.
- To identify common challenges for inspectorates and prevention services in the European countries and discuss possible options to address these challenges.

Previous work conducted as part of this research programme has identified the main strands of this research in terms of the state and market influence (EU-OSHA, 2021b). Further to that, five national studies were conducted in Germany (EU-OSHA, 2024c), Ireland (EU-OSHA, 2025b), Norway (EU-OSHA, 2024d), Poland (EU-OSHA, 2025d) and Portugal (EU-OSHA, 2025e). These countries were chosen based on the Overarching Review (EU-OSHA, 2021a) and ensured geographic distribution and coverage of different OSH systems. Each national study produced a report and two policy briefs, one on prevention services and another on labour inspectorates. They also provided six case studies each (seven in the case of Portugal) on innovative approaches implemented, usually split evenly between labour inspectorates and prevention services. A workshop held in Bilbao in November 2024 further built on these reports and national studies, discussing ‘how to advance compliance with OSH regulations; an overview of different national strategies’ (EU-OSHA, 2025a).

1.2 Purpose

This report explores the role of labour inspectorates and prevention services (internal and external) based on the findings of the five national studies in the countries mentioned above. It seeks to understand the common needs and challenges regarding OSH compliance. The report also considers the relevance, strengths, weaknesses, opportunities, threats (and any mitigation measures), and transferability of innovative approaches in addressing the identified needs and challenges. These considerations contribute to the provision of the European added value and to the development of informed policies and strategies aimed at enhancing OSH compliance and promoting safer working environments throughout the EEA. The purpose is not to make a simple comparison of the different countries, rather to present the different approaches, discuss the challenges they seek to address and understand their potential to be used in other countries across Europe.

The purpose of this analysis is to provide evidence-based insights that can inform policy development and practice improvements in OSH compliance across Europe. By examining different national approaches, the analysis identifies effective strategies and innovative practices that may be adapted or applied in other contexts.

Specifically, the analysis:

- identifies approaches to advancing compliance by providing a starting point for locally relevant interventions;
- facilitates mutual learning between countries by highlighting innovative practices and their potential for transferability; and
- provides policymakers and practitioners with practical insights into effective strategies for promoting OSH compliance, in the context of evolving workplace challenges.

Inspiring mutual learning that acknowledges the diversity of national contexts while identifying common principles and approaches that can strengthen OSH compliance systems across different settings is the focus of this report.

1.3 Scope

This report examines how five countries' labour inspectorates and prevention services effectively contribute to advancing compliance with OSH regulations. The scope encompasses both labour inspectorate practices and prevention services, examining their roles, strategies and effectiveness in promoting OSH compliance, particularly in addressing challenges posed by the changing world of work and digitisation.

The analysis was conducted in several key steps:

- drivers of change were investigated and analysed, understanding the root of the challenges that labour inspectorates and prevention services face;
- challenges caused by the drivers of change were examined; and
- a comparative analysis of innovative approaches and intervention strategies for supporting compliance was conducted through a SWOT (strengths, weaknesses, opportunities, threats) analysis, with particular attention to their relevance, effectiveness and transferability.

The case studies conducted within the supporting compliance research programme were primarily based on qualitative research including interviews. Interviews varied depending on the case study and tended to be conducted with OSH experts and individuals involved in implementing OSH measures, such as labour inspectorates. A reliance on interviews in the case studies provides a further limitation to the research in that biased views may be present throughout the case studies.

For the purposes of this report, innovation specifically refers to a practice introduced within a given country that addresses one or more of the current challenges in OSH. Innovation, in its broadest sense, refers to the development and application of new ideas or methods (Cambridge University Press, n.d.). In the context of this report, innovation is considered relative to the country in which a particular practice is implemented. Since levels of innovation vary across EEA Countries² a practice deemed innovative in one country may be well established in another.

In section 7 (Innovative OSH approaches), a key criterion used when selecting the specific case studies was comparability, which was satisfied by specifically focusing on the five countries in scope and case studies produced as part of the 'Supporting Compliance' project. As such, the case studies were designed to cover as many different, innovative approaches as possible, rather than a comprehensive and representative overview of trends in OSH priorities.

1.4 Methodology

The methodology for this comparative analysis employs a multifaceted approach designed to identify patterns, contrasts and innovative practices across the five country cases. It combines qualitative

² The term EEA Countries is chosen to include Norway, Iceland and Lichtenstein and EU27.

analysis of existing reports and case studies with quantitative data and insights gathered from expert discussions and contextual data.

1.4.1 *Research dimensions*

This report is based on the five national studies and produces a comparative analysis discussing different approaches, strategies and styles of OSH across the EEA (focusing on the four EU Member States and EFTA country Norway). The report highlights practices that could be used by other national labour inspectorates (NLIs) across the EEA, drawing on the bigger picture in Europe and discusses initiatives and tools promoting OSH and emerging challenges. The comparative analysis is structured around two primary research dimensions.

Comparative analysis of labour inspectorates and prevention services: this dimension focuses on analysing the roles, approaches and strategies of labour inspectorates and prevention services in ensuring compliance across the five countries. It examines common needs and challenges related to OSH compliance across the five countries, considering the changing nature of work and factors such as company characteristics and sector specific issues.

Analysis of innovative approaches: this dimension analyses innovative approaches to supporting compliance, examining their relevance to specific needs and challenges, success factors, evidence of effectiveness and potential for transferability. It employs a SWOT framework to assess these approaches, including mitigation measures. SWOT analysis is a strategic tool for context analysis and underlines the (in)adequacy of a strategy in relation to the challenges under consideration. In the context of this report, the SWOT analysis highlights the SWOT of the innovative approaches and how they aim to address the challenges facing the OSH sector.

1.4.2 *Workshop: how to advance compliance with OSH regulations*

An expert workshop was held in Bilbao on 12-13 November 2024 (EU-OSHA, 2025a), with the aim to enhance understanding of supporting compliance, provide information to policymakers and researchers, and identify good practices to encourage better compliance. The workshop was based on the five country case studies, with presenters from each of the countries discussing their findings and best practices within their country. The workshop was attended by experts across EEA Member States, allowing for discussion on the transferability of approaches across the EEA.

- The workshop provided valuable insights that inform this comparative analysis. Discussions were organised around three key topics:
- innovative OSH practices and organisational efforts across countries;
- initiatives and tools promoting OSH; and
- addressing emerging challenges in OSH.

Notes from the workshop sessions (presentations, group discussions and plenary debates) have been analysed to identify common themes, innovative practices, and insights regarding transferability and effectiveness. These findings complement and enrich the desk research, providing practical perspectives on the implementation and impact of different approaches to supporting compliance. They also provide a base of information from outside the five key countries, adding to the strength of the comparative analysis.

1.4.3 *Desk search*

The desk research component of this methodology involved a review and analysis of multiple sources. Documents were grouped and reviewed in a specific order, guiding this report. First, broader documents looking at the OSH landscape and challenges faced by labour inspectorates were reviewed and relevant information on key themes and recurring challenges were extracted into an Excel spreadsheet. EU-OSHA's reports on improving compliance with OSH (EU-OSHA, 2021a) regulations offered a conceptual framework that was a key element of this initial stage. Complementary literature was identified through a snowball approach using the bibliography of EU-OSHA's reports as well as Google Scholar searches focused on OSH, labour inspectorates and prevention services in the EEA.

Wider understanding of the current OSH landscape and the challenges faced was developed through Safe Small and Micro Enterprises consortium (SESAME) and EU-OSHA discussion papers. SESAME reports on safety and health in micro and small enterprises (MSEs) provided insights into the particular challenges faced by smaller businesses and were reviewed. Key reports were identified by EU-OSHA and shared with ICF. Discussion papers that contribute to the current discourse on labour inspection and prevention services in the changing world of work and support compliance with OSH regulations were also shared by EU-OSHA. Such papers similarly helped broaden understanding of the challenges faced by prevention services and labour inspectorates today, and how these challenges are changing over time.

More specific understanding of the different approaches being used in the five countries highlighted in this report was developed through a thorough review of the country case study reports and policy briefs for Germany, Ireland, Norway, Poland and Portugal. The documents provide detailed accounts of national approaches to labour inspection and prevention services. Relevant information was extracted into an Excel spreadsheet to allow for comparisons across the different countries and approaches.

The analysis of these sources followed a structured approach, systematically comparing across countries according to the research dimensions. This allowed for the identification of patterns, contrasts and potential transferable practices, while acknowledging the contextual factors that may influence their effectiveness in different settings.

Contextual data from sources such as the European Survey of Enterprises on New and Emerging Risks (ESENER), Senior Labour Inspectors Committee (SLIC) and the OSH Barometer were reviewed where relevant. This was not done as systematically as with the other documentation, but rather as supporting pre-existing themes and evidence.

2 Labour inspectorates and prevention services

This section broadly introduces labour inspectorates and prevention services. It aims to give an overview of their history and responsibilities today.

2.1 Labour inspectorates

The NLI (National Labour Inspectorate) is a governmental authority or public body that enforces national labour law. Among others, the NLI is entrusted with the complex task of monitoring, promoting and enforcing compliance with OSH legislation and regulations, aiming to ensure safe and healthy working conditions for workers. All labour inspectorates have a starting point of formal enforcement of OSH legislation. In some countries their mandate goes beyond OSH and includes additional responsibilities related to work relations, wages, shifts and working time. Their approaches include compliance promotion, monitoring and enforcement activities. The operation of NLIs differs across EEA Member States, with varying mandates, priorities, resources, inspection methods and enforcement powers. As mentioned some NLIs focus narrowly on OSH matters while others address broader labour relations and employment issues that may be closely intertwined with OSH concerns. Understanding these models provides essential context for the innovative approaches discussed in section 3, as labour inspectorates across Europe seek to extend their reach and impact beyond what traditional inspection models could possibly achieve.

Across Europe, labour inspectorates vary along several dimensions including institutional models, governance structures and regulatory approaches which fundamentally shape their operations. These variations reflect distinct historical contexts, governance traditions and policy priorities within each country.

OSH enforcement approaches from the late 19th to mid-20th century followed an 'enlightenment' philosophy, with inspectorates promoting voluntary compliance on top of strictly enforcing the letter of the law. These early regulatory systems throughout Europe featured small inspection bodies focused primarily on providing information and advice, with sanctions serving as a distant background threat (EU-OSHA, 2021a). As empirical evidence emerged showing inspections with penalties reduced work-

related injuries by 22-48% in various contexts (Tompa et al., 2016) deterrence strategies gained prominence, though overly aggressive approaches risked creating a culture of regulatory resistance.

Since the 1980s, new theories have emerged aiming to enhance compliance monitoring and enforcement efficiency while reducing burdens on firms. Responsive regulation proposes that regulators adjust their approach based on firms' cooperation and self-regulation capacity, escalating from persuasion to punishment up an 'enforcement pyramid' only when lower-level measures fail (Ayers and Braithwaite, 1992). Smart regulation expands on this by advocating the coordinated use of government, industry and third-party actors and measures (Gunningham and Grabosky, 1998). More recently, strategic enforcement (Weil, 2010) and co-enforcement (Amengual and Fine, 2017) emphasise changing lead firm behaviour and integrating worker organisations into enforcement. Examples from the United States highlight how worker organisation representatives are trained and formally authorised to act as the 'eyes and ears' of enforcement agencies, bringing deep knowledge of specific sectors and communities, making enforcement more effective (Fine and Gordon, 2010). More specifically, the Los Angeles Unified School District has trained and authorised union business agents to act as work preservation volunteers. These agents are given official identification and access to school construction sites to conduct labour compliance visits, interview workers, and assist with audits and hearings. Although deputised agents do not issue penalties themselves, they collect evidence and submit it to city inspectors.

Institutional arrangements range from generalist inspectorates overseeing both OSH and broader employment conditions to specialist bodies focused exclusively on workplace safety. Some systems divide responsibilities between multiple authorities, while others combine elements of specialisation and broader mandates. Governance structures similarly span from highly centralised systems with national headquarters directing regional offices to decentralised approaches where autonomous regional authorities exercise substantial independence. Equally, regulatory approaches demonstrate significant variation, with some labour inspectorates emphasising collaborative problem-solving through dialogue and education while others give priority to compliance through formal enforcement.

Regulatory frameworks may assign inspectorates' broader (i.e. generalist labour inspectorates) or narrower (i.e. specialist labour inspectorates) responsibilities for monitoring, enforcing and promoting health and safety in the workplace. Generalist approaches describe systems where the inspectors have a broad mandate to deal with employment, industrial related issues, general conditions of work and occupational safety (Von Richthofen, 2002). Therefore, these approaches are usually perceived as being well positioned to address the complex interactions between OSH and wider working conditions, but risk spreading resources too thinly. Specialist systems tend to deal in the main with only one labour inspection function, usually OSH and the working environment. These systems benefit from concentrated expertise and clear organisational focus but may struggle to effectively engage with broader organisational and employment issues. Many countries have mixed systems, with elements of both generalist and specialist approaches (EU-OSHA, 2018a), attempting to capture benefits from both approaches while facing challenges in coordinating efforts of multiple regulatory actors.

2.2 Prevention services

The term 'prevention services' describes the range of professional support for OSH 'available to employers from within or from outside their work organisations' (Walters et al., 2022). It refers to a wide range of institutional forms, with the provisions requiring their use being outlined in the Framework Directive. They encompass a range of institutional provisions, including private and public occupational health and hygiene services, services addressing ergonomic or safety engineering, services integrating these disciplines, group services, private consultancy services that support workplace risk assessment, and OSH management and individual consultants offering similar services (EU-OSHA, 2021a).

Overarchingly, the primary aims of the prevention services is to improve the quality of working conditions, supporting OSH practice by providing competent advice on OSH management to duty holders (Walters et al., 2021). This includes helping businesses comply with statutory requirements, assessing and controlling risks to worker safety and health and supporting rehabilitation and return to work (EU-OSHA, 2021a).

Prevention services can either be internal or external. While both play crucial roles, they differ in scope and delivery:

- Internal prevention services are typically staffed by OSH generalists employed within a company. These professionals have a holistic view of organisational OSH requirements and can deploy specialists when more detailed expertise is needed (EU-OSHA, 2024b). Internal services are more prevalent in larger enterprises.
- External prevention services are often provided by self-employed professionals or small companies. These tend to engage with MSEs, offering specialised expertise which internal generalists may lack. Across the EEA, external prevention services are increasingly marketised.

The growing marketisation of prevention services across European economies has transformed service delivery models and priorities, creating tensions between prevention-focused activities and commercially visible services (EU-OSHA, 2021a). This is noted to particularly affect smaller enterprises' access to comprehensive support (through external prevention services). Comparative literature suggests this trend is evident across most national systems, though its specific manifestations vary based on institutional contexts.

Marketisation has been linked to problems in relation to privatisation, competition and the pricing of services (EU-OSHA, 2021a). Many EU Member States have moved from state-funded or employer-funded public services to market-based models, where private providers compete to deliver OSH services. In some countries, this shift is noted to be positive as the competition is believed to improve efficiency, innovation and responsiveness of employer needs. However, on the other hand, it can be viewed that marketisation has led to the fragmentation of service provision, with a wide range of providers offering varying levels of quality and expertise. Smaller enterprises (especially MSEs) are noted often to struggle to access high-quality prevention services in a highly marketised system. Marketisation potentially exacerbates inequalities as more well-resourced firms can afford better or internal services, while others are left with little to no support. It is important to note that in some EEA Member States, such as Germany and Portugal, there it is also a possibility for the owner/manager, or a dedicated worker, to do an OHS training instead of hiring a prevention service which has been noted to experience positive results.

A reduction in the provision of prevention services has been observed in several EEA Member States. For example, in Sweden, deregulation in 1992 resulted in these services providing much less preventive advice than before. Similar changes in Denmark in 2002 led to a significant reduction in provision overall (EU-OSHA, 2021a). In Scandinavian countries, much of the care provided by external prevention services, once supported as part of a public health service or funded through a 'tax on production' paid by employers, has become the commercial product of market-based systems.

There is a perception that worker access to prevention services has diminished in recent years (EU-OSHA, 2021a), with a suggestion that this is directly linked to marketisation (EU-OSHA, 2021a). The Framework Directive aims to provide equal prevention services for all workers, specifically regardless of company size. However, this goal is only seen to have been achieved in a number of EEA Member States (Walters et al., 2022). The issue of worker access to prevention services can be viewed through different lenses, including supply and demand, availability, uptake (related cost considerations), differences between company sizes and knowledge of rights. Diminishing worker access to prevention services may also be linked to a lack of worker knowledge on their rights, and what prevention services are available. Specifically, SMEs are often described as 'hard to reach' by prevention services not only because individual workers may lack access to OSH support for reasons outlined above, but because the entire company may be unaware of, unable to afford, or insufficiently engaged with prevention services. In these cases, the challenge is not just about worker access, but about the limited uptake and integration of prevention services at organisational level.

3 Drivers of change

Labour inspectorates and prevention services play a critical role in enforcing, monitoring and promoting OSH in the workplace. In recent history, the world of work has been undergoing profound transformation. There have been multiple forces driving these change, however this report focuses on three overarching forces: the rise of the service economy, technological change and globalisation (EU-OSHA, 2021a). In addition, and separate to the forces named, COVID-19 has acted as a major catalyst for change in use

of digitalisation and working methods (EU-OSHA, 2024o). This section provides an overview of these key drivers of OSH change, providing a basic understanding of the drivers of change directly linked to the three key challenges faced today in section 4.

3.1 Service economy

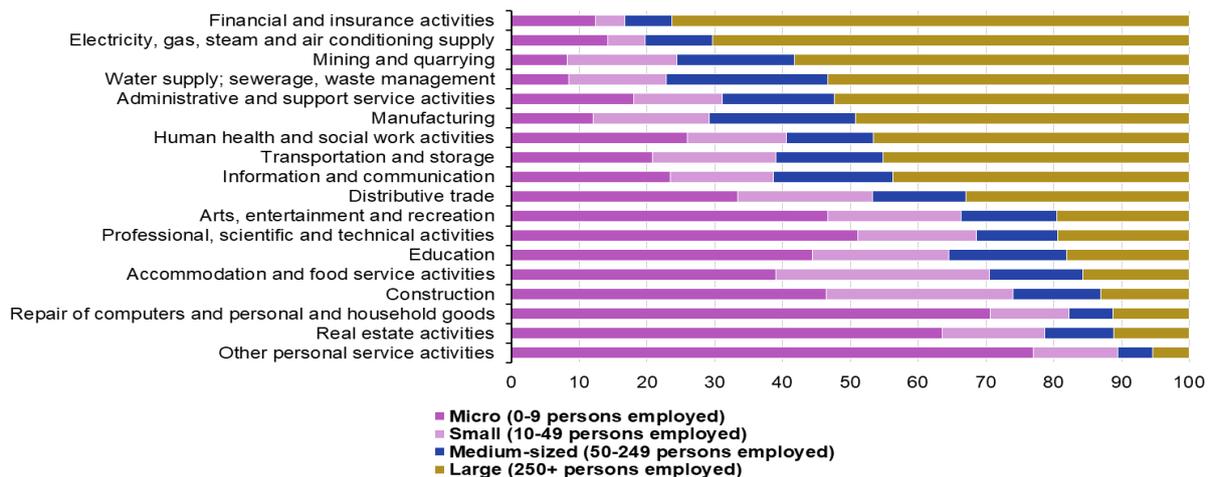
The rise in service-based economies has fundamentally reconfigured employment structures across the EEA (EU-OSHA, 2021a). The rise in SMEs is emblematic of broader economic restructuring, outsourcing and the move away from traditional, hierarchical institutional models (EU-OSHA, 2021a). There are specific definitions that relate to how EEA Member States categorise SMEs (EU-OSHA, 2021a).

- Micro enterprises refer to those with fewer than 10 employees and an annual turnover (or balance sheet) below €2 million.
- Small enterprises have fewer than 50 employees and an annual turnover (or balance sheet) below €10 million.
- Medium enterprises have fewer than 250 employees and an annual turnover (or balance sheet) below €43 million.

MSEs account for 98.6% (EU-OSHA, n.d., 2018a) of enterprises in the EU and employ approximately half of the EU workforce, with distinctive organisational characteristics and OSH challenges compared to their production-oriented predecessors. In 2022, SMEs in the EU employed more people than any other enterprise size class in more than half of the service sectors (Eurostat, n.d.). It is thought that this trend is not new, with some sources noting the high prevalence of SMEs from 2000 (McKinseyGlobal Institute, 2024). Figure 1 shows that this pattern in 2020 was particularly pronounced for real estate activities, the repair of computers, personal and household goods and other personal service activities where an absolute majority of the workforce worked in micro enterprises. By contrast, mining and quarrying, electricity, gas, steam and air conditioning supply, and water supply, waste and remediation, financial and insurance activities, and administrative and support service activities, large enterprises employed more than half of the workforce.

Figure 1: Enterprise size class and analysis of employment

Enterprise size class analysis of employment, EU, 2023 (% of sectoral total)



Note: Estimates. For the purpose of the article some percentages have been calculated, which causes a lower reliability.

Source: Eurostat (sbs_sc_oww)



Source: Eurostat, Structural business statistics overview. Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Structural_business_statistics_overview#:~:text=In%202022%2C%20micro%20enterprises%20in,the%20half%20of%20the%20workforce.&text=The%20contribution%20of%20SMEs%20to,health%20and%20social%20work%20activities.

Non-standard employment arrangements (NSEs), encompassing temporary work, part-time work, on-call work, zero-hour contracts, and platform-based or gig work (EU-OSHA, 2018a), have recorded substantial growth following the post-industrial shift. There is wide diversity across NSEs with significant implications for OSH. For example, they are consistently linked to higher rates of occupational injury and illness, poorer mental health and physical outcomes, barriers to reporting hazards or accessing compensation, and greater exposure to hazardous tasks and environments (Quinlan, 2015).

NSEs challenge traditional regulatory frameworks designed around stable employer–employee relationships (Quinlan, 2015). They often proliferate within SMEs, creating a compounding effect where vulnerable workers are situated within resource-constrained organisations. Labour inspectorates face particular challenges reaching these firms due to their vast numbers and limited visibility, while prevention services struggle to adapt their delivery models to the specific needs of SMEs (EU-OSHA, 2018a, 2021a).

3.2 Technological change

Technological change and innovation has been another pervasive driver of change, enabling remote operations, transforming task allocation reconfiguring working time boundaries and contributing to the expansion of NSEs, fundamentally altering how people work and perceive work. It also can support OSH and inspections through the use of communications technology and AI. Originating in the 1970s and expanding over the following five decades, technological advancement has facilitated the growth of telework (Messenger, 2019). Digitalisation, including AI, robotics and online platforms among others, is fundamentally changing the nature, location and organisation of work (Cockburn, 2021).

While telework has its advantages, teleworkers face significant physical risks, particularly musculoskeletal disorders (MSDs) (EU-OSHA, 2021b). These can result from improper ergonomic setups in home workstations and psychosocial hazards including social isolation, work intensification, blurring of work–life boundaries and technostress from continuous connectivity expectations. Such hazards may disproportionately affect women, who often shoulder additional domestic and caregiving responsibilities (EU-OSHA, 2021b).

Labour inspectorates face significant challenges in protecting teleworkers' health and safety (EU-OSHA, 2021b). Home workstations remain difficult to assess without consent, creating enforcement gaps in traditional place-based inspection models. Employers also face competing resource demands when implementing comprehensive telework OSH policies, particularly regarding adequate equipment provision and effective monitoring systems, with risk assessments becoming more complex when evaluating distributed work environments rather than centralised workplaces, and with the added complexity of raising awareness on and assessing psychosocial hazards (EU-OSHA, 2021b).

Digitisation, automation and the use of robotics in the workplace have introduced new risks that require adequate assessment (EU-OSHA, 2021a). Opportunities linked to these elements are discussed further in section 6.

Digital technologies in workplaces present diverse hazards that can be categorised into three main types (EU-OSHA, 2018b):

- **Physical hazards** involving MSD risk from strained positions due to use of digital equipment. It can also be direct bodily harm from equipment (e.g. exoskeletons, virtual reality (VR)/augmented reality (AR) systems, drones, etc.), for example, sensor-based vests may cause electric shocks when wet, while batteries can overheat, catch fire or explode in harsh environments. Exoskeletons can create biomechanical constraints leading to MSDs, skin irritation and increased cardiovascular stress. VR/AR systems may cause disorientation, cybersickness and eye strain. Safety hazards from equipment causing accidents, for example, exoskeletons' bulky structure may impede movement and cause collisions. They can also create false confidence, with workers feeling invulnerable. Drones present risks to nearby workers through potential malfunctions or cyberattacks. Collaborative robots (cobots) pose collision risks, especially if operating with inaccurate data.

- Complex **psychosocial hazards** due to data privacy, algorithmic management and surveillance fear. Algorithmic management tends to reduce human interaction, weakening workplace connections and motivation. Non-transparent AI decision-making may create perceived injustices and career obstacles. Continuous monitoring may create an 'always-on culture' and anticipatory surveillance fear, generating anxiety and stress. Workers may also fear that workplace digital technology malfunctions, particularly during hazardous tasks or when systems might be compromised.
- **Organisational hazards** are related to the organisational changes from the implementation of different robotic systems that may vary from previous technology. The implementation of new technologies in the workplace has become a reoccurring phenomenon and a necessity to increase competitiveness for organisations. Organisational changes and hazards are also linked to freedom and autonomy that previous systems did not possess.

The **COVID-19 pandemic** can be seen to have served as catalyst and revealer, accelerating technological adoption through widespread telework implementation (EU-OSHA, 2021a). It exposed regulatory gaps in worker protection and illuminated the crucial intersection between occupational and public health, particularly for essential workers who could not avoid physical workplace attendance. Infection clusters in specific sectors, such as meat processing facilities and warehouses, demonstrated OSH systems' vulnerabilities and reflected broader patterns of workplace inequality. With regard to prevention services, the COVID-19 pandemic highlighted the need for better liaison between public health expertise and OSH expertise (EU-OSHA, 2021a). Effective strategies to combat pandemics require a balance between social isolation and maintaining a productive economy. Prevention services play a crucial role in ensuring safe and healthy workplaces under such circumstances and have contributed significantly to repositories of knowledge concerning best practices for preventing workplace exposures. There is a growing body of literature demonstrating how prevention services have supported frontline health service workers and workers in high-risk scenarios. However, prior knowledge of workplace prevention has not always been fully utilised in public health strategies.

3.3 Globalisation

Globalisation, along with new technologies and workforce changes — such as the growth of non-standard forms of employment, increased workforce mobility and demographic shifts — is driving the need for wider and more comprehensive OSH measures (EU-OSHA, 2023b). It has fundamentally altered the landscape of labour inspection, requiring inspectorates to be more integrated and internationally minded while also needing to harmonise the standards in a global economy (Von Richthofen, 2002).

The European workforce is increasingly international, and this diversity and mobility requires OSH systems to adapt to different backgrounds, languages and expectations (EU-OSHA, 2023b). EU enlargement generated significant flows of workers from new EU Member States, creating multifaceted OSH challenges. Globalisation resulted in a changing labour market with more atypical or precarious work, multiple employers, job downgrading and new forms of subcontracting (Von Richthofen, 2002). Migrant, mobile and posted workers are particularly vulnerable within these supply chain structures, often facing multiple high-risk hazards with reduced protection. The SESAME project shows that these workers frequently occupy poor-quality positions in firms employing cost-cutting business strategies, with their vulnerability compounded by limited training, knowledge of reporting mechanisms, fear that reporting violations might jeopardise their employment or immigration status, and communication barriers due to insufficient language skills (EU-OSHA, 2018a, 2021a).

Research from EU-OSHA suggests that these global supply chains may transfer OSH risks downward to smaller enterprises at lower tiers with limited bargaining power and resources (EU-OSHA, 2023a). The LIFT-OSH project findings reveal that while companies at higher levels of supply chains can leverage their purchasing power to improve OSH conditions, the effectiveness varies significantly across sectors and depends on both contractual and relational governance practices (EU-OSHA, 2024a). Contractual governance refers to formal written rules and requirements in business agreements that specify OSH responsibilities, monitoring procedures and consequences for non-compliance. Relational governance involves informal social relations built on trust, flexibility and mutual benefits, such as

knowledge sharing and collaborative problem-solving between companies in the supply chain (EU-OSHA, 2024a).

4 Challenges

The significant transformation seen in recent years has contributed to ongoing challenges facing labour inspectorates and prevention services, as well as adding additional challenges. This section seeks to understand the current challenges facing labour inspectorates and prevention services today. Although there are a multitude of challenges being faced today, this section focuses on three key challenges: resource constraints, changing risk landscapes, and regulatory complexity and fragmentation. The focus is on these three challenges as the main elements that were addressed in the innovative approaches discussed in section 7 (on innovative OSH approaches).

4.1 Resource constraints

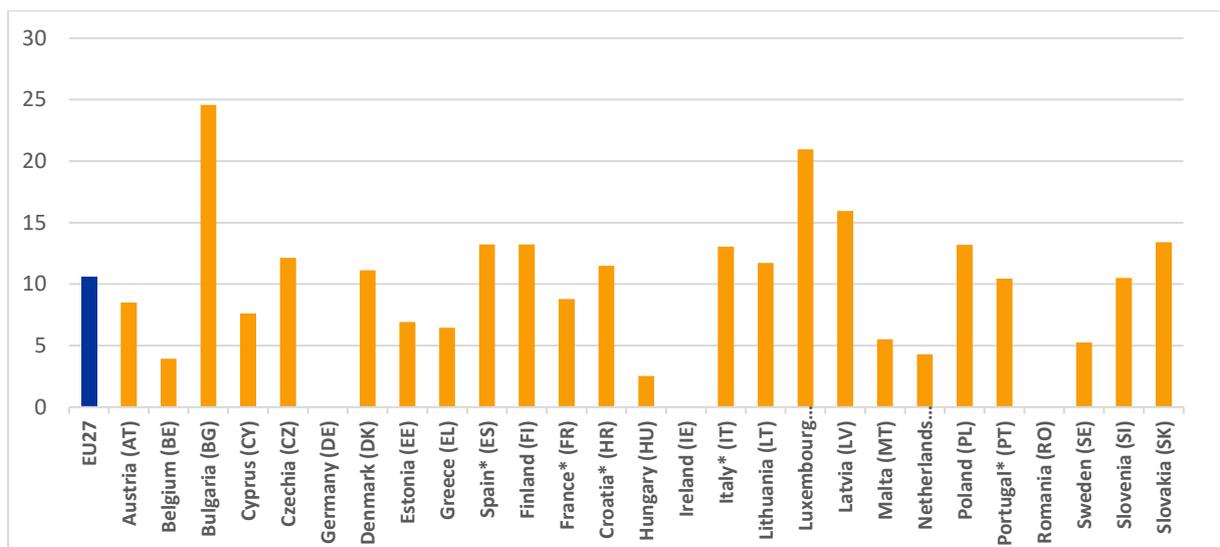
Resource constraints relate to the capacity that labour inspectorates and prevention services have to carry out their core duties and also to the resources dedicated to OSH prevention within the companies. Both labour inspectorates and prevention services face certain resource constraints with regard to their capacity and impacts. This represent perhaps the most fundamental challenge, with staffing, funding, expertise and affordability capacity constraints being present (to differing extents) across the EU.

This pervasive resource gap is compounded by varied needs, including:

- maintaining appropriate standardisation while concurrently adapting to different contexts and coordinating with various local and sectoral stakeholders;
- creating effective deterrence despite legal, procedural and administrative hurdles; and
- balancing OSH enforcement with OSH promotion in a changing world of work that requires expanded skills and knowledge.

Despite improvements in staffing in some countries, individual inspectors typically remain responsible for monitoring hundreds or even thousands of workplaces, making comprehensive coverage unviable (EU-OSHA, 2021a). This becomes even more pronounced when considering companies where access is more restricted (e.g. geographic dispersion, undeclared work, fragmented workplaces). These resource constraints can affect the quality and depth of labour inspectors' work, with pressure to process cases. Figure 2 shows the number of labour inspectors per 100,000 workers across the EU.

Figure 2: Number of labour inspectors per 100,000 workers (EU-OSHA)



Source: EU-OSHA (European Agency for Safety and Health at Work) (n.d2) OSH Barometer Data Visualisation Tool: Enforcement Capacity (no data available for DE, IE, RO). Available at: <https://visualisation.osha.europa.eu/osh-barometer/osh-infrastructure/enforcement-capacity/inspector-activities/labour-inspectors>

The widespread adoption of telework has contributed to this challenge, creating a myriad of individual and remote workplaces that cannot practically, and in some cases legally, be monitored through traditional site visits (EU-OSHA, 2021a). Similarly, platform work and gig economy arrangements have created a distributed workforce operating in public spaces, private vehicles and client locations that do not conform to conventional workplace definitions, making traditional place-based inspection approaches increasingly impractical. Labour inspectorates face the persistent challenge of maintaining a properly trained workforce capable of addressing diverse and evolving workplace hazards.

Data availability and reliability and analytical limitations constrain evidence-based resource allocation and hinder efforts to demonstrate the value of regulatory interventions (EU-OSHA, 2021a). EU countries face similar challenges with underreporting of occupational injuries and illnesses, particularly among vulnerable worker populations including migrants, temporary workers and those in informal employment. Data privacy regulations, strengthened by the 2018 General Data Protection Regulation (GDPR) implementation, create additional complications for data sharing both within government agencies and with external researchers who might contribute valuable analytical expertise.

Knowledge gaps can create enforcement blind spots where violations may be observed but not effectively sanctioned due to inspectors' limited expertise in specialised or emerging risk areas (EU-OSHA, 2021a). This is especially problematic for vulnerable workers in NSE, teleworkers and others in the 'new economy' who remain largely beyond the practical reach of traditional enforcement mechanisms (Quinlan, 2015). Changes in work organisation have created growing populations of workers who are physically or legally difficult for inspectors to reach, for example those working in remote settings, engaged through digital platforms or classified as self-employed while economically dependent on employers. For these workers facing heightened OSH risks due to precarious employment conditions, the enforcement gap is particularly acute as inspectorates lack both the legal frameworks and practical means to monitor their working conditions and apply sanctions when violations occur.

Resource constraints are especially concerning with regards to SMEs, extending beyond financial constraints and into limitations in management capacity, knowledge and attention to OSH matters within the company itself (EU-OSHA, 2021a). Evidence shows that SMEs have a higher incidence of serious and fatal injuries compared to larger enterprises (EU-OSHA, 2018a). This relationship persists even after accounting for sector influences, with limited management resources, insufficient OSH knowledge, financial constraints and the tendency of SMEs to give priority to core business activities (over safety management), directly contributing to these disproportionate risks (EU-OSHA, 2018a). Such challenges are exacerbated by the vulnerable position of SMEs in the economy, the pressures of supply chains and the lack of strong regulatory or institutional support (EU-OSHA, 2018a). Moreover, SMEs are typically informal in their organisation and management and such informality, combined with resource scarcity, means that systematic OSH management is often seen as unnecessary or bureaucratic (EU-OSHA, 2018a).

The tenuous financial position of many SMEs makes them particularly sensitive to compliance costs (EU-OSHA, 2018a). SMEs are also less likely to have internal prevention services, having to rely on external services that may be subject to more price fluctuation. The inspector-to-workplace ratio becomes more problematic when the number of establishments requiring oversight increases dramatically without corresponding growth in inspector numbers. SMEs typically demand more resource-intensive engagement per worker covered, as they often lack internal OSH expertise and formal management systems, and need tailored interventions (EU-OSHA, 2018a).

4.2 Changing risk landscapes

The drivers of change have fundamentally altered the risk landscape and prevention services and labour inspectorates face the challenge of adapting to transformations in work arrangements (and associated risks). The fact that the work-related risk profile has changed in recent years has resulted in it being different to the one from which the labour inspectorates and prevention services were conceived. This relates to the growth of a service-based economy, the application of new technologies, privatisation and outsourcing as well as accompanying structural, organisational and productivity changes.

Labour inspectorates have historically struggled to balance their dual functions as both enforcers of regulatory standards and advisors helping duty holders to understand and meet their obligations (EU-OSHA, 2021a). Labour inspectorates can be described as both controllers and educators, balancing

persuasion and sanction to support compliance (EU-OSHA, 2022b). Tension in this space can be seen to have deepened across Europe as economic liberalisation (since the 1980s) has shifted regulatory philosophies and as labour markets have evolved with increasing precarious employment in new sectors (Von Richthofen, 2002). The changing risk landscape has intensified this balancing challenge, with an expanding range of workplace risk factors requiring different intervention approaches. Psychosocial hazards, for instance, often demand more collaborative assessment techniques than traditional safety inspections. The resource demands of SMEs further complicate this balance, as smaller enterprises typically require substantial guidance to implement effective OSH systems while constituting the majority of workplaces in all five countries studied (EU-OSHA, 2018a).

The risk of capture, where inspectors develop sympathies for those they regulate, compromising their enforcement function, represents an ongoing concern when advisory relationships become too collaborative (Yeung, 2004). Regulatory capture occurs when regulators serve industry interests over the public due to influence, pressure or close relationships. Scholars note that the emphasis on dialogue and lower-level measures may make inspectors particularly vulnerable to industry influence (Yeung, 2004). To counterbalance this risk, incorporating public interest groups as third players empowers both firms and regulators accountable for non-compliance, corruption or capture (Ayers and Braithwaite, 1992). This risk is particularly acute where inspectors regularly interact with the same duty holders over extended periods.

SMEs often have unique needs, regional socioeconomic differences and sector-specific risk profiles that require tailored approaches beyond one-size-fits-all solutions (EU-OSHA, 2018a). This can create challenges in balancing standardisation and local adaptability for labour inspectorates, requiring flexible frameworks that maintain consistency while accommodating regional variations. Standardisation is crucial as it ensures consistent worker protections regardless of location, creates predictable compliance environments for businesses operating across regions, and enables efficient resource allocation and performance measurement. The historical developments between centralised and decentralised models significantly impact how inspectorates balance national consistency and standardisation against local responsiveness and adaptation (EU-OSHA, 2021a). Centralised systems generally facilitate uniform policy implementation and resource allocation but may struggle with regional variations. Decentralised systems often excel at adapting to local conditions but face challenges in maintaining consistency and coordinating across jurisdictions.

4.3 Regulatory complexity

The regulatory landscape for OSH is anchored by the EU Framework Directive 89/391/EEC (1989) that harmonised OSH requirements across EU Member States (EU-OSHA, 2022b). This directive focuses on risk prevention and outlines employer obligations for risk assessments, preventive measures, information, training, consultation and participation (European Commission, 2021). EU Member States are responsible for transposing EU directives into national law and for enforcing OSH standards. They are encouraged to update their national legal frameworks to address new risks, especially those arising from green and digital transitions. Despite consistency at EU level, the realities of OSH practices differ across the EU, and the changing world of work and increase in NSE has resulted in regulatory complexity.

Differences in regulatory complexity can create enforcement inconsistencies across European countries, as inspectors struggle to master and apply diverse regulations across diverse workplace settings (Arrigo et al., 2011). The EU has acknowledged this issue, noting that ongoing collaborative work between the Commission, other EU bodies and Member States is important to streamline EU legislation and remove superfluous administrative requirements. The EU Strategic Framework 2014-2020 (European Commission, 2014) and the EU Strategic Framework on health and safety at work 2021-2027 (European Commission, 2021) highlighted several primary concerns, including evaluating the suitability of current OSH legislation at EU level, exploring implementation improvements, and supporting more consistent and effective compliance across all Member States and businesses. The framework stressed the importance of finding ways to simplify procedures and reduce unnecessary administrative loads, with special consideration for SMEs operating in sectors with lower risk profiles regarding risk assessment documentation (European Commission, 2014).

Ambiguity creates an environment where OSH offences can lack the social stigma and perceived severity of other legal violations. When combined with the focus on incidents, traditional sanctions often fail to tackle possible underlying organisational shortcomings, limiting their impact on an improved safety culture. This inconsistency can be particularly problematic for enterprises operating across regions or in multiple forms, as they encounter different enforcement approaches for similar activities, undermining the clarity and predictability necessary for sanctions to effectively shape behaviour.

4.3.1 *Deterrence versus sanctions*

Labour inspectors in general have four main sanctioning tools (EU-OSHA, 2022b). They can issue formal notices for specific safety improvements within a set timeframe, serve prohibition notices to suspend unsafe work processes or sites, impose financial penalties with varying amounts and approaches across EU countries, and they can take legal action for serious or repeated breaches.

Labour inspectorates use both persuasion and sanctions to support compliance with OSH standards. A limitation identified with regards to traditional financial penalties is that OSH violations are often treated as not 'really criminal', which can undermine their deterrent effect (Carson, 1979). Variations in enforcement and sanctioning across Europe can create inconsistency across similar violations, meaning that their legitimacy and deterrent effect may be undermined and businesses perceive enforcement as arbitrary rather than predictable. Formal sanctions (such as improvement notices, prohibition notices, fines or prosecutions) can be useful, but it is also seen that the presence of a labour inspector carrying out an inspection can carry an 'intrinsic deterrence effect' (EU-OSHA, 2022b). The most effective balance between persuasion and sanction is debated in the literature, but persuasion can be seen as generally preferred to promote a safety culture, and sanctions used as needed (EU-OSHA, 2022b). Persuasion is seen to foster a collaborative relationship between inspectors and enterprises (employers and workers) as well as having an educational advantage as such approaches often include educational campaigns, guidance and promotional activities (EU-OSHA, 2022b). Employers may perceive inspectors as having the authority to impose sanctions if their advice is not followed, which itself acts as a deterrent against non-compliance. The balance between advice and enforcement is seen to be central to effective OSH policy and practice (OSHwiki, 2023).

Deterrence theory positions sanctions as economic motivators that fundamentally alter the cost–benefit calculations of regulated entities (Akers and Sellers, 2009; Becker, 1968). According to this theory, organisations make rational decisions about compliance based on economic self-interest; they comply when the perceived costs of non-compliance (including potential sanctions) exceed compliance costs (Akers and Sellers, 2009; Becker, 1968). This economic perspective assumes that organisations actively seek information about enforcement activities, increase their perception of non-compliance risks when aware of penalties and translate this heightened risk perception into behavioural changes. Research suggests the effectiveness of sanctions in OSH enforcement includes criminal prosecutions for serious violations (Tompa et al., 2016) and confirms that publicising violations improves OSH compliance among non-targeted firms, suggesting that enhancing awareness of enforcement may strengthen general deterrence (Johnson, 2020). However, academics favouring more persuasive approaches emphasise a lack of evidence of correlation between the levels of fines and improved compliance (EU-OSHA, 2022b).

This rationalistic model has also been challenged by research, highlighting that organisational decision-making is characterised more by bounded rationality than by fully informed calculation (March and Cyert, 1963; Simon, 1955). Firms have limited capacity to process information about different laws and penalties, and their decisions are influenced by psychological biases and conflicting motives: economic, social, normative and legal (Parker and Nielsen, 2017). Equally, enforcement bodies face fundamental challenges, including around *who* to target, *what* violations to give priority to, and *how much* or *how* to penalise. These questions have become increasingly complex as work arrangements evolve beyond traditional employment models, especially on whether the money is spent on fines as opposed to improve working conditions.

There are significant challenges stemming from the economic structures of SMEs (EU-OSHA, 2018a). This pattern creates fundamental enforcement difficulties, as these smaller enterprises are both more numerous and often harder to reach and monitor effectively. Limited coverage creates an enforcement probability so low that sanctions can also lose their deterrent effect, particularly for smaller enterprises operating with minimal oversight. When the probability of inspection is extremely low, the expected cost

of non-compliance (violation cost multiplied by detection probability) remains lower than compliance costs, creating a rational economic incentive to cut corners on safety measures.

5 Overview of the five case study countries

This section presents the labour inspectorates and prevention services within the five case study countries. It is not a full and comprehensive overview of the labour inspectorates and prevention services in each country, but rather intends to give additional background and context for the challenges and innovative approaches to be presented in the coming sections. The full description of the countries can be found in the country reports (see for reference section 9.2).

5.1 Labour inspectorates

The five countries examined represent the full spectrum of regulatory models of labour inspectorates, each shaped by distinct historical and institutional contexts.

Ireland, Norway, Poland and Portugal operate with centralised structures that include regional implementation offices. Centralised inspectorates enable greater national standardisation and coordination but face significant limitations in local adaptability. Conversely, a key strength of decentralised structures lies in their flexibility and responsiveness to local conditions.

Ireland's Health and Safety Authority (HSA) has a central headquarters with eight regional offices; Norway's Labour Inspection Authority functions through seven regional units under a national director general; Portugal's ACT maintains a central headquarters in Lisbon with 32 local offices; and Poland's PIP operates with a central headquarters led by a Chief Labour Inspector, supported by 16 district inspectorates and 42 local offices. These regional offices function as branches of a single national authority, implementing centrally determined policies and priorities. Figure 3 highlights the different features of labour inspectorates across the five countries.

Figure 3: Comparison of OSH systems across five European countries

Feature	Germany	Ireland	Norway	Poland	Portugal
Institutional Model	Divides OSH responsibilities between labour inspectorates under 16 federal states (Länder) and statutory accident insurance institutions (UVTs) organised by sector. Coordinated through the Joint German OSH Strategy (GDA).	Health and Safety Authority (HSA) focuses exclusively on OSH matters under the Safety, Health and Welfare at Work Act 2005. Enables development of technical knowledge in workplace safety.	Labour Inspection Authority monitors both OSH and broader employment conditions including contracts, working hours and wage rates, particularly in sectors with low level of collective bargaining.	National Labour Inspectorate (PIP) combines specialised OSH functions with broader labour standards enforcement across workplace health and safety, compliance with labour protections, and employment legality.	Working Conditions Authority (ACT) oversees both labour relations and occupational safety across all economic sectors , addressing the interconnected nature of workplace problems.
Governance	Highly decentralised: 16 separate state Labour inspectorates function as institutionally independent entities with their own legal authority, leadership structures and significant autonomy in setting priorities.	Centralised: Central headquarters with eight regional offices implementing centrally determined policies and priorities.	Centralised: Functions through seven regional units under a national director general, implementing consistent national approaches.	Centralised: Central headquarters led by a Chief Labour Inspector, supported by 16 district inspectorates and 42 local offices.	Centralised: Maintains central headquarters in Lisbon with 32 local offices functioning as branches implementing centrally determined policies.
Approaches	Dual enforcement style: State labour inspectors adopt legalistic, sanction-oriented approaches while UVTs emphasise collaboration and prevention, with GDA coordinating these complementary methods.	Cooperative problem-solving: Strong emphasis on dialogue and engagement with duty holders, using enforcement powers as a last resort when educational approaches fail.	Facilitative and educational: Emphasises information provision and cooperative dialogue, using sanctions sparingly and only when facilitation fails or for severe violations.	Compliance-focused: Strong enforcement orientation, incorporating advisory elements but prioritising formal compliance mechanisms for serious violations.	Functionally separated: Maintains strong enforcement capacity through sanctions while organisationally separating preventive and educational activities to reduce role confusion.

Portugal's ACT illustrates the strengths of a centralised approach through its ability to implement coordinated national inspection actions targeting high-risk sectors like construction, ensuring consistent enforcement approaches across regions. Similarly, during the COVID-19 pandemic, Norway's Labour Inspection Authority demonstrated the advantages of centralisation through its coordinated national response, implementing infection control measures consistently across all regions and providing unified guidance through its national call service. This centralised guidance function proved especially valuable during the crisis, answering nationwide enquiries about rapidly changing regulations. Despite the positives, there are local adaptability issues. For example, Portuguese labour inspectors report that standardised national procedures can be ineffective when applied to varied local situations (EU-OSHA, 2025e). They note that generic procedures decided at the national level often fail to address the specific realities of different work scenarios and local contexts. The issue of 'territorial asymmetry' is challenging for centralised systems, as the varying business realities, worker profiles, and intervention targets across different regions make it unviable to apply a one-size-fits-all approach to inspections.

In contrast, Germany exemplifies a decentralised, federal structure with 16 separate state labour inspectorates. These state inspectorates are institutionally independent entities with their own legal authority, leadership structures and significant autonomy in setting priorities and implementation approaches, reflecting Germany's federal constitutional structure where Länder (states) maintain distinct governance powers. This structure can also be seen proportionate to Germany's size and population distribution. Individual German states like Bavaria and North Rhine-Westphalia, for example, each have populations exceeding that of many European countries, making this decentralised approach practical for effective governance. Germany's federal structure allows each state inspectorate to adapt its approach to regional industrial variations and labour market conditions, enabling more tailored enforcement strategies. During the COVID-19 pandemic, this flexibility allowed German state inspectorates to adjust their approaches based on regional infection rates and industrial profiles, targeting sectors with high infection rates and adapting to local circumstances.

Germany's system also exemplifies the complexities of implementing standardisation within decentralised structures (EU-OSHA, 2024c). Despite having a robust legal framework, the country has faced significant challenges in establishing a harmonised joint advisory and monitoring strategy. The diverse approaches employed by the Federal Government, federal states and UVTs affect the cohesiveness of enforcement models. The OSH Inspection Act laid the groundwork for improvement by introducing common quality and quantity standards for assessing companies, promoting a more uniform approach to OSH across the country. To address ongoing coordination challenges, the OSH Act established the GDA. This framework mandates collaboration between the Federal Government, federal states, and OSH authorities to develop and implement standardised approaches to workplace safety and health monitoring. Despite these legal provisions, implementation remained difficult. In response, Germany introduced the third GDA period (2021-2025), which emphasises standardised and coordinated action, particularly focusing on SMEs. As part of this initiative, the Working Group 'Company Visit' was established to promote a standardised monitoring and advisory process, with plans to conduct 200,000 company visits using standardised data sheets.

Key sources used in this section:

EU-OSHA (European Agency for Safety and Health at Work) (2024c) Germany's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.28025/148089

EU-OSHA (European Agency for Safety and Health at Work) (2025b) Ireland's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/9089826

EU-OSHA (European Agency for Safety and Health at Work) (2024d) Norway's Approach in Supporting Occupational Safety and Health Compliance: Role of the Labour Inspectorate and Prevention Services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/24029

EU-OSHA (European Agency for Safety and Health at Work) (2025d) Poland's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/8613563

EU-OSHA (European Agency for Safety and Health at Work) (2024f) Labour Inspection in Poland: Supporting OSH Compliance. European Agency for Safety and Health at Work, 2024

EU-OSHA (European Agency for Safety and Health at Work) (2025e) Supporting occupational safety and health compliance: role of the Labour Inspectorate in Portugal. Available at: <https://osha.europa.eu/en/publications/supporting-occupational-safety-and-health-compliance-role-labour-inspectorate-portugal>

5.2 Prevention services

Internal prevention services show relative similarity across the five countries, being directly employed by companies, funded by employers and regulated by national legislation. Typically, they include safety specialists, occupational physicians and worker representatives with dedicated OSH responsibilities. However, significant differences exist in their prevalence and organisation. For example, in Norway (and other similar Nordic countries), there has been a historical reliance on internal prevention services based on the position and understanding that on-site managers and workers are most competent to address work-related issues within the specific company. In Germany, internal services are highly regulated with specific qualification requirements and time allocation formulas based on company size and risk level. Conversely, in Ireland, Poland and Portugal, internal prevention services are less developed outside larger enterprises and multinational corporations, leading to significant gaps in terms of capacity within smaller domestic firms.

External prevention services demonstrate greater variation across organisations, funding and delivery models across countries. For example, in Germany, although prevention services were historically tied to social insurance, EU regulations have introduced market elements where companies can choose their providers. Although UVTs still maintain a central role, companies can opt for alternative providers in order to meet regulatory requirements (EU-OSHA, 2024i). In Norway, external occupational health services have transitioned from a social welfare-based to a market-based model following deregulation, thus creating new dynamics in service quality and accessibility (EU-OSHA, 2024d). In Ireland, external prevention services operate in a predominantly commercial market with limited state regulation beyond professional competency requirements (EU-OSHA, 2025c). In Poland, external services reflect the country's transition history, with a complex system featuring both public and private providers operating under different regulatory frameworks (EU-OSHA, 2024e). In Portugal, external prevention services tend to compete primarily on cost rather than quality, often viewed by companies as fulfilling a legal requirement at the lowest possible price (EU-OSHA, 2025f). Despite formal authorisation requirements, this market dynamic significantly influences service orientation and quality (EU-OSHA, 2025f). Moreover, in Portugal it is important to note that companies which have internal prevention services may also rely on external prevention services as internal ones may be more orientated towards specific worker health aspects or to safety matters (EU-OSHA, 2025g).

Key sources used in this section:

EU-OSHA (European Agency for Safety and Health at Work) (2024c) Germany's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.28025/148089

EU-OSHA (European Agency for Safety and Health at Work) (2025b) Ireland's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/9089826

EU-OSHA (European Agency for Safety and Health at Work) (2024d) Norway's Approach in Supporting Occupational Safety and Health Compliance: Role of the Labour Inspectorate and Prevention Services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/24029

EU-OSHA (European Agency for Safety and Health at Work) (2025d) Poland's approach to supporting occupational safety and health compliance: the role of labour inspectorate and prevention services. Luxembourg: Publications Office of the European Union. DOI: 10.2802/8613563

EU-OSHA (European Agency for Safety and Health at Work) (2024f) Prevention Services in Poland: Supporting OSH Compliance. European Agency for Safety and Health at Work, 2024

EU-OSHA (European Agency for Safety and Health at Work) (2025e) Supporting occupational safety and health compliance: role of the Labour Inspectorate in Portugal. Available at: <https://osha.europa.eu/en/publications/supporting-occupational-safety-and-health-compliance-role-labour-inspectorate-portugal>

6 Realities of challenges in the five case study countries

This section outlines how the five country case studies face the challenges discussed in section 4. This aims to further contextualise the innovative approaches and more specific elements of the challenges that they are designed to address. The purpose of the section is not to compare the extent of the challenges across the countries.

6.1 Resource constraints

All five case study countries face challenges related to resource constraints. This sub-section presents the capacities of the labour inspectorates and prevention services.

6.1.1 *Labour inspectorate capacity*

Germany employs a dual OSH inspection system with both federal state authorities and UVTs. In 2021, federal authorities inspected 54,784 companies (conducting 127,737 inspections) while UVTs inspected 210,413 establishments (conducting 440,051 inspections) (EU-OSHA, 2024c). Together they cover approximately 265,000 enterprises annually out of 3.1 million (8.6%), though this figure likely includes overlap as both bodies can inspect the same companies. The 2021 OSH Inspection Act, implemented following the COVID-19 pandemic, established a 5% minimum inspection quota for federal authorities and mandated data exchange between federal authorities and UVTs to reduce duplication. The federal state inspectorates specialise in OSH only, while UVTs combine OSH inspection with prevention services and insurance functions. This specialised approach differs from countries with generalist inspectorates, affecting comparability of inspector numbers.

In Ireland, the HSA expanded staffing from 190 in 2021 to 273 in 2024, but maintained only 85 field-based inspectors for approximately 350,000 small enterprises. The HSA acknowledges that comprehensive coverage would exceed their capabilities even with the planned growth to 317 staff. To address this gap, Ireland has developed a strategic approach combining risk-based inspections with extensive guidance and support programmes. The HSA gives priority to high-risk sectors such as construction, agriculture and healthcare, while implementing digital solutions to extend their reach. Their 'BeSMART' initiative provides digital online risk assessment tools specifically designed for small businesses, complementing their limited inspection capacity with self-service compliance resources. Despite these innovations, the inspection-to-enterprise ratio can be seen to still be a significant challenge for comprehensive enforcement.

In Norway, approximately 600 labour inspectors oversee 220,000 enterprises with employees plus 430,000 enterprises without employees, creating a ratio of one staff member per approx. 370 enterprises with employees. Norwegian labour authorities indicate they cannot conduct inspections across all workplaces within a reasonable timeframe despite their staffing levels. To maximise their resources, Norway employs sophisticated risk-based inspection targeting, utilising AI and data analytics to identify high-risk sectors and enterprises. Their approach combines targeted enforcement with extensive digital resources for employers, including self-assessment tools and industry-specific guidance materials. The Norwegian NLI focuses on sectors with higher accident rates and hazardous exposures, while maintaining a responsive capacity to address complaints and reported incidents.

Poland has increased its NLI personnel from 1,300 to 1,500 inspectors while simultaneously receiving over 30 new statutory responsibilities. This workforce manages to inspect about 2% of Polish enterprises annually. The Polish NLI employs a co-enforcement model, combining traditional inspection with prevention activities and collaborating with various stakeholders. Their approach is data-driven, with inspections primarily focusing on three sectors: trade and repair of motor vehicles, construction and manufacturing, which account for approximately 60% of all inspections. The construction sector receives particular attention due to its high rate of severe and fatal accidents. Despite resource constraints, the inspectorate conducts both complaint-based and planned inspections, with regional labour inspectorates having authority to set local priorities alongside national ones.

The paired inspection approach in Portugal, while enhancing inspector safety and thoroughness, reduces the operational capacity in numbers compared to individual inspections. Portugal's ACT has responded by implementing targeted campaigns in high-risk sectors and developing specialised inspector training to enhance efficiency. The country has also expanded its digital services and compliance assistance programmes to supplement direct inspection activities. Despite these efforts, Portugal continues to face challenges in achieving comprehensive workplace coverage, particularly in remote regions and emerging sectors.

Inspectors across all five countries increasingly require specialised knowledge to address evolving workplace risks and arrangements, yet training resources and expertise development is seen not to have kept pace with workplace transformation. Portugal's inspectors explicitly note 'there is still a need for training concerning constant updates on legal changes' and specifically 'in cases of new forms of work' (EU-OSHA, 2025e), openly telling when confronting novel work arrangements that they 'didn't know what we were dealing with. It was a completely unknown reality to us' (EU-OSHA, 2025e). Germany faces a 'growing shortage of skilled workers affecting recruitment of new labour inspectors' (EU-OSHA, 2024c) precisely when more specialised expertise is needed for emerging workplace arrangements.

A knowledge gap manifests differently across countries but creates similar enforcement challenges. Poland's expanding responsibilities, adding 'more than 30 new tasks requiring additional workloads' over 25 years with minimal staffing increases, stretch inspectors' expertise across an ever-widening range of issues (EU-OSHA, 2024f). Ireland has identified specific gaps in addressing psychosocial risks, while Norway's inspectors struggle with specialised knowledge needed for emerging technologies, noting that digital monitoring systems can be 'a source of stress and provide the employer with excessive control of work performance' (EU-OSHA, 2024d) but they lack specialised training to properly assess such systems.

6.1.2 Prevention services capacity

A persistent challenge in Germany is the shortage of medical expertise in prevention services. Such a shortage undermines the medical component of Germany's comprehensive approach, which legally requires both technical and medical expertise within prevention services. Norway's services struggle more with adapting to new risk profiles, highlighting how the changing nature of work creates competency challenges, even for established prevention services. Internal professionals with backgrounds in traditional safety engineering or occupational medicine often lack the psychological and organisational expertise increasingly required in contemporary workplaces.

Ireland's internal prevention services reflect a predominantly generalist orientation, aligning with Ireland's regulatory emphasis on risk assessment and safety management systems. However, this creates a gap in specialised technical and medical expertise. Internal prevention services often rely heavily on external specialists for specific hazard assessments, creating potential integration challenges. Poland's internal prevention services face particular challenges with professional integration in internal services, reflecting Poland's historical approach to OSH. This creates challenges in addressing multifactorial risks that span traditional professional boundaries. The system is noted to particularly struggle with psychosocial risks, which do not fit well into either the medical or technical domains (as traditionally defined).

Professional development challenges are highlighted in Portugal's internal prevention services, as their relatively recent development of professional frameworks for prevention services means that many practitioners have limited opportunities for advanced specialisation or continuing professional development. Moreover, this creates difficulties in adapting to changing risk profiles and workplace conditions.

6.1.3 Structural decline and resource constraints

Germany's internal prevention services operate within a dual system combining state labour inspectorates with UVTs. Despite strong institutional backing, internal services face substantial challenges, specifically in engaging with SMEs as internal prevention services primarily exist in larger enterprises. This is an issue legislation has not solved, as, even when legally required, compliance gaps remain with 45% of companies with 1-9 employees having no contract with an OSH expert and 59% lacking an occupational physician (EU-OSHA, 2024j). Such a compliance gap represents a significant challenge for Germany's otherwise robust prevention framework. Large enterprises tend to maintain adequate internal services smaller firms struggle, even with clear legal obligations.

Ireland's market-dominated system has resulted in limited development of internal prevention services as internal services are primarily developed by multinational companies or large public bodies. This has caused significant gaps in Irish-owned enterprises. Moreover, where internal OSH professionals exist, they often report insufficient resources, limited strategic influence and isolation from decision-making (EU-OSHA, 2025c). Such a reliance on external consultants has thus created a situation where internal capacity development receives limited attention and investment, especially in smaller domestic enterprises.

Norway has experienced a notable decline in internal prevention service structures following significant regulatory reforms with internal service structures largely having disappeared from SMEs following the deregulation of occupational health services. This is not limited to SMEs, as even in larger organisations remaining services face increasing pressure from cost-cutting and downsizing (EU-OSHA, 2024d). Such a decline reflects broader regulatory shifts within the Norwegian approach, which has emphasised market mechanisms over direct provision. The Norwegian Working Environment Act still requires systematic OSH management, but the resources to implement this internally have diminished in many sectors, particularly outside traditional industrial settings.

Internal prevention services in Poland reflect the country's economic transition history from a state-controlled to a market-based economy. This created particular challenges for the internal prevention services, with many traditional structures dismantled or reduced during privatisation. Services remaining often struggle to maintain sufficient influence and resources within reorganised corporate structures. Specifically, 67% of internal OSH specialists report insufficient budgets for implementing recommended improvements (EU-OSHA, 2024e).

Portugal's internal prevention services operate within a developed regulatory framework and the recent regulatory development has established formal frameworks for internal services, however implementation challenges remain substantial. Some inspectors noted that the system particularly struggles with the qualitative aspects of service provision, with internal services often narrowly focused on compliance rather than substantive prevention.

6.2 Changing risk landscape

The changing risk landscape has been experienced across all five case study countries. This has materialised around challenges related to inspector training and expertise, complex long-term hazards, technical infrastructure advancements and changes in service orientation.

6.2.1 *Labour inspector training and expertise*

Across the five countries, the approaches to inspector training and development reflect different priorities and institutional structures, yet all face a similar challenge: balancing the breadth of knowledge required for general inspections with the depth of expertise needed for complex, emerging risks.

Germany's dual OSH system presents both challenges and opportunities for inspector training in addressing emerging workplace risks. The system encompasses state labour inspectors and UVT inspectors, each operating under different legal mandates and institutional cultures. This structural division has historically created coordination difficulties, particularly as evolving workplace challenges from flexible employment models and emerging hazards require updated inspection methodologies. To address these challenges, Germany has developed common training modules through its GDA that attempt to bridge institutional differences whilst focusing on three critical emerging risks: carcinogenic substances, mental stress and MSDs. The modules provide practical resources including tutorials, reference materials and assessment checklists designed to standardise system assessments across both institutional pathways. However, the dual structure continues to create implementation tensions. State representatives generally favour standardised assessment tools as they provide clarity for inspectors, while many UVT officials consider the GDA's approaches excessively bureaucratic and inefficient. This institutional resistance reflects deeper philosophical differences about inspection methodologies, suggesting that whilst the standardisation initiative offers opportunities for unified responses to new workplace hazards, achieving consistent implementation across Germany's decentralised regulatory framework remains challenging.

Ireland's HSA has developed a relatively sophisticated inspector training regime, as part of its recent recruitment expansion, which recognises the increasingly complex regulatory environment. Ireland has invested in specialised training for emerging risks, particularly psychosocial hazards and chemical safety. New inspectors recruited during a recent recruitment drive undergo an 11-month training and mentorship programme before conducting independent field work.

The Norwegian Labour Inspection Authority recognises the evolving nature of work-related risks, particularly in addressing new forms of employment and changing workplace hazards. The Authority's approach emphasises the need for inspectors to understand both traditional occupational safety issues and emerging psychosocial hazards in modern workplaces. However, there are ongoing challenges in ensuring inspectors have sufficient resources and training to address the full spectrum of contemporary workplace risk factors, including those arising from new technologies, remote work arrangements and evolving employment relationships.

Poland's labour inspector training is provided through the Training Centre of the State Labour Inspection in Wrocław which provides apprenticeship programmes and organises specialised training for existing inspectors. Inspectors are recognised to face challenges in addressing emerging risk factors in the new world of work, particularly around remote work, platform work and algorithmic management, where regulatory frameworks lag behind workplace realities.

Portugal implements a comprehensive training system for labour inspectors through a one-year probationary internship that combines theoretical instruction (350 hours across eight subjects, including 144 hours on OSH but only three hours on inspection risks) with practical application, which inspectors generally find adequate for their basic needs. Despite significant investment by the ACT of 8,114 hours in continuous training during 2023, this ongoing professional development is not perceived as sufficiently immersive to address emerging challenges in the field. Inspectors have identified critical knowledge gaps regarding legal updates for fragmented labour legislation, protocols for handling harassment and violence and approaches to new forms of work, particularly platform-based employment where inspectors admitted they 'did not know what they were dealing with' during interventions. These

challenges the evolving demands of the labour inspection environment, emphasising the need for more targeted training protocols that can adapt to emerging work arrangements.

Across the five countries examined, inspector training systems have been seeking to adapt traditional competencies to rapidly evolving workplace realities. Initial programmes can provide foundational knowledge, for example Portugal's year-long internship and Ireland's 11-month mentorship. Yet, inspectorates face challenges developing expertise for emerging hazards including platform work, carcinogenic substances and psychosocial factors (e.g. long working hours, isolation, violence, etc). The proliferation of digital platforms, algorithmic management systems and remote work arrangements poses new training challenges that none of the five inspectorates have fully addressed, though Norway and Ireland have begun developing specialised training modules for these emerging contexts. Institutional structures influence training effectiveness, as demonstrated by Germany's dual system despite GDA standardisation efforts. Although data comparability limitations exist between national systems, evidence suggests a gap between inspector preparedness and workplace innovation, potentially undermining enforcement where workers are most vulnerable. Labour inspectorates must give priority to agile, specialised training approaches that integrate knowledge of evolving hazards while maintaining core competencies, a balance not yet fully achieved.

6.2.2 Complex or long-term hazards

Enforcement agencies in all five countries encounter substantial challenges in gathering evidence when dealing with hazards that have complex causes or long-term health effects. This results in enforcement gaps, especially regarding psychosocial risks and situations involving chronic exposure. For example, inspectors in Ireland have found it extremely difficult to use traditional sanctioning powers or to pursue prosecutions under current OSH legislation. This was seen particularly for psychosocial risks where it has been difficult for workers to demonstrate a direct link between their work and their ill health (EU-OSHA, 2025b). Similar issues are present in Germany, where legal proceedings are often halted because courts struggle to recognise the long-term nature of these causal relationships (EU-OSHA, 2024c).

These difficulties in attributing workplace hazards are further exacerbated by shortcomings in risk assessment practices. In Poland, labour inspectors observed that, in 2023, psychosocial risks were often neglected in the risk assessments conducted by the businesses they inspected (EU-OSHA, 2025d). Irish inspectors also expressed serious concerns about the overall quality of risk assessments (EU-OSHA, 2025d). In Portugal, there is a lack of specialised training for inspectors to properly identify and document complex risks, while in Norway, the challenges of documentation are heightened in remote or flexible working environments, where monitoring is sporadic and it becomes even harder to establish a clear connection between work and health outcomes (EU-OSHA, 2024d). These evidentiary challenges create a significant enforcement gap for increasingly prevalent workplace hazards.

6.2.3 Reaching MSEs

Coverage gaps for smaller enterprises for internal prevention services can also be seen. For example, in Germany, the otherwise robust system shows substantial coverage gaps for smaller enterprises, with only 55% of micro-enterprises reporting having OSH expert contracts, compared to 87.7% of large enterprises, despite legal requirements. Such disparities exist despite the country's institutional emphasis on universal coverage, highlighting the challenges in extending prevention services to smaller organisations.

Geographical and sectoral patterns can be seen in Norway's internal prevention service coverage. Here, internal prevention services remain concentrated in larger enterprises, the public sector and hazardous industries (EU-OSHA, 2024d). Rural regions and emerging service sectors further demonstrate particularly limited internal capacity (EU-OSHA, 2024d). Such patterns reflect historical industrial structures as well as more recent economic developments. Similarly, Portugal exhibits significant geographical and sectoral disparities, with internal prevention services showing pronounced urban–rural divides. Sectoral patterns are equally significant, with manufacturing, construction and healthcare maintaining higher internal capacity (compared to commerce and services) (EU-OSHA, 2025e). These

patterns reflect both regulatory emphasis on traditional high-risk sectors and practical challenges in developing prevention capacity in rural areas with predominantly small enterprises and limited access to specialised expertise.

Patterns between multinational and domestic enterprises can be seen in Ireland, with a divide between multinational corporations and domestic enterprises (EU-OSHA, 2025c). Specifically, multinational corporations typically maintain a more robust internal prevention system, aligned with global corporate standards, whereas domestic enterprises show more limited internal capacity development. This pattern reflects Ireland's economic structure and regulatory approach, with multinational corporations importing prevention practices from parent organisations while domestic enterprises rely more heavily on external resources.

Poland's coverage patterns reflect structural economic factors, with disparities reflecting both Poland's industrial heritage and its regulatory framework. Internal prevention services reach approximately 72% of workers in enterprises with over 250 employees but only 11% of enterprises with fewer than 10 workers (EU-OSHA, 2025d). Sectoral patterns are noted to be equally pronounced, with manufacturing and energy showing relatively high coverage (63% and 78%, respectively) compared to trade and services (22% and 18%, respectively) (EU-OSHA, 2025d). This imposes graduated requirements based on enterprise size and risk level. Moreover, the system struggles to reach the growing small enterprise sector, particularly in emerging service industries.

Costs seem to remain prohibitive for many firms to access external prevention services. In Germany, despite insurance-based support mechanisms, many MSEs report that external prevention service costs consistently restrict access (EU-OSHA, 2024c). Ireland's market-based system creates particularly significant barriers. Here, external service costs represent a proportionally higher burden for micro-enterprises, accounting for 2.7% of operating costs on average for micro-enterprises, in comparison to 0.3% for large enterprises (EU-OSHA, 2025c). Norwegian small enterprises face similar challenges, with cost barriers being cited by 68% of firms with fewer than 20 employees as the primary reason for not engaging external prevention services (EU-OSHA, 2024d). Although marketisation can be seen to reduce costs, this may not have occurred to the extent to make them accessible to smaller businesses. Polish small enterprises similarly report that financial constraints regularly prevent access to comprehensive services, with 54% indicating that cost is the primary barrier (EU-OSHA, 2024e). Portugal also shows similar patterns with micro-enterprises citing affordability as a major obstacle in accessing qualified external prevention services (EU-OSHA, 2025f). Despite this, the majority of Portuguese SME's use these services.

German research shows that several small enterprises lack awareness of the available services (EU-OSHA, 2024c), while Norway reports that 45% of small enterprises demonstrate little understanding of the service benefits and requirements of prevention services (EU-OSHA, 2024e). Small enterprises in Ireland show similar awareness gaps regarding available services and their potential value, with 57% unable to identify relevant external providers (EU-OSHA, 2025c), and Polish small enterprises also frequently lack knowledge about prevention service requirement and options (EU-OSHA, 2024e). Portugal micro-enterprises similarly demonstrate a limited recognition of the business benefits, with 61% viewing them as a regulatory (EU-OSHA, 2025f).

6.2.4 Technical infrastructure advancements

The five countries in this study demonstrate different levels of data sophistication, reflecting both technical infrastructure and analytical capacity variations. Germany has developed relatively advanced data systems, particularly within its UVTs, though the German report notes that 'legacy data systems are primarily designed for case management rather than strategic analysis, limiting the inspectorate's ability to identify patterns and emerging risks' (EU-OSHA, 2024c). This limitation stems partly from Germany's historical emphasis on legal case documentation rather than statistical analysis. The federal structure creates additional complications for data integration across different Länder and between the state inspectorates and accident insurance institutions. While the joint data transfer protocol established in the 2021 OSH Inspection Act requires exchange of 12 data points for each inspection, implementation has been uneven, with only 63% compliance in 2022. The Prevention Process Management System

(PPMS) represents a promising innovation, using machine learning to predict risk levels across enterprises, but it remains limited to certain sectors.

Ireland's HSA has developed sophisticated data analysis capabilities, though the Irish report acknowledges challenges in moving beyond activity metrics (inspections conducted, violations identified) to meaningful impact measures. Ireland has attempted to address this through the development of sector specific risk profiles to guide inspection targeting. The HSA's BeSMART online tool has enabled systematic collection of risk assessment data from over 75,000 enterprises since 2011, providing a valuable dataset for analysis that surpasses capabilities in most other European countries. This is of particular importance given that such data are not collected at EU level.

Norway has a more advanced data system with extensive integration of various data sources, including inspection records, injury reports and population surveys on working conditions. The Labour Inspection Authority's prediction index, developed in 2017, categorises all enterprises into four risk groups and has increased the rate of detecting serious violations by 28% compared to conventional targeting methods. Yet, the Norwegian inspectorate acknowledges limitations in measuring the direct impact of specific interventions on workplace outcomes.

Poland faces fundamental data challenges, with its report highlighting that 'incomplete and inconsistent reporting of occupational accidents and diseases creates significant blind spots in our understanding of workplace risks' (EU-OSHA, 2024e). This underreporting reflects both administrative barriers to reporting and economic disincentives, particularly for small enterprises and precarious workers. The Polish inspectorate has limited analytical capacity to transform available data into strategic intelligence, relying heavily on reactive approaches based on complaints and incidents. In 2022, complaint-driven inspections accounted for 41% of total inspections in Poland.

Portugal has made significant investments in digitising inspector activities but still struggles with data integration across its various labour regulation functions. The Portuguese report highlights that 'establishing causal relationships between regulatory interventions and workplace improvements presents significant methodological difficulties that complicate evaluation efforts' (EU-OSHA, 2025e). The ACT initiated a digital transformation programme in 2019, but progress has been slowed by the pandemic and budget constraints. These analytical limitations make it difficult to optimise resource allocation or demonstrate the effectiveness of different intervention strategies.

6.2.5 Enforcement–advisory balance and accessibility issues

The five countries in this study demonstrate diverse approaches to enforcement–advisory balance, influenced by their distinct political economies and regulatory traditions. Norway and Ireland, both characterised by strong social partnership models and relatively high-trust industrial relations, place great emphasis on cooperation and dialogue. Both countries view providing information and advice as a central component of inspection duties, recognising that education often proves more effective than punishment for achieving long-term compliance. The Norwegian Labour Inspection Authority adopts a generally facilitative style, using sanctions sparingly when cooperation fails or violations are severe. Similarly, Ireland's HSA implements a problem-solving model that engages duty holders in constructive dialogue, using enforcement powers when necessary.

Poland and Portugal place great emphasis on deterrence, having developed distinct models to balance enforcement with prevention. Polish inspectors maintain a strong focus on compliance, incorporating advisory elements but emphasising enforcement powers when confronting serious violations. The Polish labour inspectorate acknowledges the inherent tension between these dual roles, noting that inspectors must carefully balance enforcing legislation while providing appropriate employer guidance. Similarly, Portuguese inspectors regard sanctions as essential tools for addressing non-compliance (EU-OSHA, 2025e).

German external prevention services face challenges with a limited geographical coverage in rural areas (EU-OSHA, 2024c), while Norwegian services struggle with providing continuity of support to small and remote enterprises, especially in areas with dispersed economic activity (EU-OSHA, 2024d). Irish external providers are noted to primarily target large enterprises with standardised services packages,

poorly addressing the specific contexts of smaller organisations, while Polish external services report difficulties in providing sustained engagement with smaller clients primarily due to resource constraints and economic viability concerns. Portuguese external prevention services also struggle with fragmented interventions which fail to build sustainable prevention capacity in smaller enterprises. However, it is important to note that it is the employer's responsibility to provide prevention services in order to protect their employee's health, safety and welfare.

6.2.6 Service orientation

In Germany, studies indicate that a progressive shift away from preventive risk management and towards health promotion and the absence of management activities generates more predictable revenue streams (EU-OSHA, 2024c). This pattern is also pronounced in Norway, where the occupational health services are increasingly emphasising individual health examinations and lifestyle interventions as opposed to workplace risk assessments and controls (EU-OSHA, 2024d).

Irish external prevention services have demonstrated a strong orientation towards compliance documentation over prevention effectiveness, with approximately 73% of service time dedicated to producing written policies and procedures (EU-OSHA, 2025c). Similarly, Polish external prevention services were noted to give priority to activities with clear deliverables such as training certificates and medical examination reports (over process-orientated prevention work) (EU-OSHA, 2025d). Portugal also reports that external prevention services are increasingly putting emphasis on activities required for regulatory compliance, as opposed to comprehensive risk management.

6.3 Regulatory complexity

The case study countries all have different regulatory frameworks which come with different complexities and challenges.

6.3.1 Variations in enforcement landscapes

All five countries have developed distinct approaches to OSH enforcement resulting in different enforcement landscapes. Although all abide by the EU legislation, national legislation varies with added complexities from decentralised systems and challenges in regulating new forms of work.

Germany's dual system creates inconsistencies, with federal authorities taking a 'stricter understanding of sanctions' compared to UVTs that 'favour cooperative advisory approaches' (EU-OSHA, 2024c). This leads to uneven enforcement, as the same violation might result in formal sanctions in certain cases, but merely advisory intervention in other cases. These disparities are further complicated by variations in how the 16 federal states organise their OSH authorities resulting in different priorities and enforcement intensities across the country. To address these inconsistencies, Germany has implemented the GDA and the 2021 OSH Inspection Act which mandates data exchange between authorities and establishes standardised inspection procedures. However, these legislative efforts remain in early implementation stages and have yet to fully harmonise the enforcement landscape (EU-OSHA, 2024c).

The enforcement approach in Ireland adapted towards larger, formal workplaces and more difficult-to-reach operations such as small construction firms (EU-OSHA, 2025b, pp. 40-41). To address this enforcement differences and possible gap, Ireland has implemented BeSMART.ie, an online interactive resource specifically targeting small companies and self-employed workers, which allows users to produce their own risk assessments and safety statements without direct inspector contact. The HSA has also significantly expanded its overall inspector workforce, increasing from 190 to 273 staff. Within these are 85 field-based inspectors who can also identify informal worksites during their travels. Inspectors employ a strategic balance between persuasion and enforcement, using an accommodative educational style while applying sanctions when necessary, with approximately 10% of high-risk site visits resulting in formal enforcement. This multifaceted approach attempts to overcome the challenge of regulating micro-enterprises where workers may run off the job when inspectors arrive, making traditional enforcement extremely resource-intensive (EU-OSHA, 2025b).

Norway experiences significant regional variations, with different regions prioritising various aspects like social dumping, work-related crime or systematic OSH violations. These geographical disparities become more pronounced as businesses operate across multiple locations or through digital platforms that transcend traditional jurisdictional boundaries. To address these differences, Norway has implemented a centralised machine learning-based prediction index to standardise risk assessment across regions, issued detailed annual ministry directives to harmonise enforcement priorities nationwide and established new information sharing regulations (2022) to ensure consistent enforcement approaches across agencies in their inter-agency anti-crime cooperation centres (EU-OSHA, 2024d).

Poland took a practical approach, cutting paperwork while keeping essential protections. They allow employers to combine safety documents instead of creating separate ones for similar risks. Training requirements were reduced for office workers in lower-risk settings and duplicate medical exams were eliminated when employees changed jobs under similar conditions within a 30-day period (DG EMPL, IPSOS and Milieu, 2021). Despite these improvements, some regulatory gaps remain, particularly for platform work, which falls into a grey area while traditional and remote work are better covered by regulations (EU-OSHA, 2025d).

Poland has adopted a co-enforcement model that combines both inspection and prevention activities, involving a broad network of stakeholders. The State Labour Inspection (PIP) implements a data-driven approach to guide enforcement priorities, particularly focusing on sectors with high accident rates. Poland has also established extensive cross-institutional cooperation frameworks through formal agreements with other regulatory bodies, enabling coordinated inspections and information sharing. Additionally, legislative initiatives have been proposed to address emerging challenges, including amendments to the Trade Unions Act that would grant unions access to algorithmic management systems to ensure consistent protection in digitally managed workplaces (EU-OSHA, 2025d).

Portugal faces severe fragmentation, with inspectors extensively noting the challenge of mastering Portugal's 'plethora of legal instruments that define sectoral regulations' for different activities and specific risks, a complexity 'difficult for each inspector to fully master, especially considering that inspection activity is carried out under a generalist model' (EU-OSHA, 2025e). Recognising these challenges, Portugal has sought to make workplace safety laws more accessible. When adopting EU directives, they took opportunities to simplify by combining multiple regulations into single laws (DG EMPL, IPSOS and Milieu, 2021). The Portuguese workplace authority created simple and accessible website content, which proved popular with users. They also developed free online risk assessment tools, based on EU-OSHA's OiRA,³ though these sometimes remain too complex for small businesses to use without help. Portuguese officials stress that online resources cannot replace face-to-face communication, which remains vital for building awareness and creating a safety culture.

Portugal's enforcement landscape is shaped by disparities in prevention service quality, with 92.2% of companies using external safety services that frequently focus on 'meeting the documentation requirements for audits and inspections without genuinely prioritising the effectiveness of the implemented actions' (EU-OSHA, 2025e). To address this, Portugal has implemented a multifaceted approach that includes regular labour inspections carried out in pairs, which serves multiple purposes: as a safety measure for inspectors, a legal safeguard through second-witness verification, a technical training opportunity and a means to maintain complainant anonymity. The Portuguese ACT has also developed technological tools including digital simulators, a chatbot and a mobile app to expand information access while allowing inspectors to focus on complex cases. Additionally, Portugal has established Operational Interinstitutional Groups (GIOs) that enable coordinated responses across multiple authorities to address complex enforcement challenges. These enforcement mechanisms are complemented by initiatives specifically targeting micro-enterprises, such as training programmes for 'Designated Employers and Employees' that allow small businesses to meet OSH requirements while building internal capacity. Despite these efforts, enforcement challenges persist due to the 'mercantilist

³ OiRA – Online interactive Risk Assessment: <https://oira.osha.europa.eu/en>

perspective' where companies view OSH merely as a legal obligation to avoid sanctions rather than as a strategic investment (EU-OSHA, 2025e).

6.3.2 Administrative burden imposing sanctions

Administrative processes for imposing sanctions (e.g. legal requirements for building evidence, time required for administrative or court proceedings, and options for appeals) frequently involve significant procedural hurdles and delays, which can diminish their deterrent effect further. Administrative burdens become particularly problematic as workplaces evolve beyond traditional models, requiring even more complex documentation to establish violations in remote, platform-based or algorithmically managed work environments — compounded by data protection barriers and inefficient inter-agency information sharing systems.

Excessive administrative requirements can create a procedural barrier to sanctions, furthermore, German privacy laws, whilst important for data protection, create additional administrative complications for OSH compliance, as inspectors cannot easily share crucial information between government departments, hampering their ability to build comprehensive cases against persistent offenders (EU-OSHA, 2024c).

Portugal demonstrates similar challenges, particularly at the judicial level. Labour inspectors can encounter difficulties when cases reach courts, where judges may lack technical understanding of workplace safety regulations or potentially view enforcement activities as disruptive to economic interests. Moreover, Portuguese inspectors also struggle with inefficient information systems, as they use two parallel platforms, which duplicates work and generates inefficiencies. Data protection requirements further compound these difficulties, with complex protocols for information sharing between government agencies.

Norway faces obstacles in inter-agency cooperation. Despite regulatory reforms in 2022 aimed at improving information sharing, labour inspectors continue to encounter barriers when attempting to coordinate with other government departments. The absence of a unified information system prevents different agencies from effectively collaborating on cases of work-related crime, even when addressing the same violations, which undermines enforcement capacity.

6.3.3 Coordination challenges

Germany presents perhaps a complex case of coordination with its dual system: state labour inspectorates (operating at the Länder level) and statutory accident insurance institutions share responsibilities for workplace inspections, creating coverage gaps and/or overlaps (EU-OSHA, 2024c). This complexity stems from Germany's post-war federal structure and strong self-governing social insurance tradition. The 2008 GDA attempted to address this through formal coordination mechanisms, but implementation remains challenging, particularly because of the differences in ethos between the federal states, for which compliance represents the central purpose of enforcement — extrinsically motivating companies to address safety concerns and UVTs that favour a more advisory approach encouraging risk assessments and dialogue. In this context, social partners advocate for a partnership-based approach characterised by mutual understanding rather than punitive measures.

Ireland has multiple state bodies with OSH regulatory roles, with the HSA serving as the primary regulator while numerous other agencies maintain specific OSH responsibilities. Coordination between these bodies is facilitated through various collaborative mechanisms, with the HSA hosting a National Focal Point that serves as forum meeting regularly. The report notes the collaboration is extensive and systematic.

Norway's more centralised system features the Labour Inspection Authority as the primary OSH regulator, but coordination with the Petroleum Safety Authority (for offshore operations) and with local municipal authorities presents ongoing challenges. The Norwegian report emphasises that coordinating labour inspectorates works with social partners is essential but requires appropriate regulatory independence.

Poland's coordination challenges stem from the division of responsibilities between the NLI and specialised inspectorates for mining, technical supervision and sanitary conditions. Despite formal coordination agreements established in 2007, the Polish report notes that incomplete or inconsistent reporting (e.g. of occupational accidents, diseases) creates significant blind spots, which would require enhanced information sharing.

Portugal's approach involves multiple agencies under the Ministry of Labour, necessitating internal coordination mechanisms. The Portuguese report notes that 'privacy regulations and incompatible information systems often limit the exchange of critical data between agencies with complementary responsibilities' (EU-OSHA, 2025e), highlighting technological and legal barriers to effective coordination. This fragmentation reflects Portugal's historical development, with specialised inspectorates developed during the pre-democratic period being gradually consolidated since the 1990s.

6.3.4 Price competition and service quality

In Germany competitive tendering for external prevention service contracts has driven down prices, with some arguing that this is also linked to a drop in quality. For example, a survey of employees indicated that 47% of selected external prevention services were primarily based on cost rather than expertise or service quality (EU-OSHA, 2024c). This trend is noted to be even more pronounced in Ireland, where price competition among external providers has caused standardised, minimum-compliance service packages with limited impact (EU-OSHA, 2025c).

Norway has reported that, following deregulation, external prevention services increasingly compete on price, with 64% of surveyed enterprises indicating that cost is a primary selection criterion (EU-OSHA, 2024d). Similar patterns have also been seen to emerge in Poland where market liberalisation has created price competition causing the sacrificing of quality to maintain competitive pricing (EU-OSHA, 2024d).

The developing market in Portugal shows that newly established external prevention service providers are frequently competing through low-cost packages that focus on regulatory documentation, as opposed to substantive interventions (EU-OSHA, 2025e).

6.3.5 Regulatory voids

All five countries face some regulatory voids where emerging work arrangements fall outside existing legal frameworks, creating enforcement impossibilities rather than mere difficulties. These regulatory voids mean that even when hazardous conditions are observed, inspectors lack the legal basis to impose sanctions, which can undermine the enforcement system for significant segments of the modern workforce. Poland's experience with platform work exemplifies this challenge, as 'the legal landscape lacks the necessary regulations and articles to address these specific challenges, leaving a substantial regulatory void' (EU-OSHA, 2025d). Labour inspectors note that in platform work scenarios, the traditional concept of an 'employer' becomes 'blurred', raising the fundamental question of 'who or what the PIP should be responsible for controlling' (EU-OSHA, 2025d). Remote work presented similar challenges until recent regulatory updates, with Poland waiting long for appropriate legislation.⁴

6.3.6 Effectiveness of financial penalties

The debate around the effectiveness of financial penalties emerges as a universal constraint across all five countries. When financial sanctions are too low to create meaningful economic incentives for compliance, the entire enforcement system is affected. Financial penalties across all five countries seems to lack sufficient severity to create meaningful deterrence, particularly for deliberate violators who treat minimal fines as a cost of doing business rather than a genuine deterrent. Poland's system exemplifies this problem with fines capped at just 3,000 PLN (approximately €700) for first-time violations and 5,000 PLN (approximately €1,110) for repeat offenses (EU-OSHA, 2025d). Sanctions the State Labour Inspection explicitly acknowledges are 'neither deterrent nor burdensome, failing to fulfil their function' (EU-OSHA, 2025d). Portugal similarly reports that current penalties do 'not constitute a barrier

⁴ The quote specifically states 'three years' — a period likely referring to the time between the widespread adoption of telework during the early stages of the COVID-19 pandemic and the eventual incorporation of formal provisions into the Labour Code.

against prohibited practices in the future' for 'entities who knowingly and intentionally violate the law' (EU-OSHA, 2025e).

7 Innovative OSH approaches

Labour inspectorates and prevention services as presented face significant challenges in the new world of work. Traditional approaches look to address both persistent OSH hazards (including carcinogenic substances and chemicals) and new and emerging hazards (particularly psychosocial hazards). This section examines 27 innovative approaches — across the five European countries within scope — that respond to these challenges in context.

These case studies were deliberately selected to provide complementary coverage across a wide range of topics, with each country contributing different approaches to avoid duplication. It is important to note that the absence of a case study from a particular country for a specific topic does not indicate inactivity in that area. It rather reflects the methodological choice to showcase diverse approaches across the participating countries. Each country was limited to six case studies (seven in the case of Portugal) despite implementing numerous other valuable approaches that could not be included due to scope limitations.

The 27 case studies are organised into five strategic categories:

Risk-based approaches (three case studies) use data analysis and targeted assessment to direct inspection resources toward workplaces and activities with the highest OSH risks. These approaches help overcome fundamental inspector shortage challenges while ensuring attention to the highest-risk workplaces.

Responsive enforcement (three case studies) adapts regulatory interventions to match the specific context, size and capacity of enterprises. By offering guidance and support before moving on to stricter enforcement, these approaches effectively mix persuasion and coercion in alignment with Ayres and Braithwaite's (1992) enforcement pyramid.

Co-enforcement and collaborative approaches (five case studies) create partnerships among multiple regulatory authorities, social partners and industry stakeholders. These initiatives address complex workplace hazards that cross traditional jurisdictional boundaries, particularly effective for ensuring OSH compliance in extended supply chains and NSE relationships.

Remote and digital approaches (four case studies) employ technology to overcome geographical barriers and resource limitations. These digital innovations create accessible channels for OSH guidance and compliance support, and they are particularly valuable in reaching teleworkers, platform workers and geographically dispersed workplaces.

Capacity-building approaches (12 case studies) develop the knowledge, skills and frameworks needed for sustainable OSH promotion across four intersecting domains:

- capacity-building for labour inspectorates (three case studies) strengthen inspector recruitment, training, work organisation and safety;
- communities of practice (four case studies) foster knowledge exchange networks among OSH professionals;
- internal OSH capacity (five case studies) develop organisations' ability to self-manage OSH hazards; and
- supporting vulnerable workers (four case studies) extend OSH protections to workers who face the strongest barriers accessing traditional support.

The initiatives documented represent practical solutions to the challenges outlined in section 4. Each approach offers insights into how labour inspectorates and prevention services can adapt their strategies to enhance their effectiveness despite resource constraints. Figure 4 outlines the key challenges that innovative approaches under the strategic categories address.

Figure 4: Challenges addressed through innovative OSH approaches

Strategic category	Primary challenge addressed	Other challenges addressed (secondary)
Risk-based approaches	Resource constraints	Regulatory complexity
Responsive enforcement	Regulatory complexity	
Co-enforcement and collaborative approaches	Regulatory complexity	
Remote and digital approaches	Resource constraints	
Capacity-building approaches: capacity building for labour inspectorates	Resource constraints	Changing risk landscape
Capacity-building approaches: communities of practice	Resource constraints	
Capacity-building approaches: internal OSH capacity	Resource constraints	
Capacity-building approaches: supporting vulnerable workers	Changing risk landscape	

While presented as distinct categories for analytical clarity, many of these approaches incorporate elements from multiple approaches. The most effective OSH innovations often blend innovative approaches to address the multifaceted challenges of the new world of work. Figure 5 shows the different innovative approaches seen through the case studies and whether they use collaborative approaches and/or digital tools.

Figure 5: Initiatives and whether they have collaborative approaches and / or digital tools

N.	Initiative title	Collaborative approach	Digital tools
1	Norwegian Labour Inspectorate's Risk-Based Strategy	Yes	Yes
2	Prevention Process Management System in Germany	Yes	Yes
3	State Claims Agency in Ireland	Yes	Yes
4	Initiative 'Microenterprises and Risk Assessment (KUG 2)' in Germany	Yes	No
5	OSH compliance in micro, small and medium enterprises, Portugal	Yes	Yes
6	Health & Safety Authority Inspector Conduct & Style	Yes	No
7	Norway's Inter-Agency Anti-Crime Cooperation	Yes	No

N.	Initiative title	Collaborative approach	Digital tools
8	Polish State Labour Inspection Partnerships Agreements	Yes	No
9	Combined Co-Enforcement Inspection Practices, Portugal	Yes	No
10	Polish 'agreement for safety in construction'	Yes	No
11	Polish sector targeted prevention programmes	Yes	Yes
12	Norwegian Labour Inspectorate's Call Service	Yes	Yes
13	Germany's Tele-OSH Approach	Yes	Yes
14	BeSMART.ie	Yes	Yes
15	ACT Digital Simulators and Chatbot	Yes	Yes
16	Ibec and the Creation of a Member Led Online Community	Yes	Yes
17	NISO; a National OSH Community of Practice	Yes	Yes
18	Polish initiatives to support OSH experts	Yes	Yes
19	Interface between external and internal OSH services, Portugal	Yes	Yes
20	The national association of workers with disabilities (ANDST)	Yes	No
21	Designated employer/employee training, Portugal	Yes	Yes
22	Polish response to Ukrainian refugees	Yes	Yes
23	Norway's occupational health service	Yes	No
24	Norway's regional safety representatives	Yes	No
25	Germany's alternative demand-based supervision project AB+	Yes	No
26	OSH for non-OSH professionals in Germany	Yes	Yes
27	Norway's Experience from the COVID-19 Pandemic	Yes	Yes

7.1 Risk-based approaches

Risk-based approaches represent data-driven strategies that optimise limited inspection resources

through sophisticated targeting and prioritisation. Norway's machine learning model classifies enterprises into four risk categories, achieving 78% reaction rates for high-risk enterprises, compared to 49% for low-risk ones. Germany's BGN Prevention Management System (PPMS) integrates company data, accident histories and geographic information in an Oracle database, delivering time savings through a web function that enables remote working. Ireland's State Claims Agency employs three-tier risk categorisation based on claims history and incident data, reducing personal injury claims and therefore improving OSH compliance. Key benefits include enhanced targeting accuracy, operational efficiency and consistent decision-making across regions.

Critical lessons emerge around balancing technological sophistication with inspector expertise, ensuring incremental implementation and maintaining data quality. Despite measurable improvements in inspection effectiveness, challenges persist in addressing supervised learning bias, technical infrastructure dependencies and the need for sustained stakeholder engagement, from design to implementation and refinement, to overcome resistance to data-driven approaches

Labour inspection systems across Europe are increasingly adopting data-driven, risk-based strategies to optimise their limited resources (see section 4.1), to adapt to the rapidly changing world of work and to maximise regulatory impact by harnessing the opportunities offered by digitalisation. Germany, Ireland and Norway all face some regulatory voids as a result of the changing world of work. Germany reports an 'erosion of monitoring activities' due to 'increasing flexibility of the workplace' and growth in 'self-employment relationships' (EU-OSHA, 2024c). Norway faces complications from workers being 'hired through temporary work agencies or posted' (EU-OSHA, 2024d), while Ireland encounters challenges with the self-employed who operate outside traditional employer responsibility structures.

The innovative approaches analysed in this section from Norway, Germany and Ireland show how sophisticated data analysis and targeted interventions can enhance inspection effectiveness. A key difference in inspection practices is the balance between reactive interventions, triggered by complaints or incidents, and proactive targeted inspections based on risk analysis. While reactive interventions remain important, there is a general trend towards proactive, targeted approaches to maximise impact with limited resources. This shift embodies what the Literature Review describes as 'risk-based regulation', where regulators 'identify their objectives and the risks that firms may pose to achieving those objectives, and assess / evaluate and score those risks' to allocate resources efficiently (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA, 2021a).

Labour inspectorates across Europe are developing innovative risk-based strategies to address challenges of limited inspector-to-workforce ratios and company dispersion related to resource constraints. Norway's machine learning model classifies enterprises into four risk categories, enabling targeted inspections where violations are most likely. Germany's PPMS incorporates a calculated risk index to guide inspection prioritisation across its federal structure. Ireland's three-tier risk categorisation directs resources toward highest-risk sectors based on claims history and incident data. These approaches demonstrate how 'recent advances in ICT and "big data" offer regulators the possibility of collecting and managing a wide range of data to identify and manage risks' (EU-OSHA, 2021a).

Figure 6 summarises the key features of each country's approach, highlighting both their distinctive characteristics and shared principles. While each system reflects national (or sectoral, in the German Professional Association for Food and Hospitality, BGN, case) contexts and priorities, they share a common focus on transforming data into strategic intelligence for more effective resource allocation.

Figure 6: Risk-based labour inspectorates' approaches in Norway, Germany and Ireland

Feature	Norway	Germany (BGN, food sector)	Ireland
Risk assessment approach	Machine learning model classifying enterprises into four risk categories	Oracle database with geocoding and risk index calculation	Three-tier categorisation system based on claims history and incident data
Balance of technology and human judgment	Algorithm serves as decision support tool, complemented by inspector expertise	System provides comprehensive information while preserving inspector autonomy	Data informs priority decisions while inspectors determine appropriate interventions
Data integration	Combines inspection findings, tip-offs, work-related illness reports and research data	Aggregates company information, accident histories, inspection reports and geographic data	Captures workplace accidents, ill health, fatalities and claims in a unified database
Implementation strategy	Gradual progression from statistical models to advanced algorithms	Developed with inspector involvement to ensure practical utility and acceptance	Incremental introduction with measured improvements in reporting culture
Effectiveness measure	78% reactions rates (i.e. inspections leading to enforcement actions) for high-risk enterprises compared to 49% for low-risk ones	Time savings through a web function which enables remote working	Identifies entities more likely to have serious compliance issues

These systems address fragmented information and support decision-making. Germany's PPMS, limited to the food sector BGN, creates a unified platform bridging federal state authorities and social accident insurance institutions. Norway's centralised model ensures consistent application of criteria across regional offices. Ireland's system standardises assessment methodologies across diverse sectors. The Literature Review notes that 'assessments are only as good as the assumptions and data on which they are based, and the competency of those applying these methods' (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review EU-OSHA, 2021a), which these systems address through comprehensive data integration.

7.1.1 Strengths

A fundamental strength of these approaches lies in their direct relevance to **maximising inspector efficiency and managing geographically dispersed workplaces**, therefore addressing the challenge related to resource constraints. Norway's risk-based methodology and Ireland's SCA (State Claims Agency) both demonstrate strength in optimising limited regulatory resources through strategic targeting. Norway directs efforts towards the highest-risk workers and Ireland achieves broad organisational coverage through data-driven sampling with minimal field staff. Germany's PPMS exhibits strength in both dimensions, systematically giving priority to extensive organisational networks while its

geocoding functionality enhances operational efficiency through route optimisation and real-time adjustments for scattered workplace locations.

All these approaches integrate **multiple data sources which transforms isolated information points into strategic intelligence**. Norway combines historical inspection findings, tip-offs and analyses from the National Institute of Occupational Health. Germany's PPMS aggregates company data, accident histories, inspection reports and geographic information. Ireland integrates claims history and incident reports from its National Incident Management System.

These systems **balance technological capabilities with inspector judgement**. This balance addresses concerns in the literature that risk-based approaches might create 'the illusion of objectivity, when in fact targeting might be quite arbitrary' (EU-OSHA, 2021a). Norway positions its algorithm as a decision support tool rather than a replacement for professional assessment. Germany's PPMS preserves inspector autonomy in decision-making. Ireland maintains a human-centred approach where data inform rather than dictate actions.

Importantly, all three approaches incorporate what the Hampton report (cited in *Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review*, EU-OSHA, 2021a) recommends: combining targeted inspections with random inspections 'so that low-risk firms and industries are included in the inspection programme, albeit less frequently inspected'. Norway's approach informs both enforcement campaigns and preventive initiatives. Germany's PPMS facilitates routine monitoring and responsive interventions. Ireland's system enables planned risk-based interventions and responses to emerging issues.

All three systems were developed collaboratively with key stakeholders. Norway's model emerged from cooperation between statisticians and experienced inspectors. Germany involved inspectors throughout PPMS development. Ireland's approach was shaped by dialogue between data analysts and frontline inspectors.

7.1.2 Weaknesses

All three systems confront significant and varied implementation challenges which limits their effectiveness. While attempting to address challenges related to resource constraints, approaches in Germany and Ireland are limited by resource constraints.

Norway's prediction index may **not suit all inspection types** and can be perceived as **limiting professional discretion**, with inspectors finding that local knowledge often suggests different risk classifications than the algorithmic assessment would indicate. Rigid checklists present another weakness, sometimes proving too inflexible and failing to include control points for specific regulatory areas such as violence and threats. The system also risks supervised learning bias where the model perpetuates historical inspection patterns.

Germany's PPMS faces several **technical limitations**, which in themselves contribute to resource constraints. Development and implementation require specialised IT expertise and resources that may not be readily available, with ongoing development indicating the system is not yet fully mature. Data protection issues are ongoing, with continued compliance challenges. Dependence on technical infrastructure creates vulnerability, and potentially high initial implementation and training costs present barriers to adoption. Critically, the case lacks quantitative metrics demonstrating improved OSH outcomes, reduced accident rates or enhanced compliance resulting from the system's implementation.

Ireland's SCA approach shows **operational weakness** despite its sophistication. The system relies on reactive data despite proactive intentions, with dependence on enterprise capacity to understand and respond. Resource constraints, with only 14 field staff for 150 organisations, significantly limit capacity for comprehensive coverage. Possible inconsistency in sampling approach across organisations and potential time delays between audits and implementation reduce effectiveness. The SCA's limited ability to enforce recommendations means it must rely entirely on persuasion, which may be insufficient for recalcitrant organisations, and faces challenges in evaluating long-term impacts beyond immediate compliance metrics.

Data quality is a persistent challenge across all three systems. All countries report issues with underreporting, incomplete data capture, and varying data standards across regions or sectors. Norway addressed inconsistent documentation through standardised protocols and statistical methods, using multiple data sources and continual model refinement, though acknowledging that some working environment issues remain under-reported. Germany overcame varying data standards across federal states through harmonisation frameworks while continuing to address data protection concerns. Ireland tackled reporting inconsistencies using mandatory fields and automated validation rules, though some underreporting persists despite technological improvements.

7.1.3 Opportunities

The maturing of responsive enforcement approaches presents multiple opportunities. **Scaling successful interventions represents immediate potential.** For example, feasibility is demonstrated through Germany's planned expansion. Digital technologies offer promise for intelligent targeting, employing algorithms to identify enterprises most likely to benefit from specific intervention types based on sector, size and compliance history profiles.

Psychosocial risk regulation represents opportunities. Ireland's development of a publication on exposure to sensitive content included guidance on risks to workers who have to view graphic images of violent deaths, sexual abuse and so on. The development of an EU-wide psychosocial hazard assessment standards could provide the clarity that current frameworks lack and Ireland is the first EU Member State to develop such a guide.

Data architecture transformation offers substantial potential. Modern analytics could identify optimal intervention strategies for different enterprise categories, enabling evidence-based tailoring. Portugal's recognition that company-size specific compliance data could enhance targeting precision highlights how improved information systems are important.

Reframing safety from cost to investment presents profound cultural transformation opportunities. This shift could generate voluntary compliance pull, with enterprises embracing safety for competitive advantage rather than mere penalty avoidance. Portugal envisions demonstration projects quantifying productivity and quality benefits from robust safety practices.

Partnership models demonstrate multiplicative effects on regulatory reach. Systematic expansion of such partnerships, particularly in micro-enterprise-dominated sectors, could establish peer support and pressure systems supplementing formal enforcement. Portugal's collaborations illustrate how sector partnerships create self-reinforcing compliance communities.

7.1.4 Threats and mitigations

Data quality issues threaten the effectiveness of all three systems.

Norway mitigates this through multiple data sources and continual model refinement. For example, resistance from inspectors, who feel the system limits their autonomy, is addressed by emphasising the complementary nature of the model. Moreover, the risk of missing emerging hazards is mitigated by combining the model with inspector knowledge and conducting inspections outside the prediction model.

Germany faces data protection and privacy concerns, which are being addressed through collaboration with the Federal Office for Social Security and migration to a sovereign cloud. The risk of technical failures or system downtime is mitigated through proper IT infrastructure and backup systems. Potential resistance to digital transformation among some inspectors is addressed by involving inspectors in the development process and providing adequate training.

Ireland's data quality issues from underreporting are addressed through electronic reporting and the introduction of electronic point-of-entry technology. Resistance to implementing recommendations is countered through persuasion and the SCA's collaborative approach. The risk of over-focusing on claims reduction rather than prevention is balanced by using international standards. Potential over-reliance on incident data is supplemented by broader risk assessment approaches.

All three countries face the **challenge of evolving work arrangements that may not fit traditional risk models**. The rise of platform work, remote employment and complex subcontracting chains challenges existing categorisation systems. Countries address this by ensuring inspections continue outside the prediction model, through continuous system updates and by adapting approaches on the basis of field experience.

7.1.5 Effectiveness

These approaches demonstrate **measurable improvements in inspection targeting**. Norway's model achieves 78% reactions rates (i.e. the share of inspections leading to enforcement actions) for high-risk enterprises compared to 49% for low-risk ones. Germany's PPMS delivers time savings through optimised routing and enhanced pre-inspection information. Ireland's system identifies entities more likely to have serious compliance issues based on risk categorisation. These results align with research findings cited in the Literature Review that 'focused inspections have larger effects than general inspections' (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA, 2021a).

These systems **enhance operational consistency**. Norway's model standardises risk assessment nationwide, reducing regional variations in enterprise selection. Germany's PPMS creates a shared information repository preventing knowledge loss when experienced inspectors leave. Ireland's approach captures expert insights in standardised frameworks while maintaining flexibility for different industry contexts.

7.1.6 Transferability

Each system contains independently transferable components adaptable to different contexts, with their success factors providing crucial insights for implementation elsewhere.

Norway's Risk Prediction Methodology can be implemented at varying levels of sophistication, from basic statistical analysis to advanced machine learning. High potential for transferability to other European labour inspectorates exists, with key enablers being a comprehensive database, skilled data analysts and a culture of data-driven planning. National processes and data availability are crucial factors. One informant noted that 'the strategy was recently presented in EEA Member States and was met with great interest'. Successful transfer would depend on establishing the systematic data collection and analytical culture that underpins Norway's approach, alongside developing the technical expertise to interpret and act on predictive insights.

Germany's Field Mobility Tools can be adopted separately from its comprehensive knowledge management system. The PPMS concept has high transferability potential to other EEA Member States, with digital assistance systems for labour inspectorates already in use in various European countries. Key requirements for implementation include specialised IT department/agency for development and maintenance, training programmes for inspectors, adaptation to country-specific regulatory frameworks and addressing data protection considerations. The system could be particularly valuable in countries with dual OSH systems similar to Germany's, where multiple authorities share inspection responsibilities and data exchange is beneficial. Germany's success factors of user involvement and technological sophistication must be replicated through incorporating labour inspectors' practical experience from the outset, establishing partnerships with specialised IT providers, implementing comprehensive training modules and ensuring continuous adaptation based on user feedback.

The SCA's data-driven approach has high transferability potential to other jurisdictions. Key transferable elements include the NIMS database structure for comprehensive incident capture, risk-based categorisation methodology for resource allocation, electronic reporting technology for streamlined data collection, systematic approach to data analysis for intervention planning and measurement framework for evaluating intervention effectiveness. Effective transfer would require replicating Ireland's success factors establishing enabling legislation for mandatory reporting (mirroring the legal mandate that creates comprehensive data flow), implementing recognised international standards as compliance benchmarks and developing the system as a comprehensive knowledge management platform that builds institutional memory over time.

All three cases demonstrate the **value of incremental implementation**, reflecting the need to build organisational capacity alongside technical capabilities. Norway began with simpler statistical models before developing sophisticated algorithms, Germany deployed PPMS modules sequentially and Ireland started with basic risk categorisation before analytical sophistication. This phased approach aligns with the Literature Review's caution against overly complex implementations (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA, 2021a), suggesting that systems should evolve with organisational capacity to be used effectively while incorporating the user involvement, legal foundations and continuous improvement processes that characterise successful implementations.

7.1.7 Conclusions

The risk-based approaches examined across Germany, Ireland and Norway demonstrate how labour inspectorates transform resource constraints into strategic capabilities through data-driven targeting. These models move beyond traditional inspection patterns towards sophisticated systems that identify and give priority to risks while maintaining the crucial balance between technological innovation and human expertise.

▪ Key benefits

Risk-based approaches achieve remarkable efficiency gains by transforming data into strategic intelligence. Norway's machine learning model demonstrates this through differentiated reaction rates (78% for high-risk versus 49% for low-risk enterprises), while Germany's PPMS delivers time savings through route optimisation and enhanced pre-inspection information. Ireland's approach identifies entities more likely to have serious compliance issues, demonstrating how systematic risk assessment multiplies inspection impact.

The integration of multiple data sources creates comprehensive risk pictures previously not possible. Norway combines inspection findings, tip-offs and occupational health research; Germany aggregates company data with accident histories and geographic information; Ireland synthesises claims history with incident reports. This multi-source integration addresses the fragmentation that historically limited inspection effectiveness.

Crucially, these risk-based approaches enhance both compliance monitoring and prevention promotion. By identifying high-risk enterprises before incidents occur, inspectorates shift from reactive to proactive intervention, embedding prevention into core operations rather than treating it as an add-on activity.

▪ Key lessons learnt

Successful implementation depends on balancing technology with human judgment. Norway positions algorithms as decision support tools, not replacements for inspector expertise. Germany preserves inspector autonomy while providing comprehensive information. Ireland maintains human-centred approaches where data inform rather than dictate actions. This balance proves essential for maintaining professional buy-in and addressing contexts that historical data cannot capture.

Incremental implementation emerges as critical. All three countries began with basic capabilities before advancing. Norway progressed from simple statistics to machine learning, Germany deployed PPMS modules sequentially and Ireland evolved from basic categorisation to sophisticated analytics. This phased approach enables organisational learning and cultural adaptation alongside technical development.

Data quality and stakeholder engagement require continuous attention. All countries report ongoing challenges with underreporting and data standardisation, addressed through multiple validation sources and harmonisation frameworks. Initial resistance from inspectors concerned about technological intrusion was overcome through engagement strategies. Norway used senior inspector champions, Germany implemented extensive training and Ireland emphasised supportive rather than replacement roles.

Significant gaps remain. Focus on process metrics rather than safety outcomes limits evaluation of actual impact on workplace injuries or illness rates. Technical dependencies create vulnerabilities, while

supervised learning bias risks perpetuating historical inspection patterns rather than identifying emerging risks. These experiences confirm that effective risk-based inspection requires robust data architecture with multiple source integration, phased implementation allowing organisational adaptation, continuous stakeholder engagement maintaining human–technology balance and evaluation frameworks measuring actual safety outcomes beyond process indicators.

The data-driven approaches across Norway, Germany and Ireland demonstrate that sophisticated risk assessment and targeting significantly enhance inspection efficiency and effectiveness. Despite distinct implementation strategies, they share key success factors including multi-source data integration, preservation of inspector autonomy, incremental deployment and systematic stakeholder engagement. Risk-based inspection proves most effective when combining technological capabilities with human expertise, maintaining continuous improvement cycles and adapting to local contexts. This offers valuable models for European labour inspectorates seeking to maximise impact within resource constraints while addressing increasingly complex workplace hazards.

Key sources used in this section:

- EU-OSHA (European Agency for Safety and Health at Work) (2024m) *Norwegian Labour Inspectorate's Risk-Based Strategy: Supporting Occupational Safety and Health Compliance (Case NO1)*. European Agency for Safety and Health at Work. Available at: <https://osha.europa.eu/en/publications/norwegian-labour-inspectorates-risk-based-strategy-supporting-occupational-safety-and-health-compliance-case-no1>
- EU-OSHA (European Agency for Safety and Health at Work) (2024h) *The Prevention Process Management System (PPMS) in Germany: supporting occupational safety and health compliance (Case DE2)*. European Agency for Safety and Health at Work. Available at: <https://osha.europa.eu/en/publications/prevention-process-management-system-ppms-germany-supporting-occupational-safety-and-health-compliance-case-de2>
- EU-OSHA (European Agency for Safety and Health at Work) (2025j) *Irish State Claims Agency's risk management: supporting occupational safety and health compliance (Case IE6)*. Available at: <https://osha.europa.eu/en/publications/irish-state-claims-agencys-risk-management-supporting-occupational-safety-and-health-compliance-case-ie6>

7.2 Calibrating interventions through responsive enforcement

Responsive enforcement represents a calibrated approach to OSH regulation that adapts interventions to enterprise characteristics and circumstances. Portugal's ACT inspectors exercise structured discretion, using pedagogical approaches with family businesses while maintaining stricter approaches for larger companies with established compliance structures. Ireland's HSA implements a 'look, ask and read' methodology where inspectors conduct site tours observing hazards first-hand, achieving compliance without formal enforcement in 90% of high-risk sector inspections. Germany's KUG 2 initiative demonstrates graduated communication, beginning with letters requesting risk assessment information from 100 micro-enterprises, then escalating to targeted inspections for non-responsive companies. Key benefits include efficient resource allocation and contextually appropriate compliance pathways. Critical lessons emerge around the importance of highly qualified inspectors exercising structured discretion, systematic follow-up of non-responsive enterprises and the inadequacy of traditional methods for psychosocial hazards. Despite measurement challenges and resource constraints, these approaches demonstrate how calibrated interventions can achieve higher compliance rates than uniform enforcement.

'Responsive enforcement' (EU-OSHA, 2021a) is a term used to define regulatory interventions calibrated in a way to match enterprise characteristics and circumstances, as well as the actions that

companies put in place in response to the inputs of labour inspectorates. Responsive enforcement interventions by labour inspectorates implement graduated responses, which are theoretically informed by Ayres and Braithwaite’s (1992) concept of the ‘enforcement pyramid’. The latter begins with persuasion before escalating to more coercive measures when necessary or applicable (i.e. this may largely depend on the actual violation, as coercive measures may be immediately needed in some cases, such as for high-risk violations, or criminal ones, for example).

The three European cases demonstrate varied implementations of this concept and address challenges related to regulatory complexity. Through adapting enforcement strategies to specific enterprise characteristics, these models create contextually appropriate pathways to compliance. Portugal’s Labour Inspectorate maintains legal requirements while exercising structured discretion in selecting enforcement tools based on company context, particularly recognising the constraints faced by micro-enterprises, which alone account for roughly 81% of the SMEs that dominate Portugal’s economy (GEP, 2022). Ireland’s Health and Safety Authority implements a ‘look, ask and read’ methodology, conducting site tours to observe hazards first-hand while reserving formal enforcement notices for only 10% of inspections. Germany’s ‘Microenterprises and Risk Assessment (KUG 2)’ initiative begins with information letters before escalating to targeted inspections for non-responsive companies.

Figure 7 summarises the key features of each country’s responsive enforcement approach. While each model reflects national contexts and priorities, they share a common principle of calibrating regulatory interventions to match enterprise characteristics and compliance capabilities. This calibration enables more efficient use of limited inspection resources while creating more achievable compliance pathways, particularly for smaller enterprises.

Figure 7: Responsive enforcement approaches in Portugal, Germany and Ireland

Feature	Portugal	Germany	Ireland
Responsive (i.e. calibrated, graduated) approach	Structured discretion with differentiated enforcement based on company size	Graduated communication starting with letters before inspection for non-responsive enterprises	‘Look, ask and read’ methodology with formal enforcement in only 10% of high-risk sector inspections
Inspector characteristics	Adapt language and approach based on company type (more pedagogical with family businesses)	Collaborative approach involving multiple authorities (OSH administration, district government, social accident insurance)	Highly qualified inspectors with sector-specific knowledge who are ‘educational and accommodative’ rather than strictly enforcing
Enterprise context focus	SMEs – accounting for 99.6% of enterprises (81% of SMEs being micro-enterprises) – with limited OSH knowledge and resources	Microenterprises (2-19 workers) with specific focus on risk assessment requirements	Varied approach based on enterprise size, with inspectors noting ‘the larger the company, the better the standard of risk assessments’
Enforcement tools	Range from advisory notices to fines with 15,966 improvement notifications (2023)	Initial information letters with escalation to inspection for non-responsive companies	Immediate remediation during site visits with escalation to

Feature	Portugal	Germany	Ireland
			improvement/prohibition notices when necessary
Complementary resources	22 sector-specific Online interactive Risk Assessment (OiRA) tools with 5,600+ portal accesses (2023 to mid-2024)	‘Quick-starter’ guidance using simple language and visual elements for easier implementation	Extensive collaboration with industry partners and wider OSH community to extend regulatory reach

7.2.1 Strengths

The primary strength of responsive enforcement approaches is that they **address relevant, persistent and consequential size-based compliance disparities in needs**. Ireland’s inspectors observe that ‘the larger the company, the better the standard of risk assessments’. This aligns with broader evidence that small enterprises often face higher barriers to compliance, including limited knowledge, resources and capacity (ILO, 2021; EU-OSHA, 2018a). These heightened needs require a more adaptive and calibrated intervention. By recognising these differences, responsive approaches create more achievable compliance pathways for smaller enterprises (EU-OSHA, 2021a).

The approach makes **efficient use of resources** through tailoring and calibrating interventions, meaning inspectorates maximise impact with limited resources. Germany’s approach demonstrates this strength of graduated enforcement strategies. The KUG 2 initiative’s initial letter alone triggered proactive improvements in many enterprises, with companies updating risk assessments and consulting with their BGs or external prevention services before any inspection occurred. This pre-emptive compliance response validates the responsive regulation principle that many enterprises will comply when properly informed of requirements. Similarly, Portugal’s differentiated approach demonstrates this through varied enforcement actions, including 15,966 improvement notifications in 2023 targeted to specific business contexts.

Ireland’s approach shows the strength of **balancing observation with documentation**. The ‘look, ask and read’ methodology ensures inspectors assess actual workplace conditions rather than relying solely on paperwork. This is particularly important as inspectors report that ‘perfectly safe sites were reported as rare occurrences’, reinforcing the necessity for regular monitoring. The practice of requiring immediate on-site improvements, such as personal protective equipment (PPE) or addressing unguarded fall hazards, demonstrates how responsive enforcement can achieve instant risk reduction without formal sanctions in some cases.

Successful implementation depends on **balancing discretion with consistency**. Portugal’s inspectors follow clear guidelines distinguishing between non-negotiable requirements (like insurance) and infractions where they have greater latitude. Germany’s approach implements responsive regulation by escalating enforcement only for non-responsive enterprises while supporting those making good-faith efforts.

Complementary educational resources enhance effectiveness by addressing knowledge gaps. Portugal’s 22 sector-specific self-assessment tools and Germany’s ‘Quick-Starter’ guidance provide practical support for implementation. These resources recognise that smaller enterprises often lack the internal structures and expertise to develop compliance strategies independently.

7.2.2 Weaknesses

Responsive approaches face several interconnected challenges that limit their effectiveness and evaluation. The first major concern relates to consistency and fairness, as critics argue that **responsive approaches can create excessive discretion**, leading to inconsistency, uncertainty and potential

unfairness. Portugal's system exemplifies this challenge as it lacks data on compliance levels or enforcement actions broken down by company size, making it difficult to assess whether discretion is applied consistently.

Resource constraints present another significant barrier, limiting follow-up capacity across all three jurisdictions. Different countries have developed varying strategies to address this limitation. Ireland gives priority to immediate remediation during site tours, requiring corrections before inspectors leave, while Portugal focuses on high-impact interventions through risk-based targeting. However, Portugal's inspectors acknowledge possible insufficient monitoring mechanisms compared to formal safety management system requirements.

The nature of psychosocial risks, and the poor standard of psychosocial risk assessments, create particular difficulties for responsive frameworks originally designed for other types of hazards. Ireland's HSA subject matter expert highlights the fundamental challenge of establishing causation for psychosocial issues to the legal standard of 'beyond reasonable doubt'. Communication challenges compound these difficulties, as demonstrated by Germany's KUG 2 findings. Despite the clear communication approach, some enterprises misunderstood compliance standards, with about 25% of statements in feedback forms being incorrect or misleading due to comprehension difficulties. This highlights the ongoing challenge of ensuring enterprises accurately understand requirements even with simplified guidance.

All three approaches are hampered by **significant data limitations** that prevent comprehensive evaluation. Whereas Portugal lacks enterprise-size-specific compliance data and Ireland struggles to assess psychosocial risk control effectiveness, Germany's KUG 2 collected limited outcome measures beyond initial responses. These data gaps make it challenging to demonstrate the long-term impact of responsive enforcement approaches, creating a cycle where improvements are difficult to identify and implement.

7.2.3 Opportunities

The convergence of technological advancement, evolving workplace hazards and accumulated regulatory experience presents significant opportunities for enhancing responsive enforcement across Europe, which cluster around several transformative themes.

One opportunity lies in **scaling successful interventions**. Germany's planned expansion of a similar project to 500 enterprises demonstrates the scalability of letter-based initial contact, whilst the potential for sector-specific adaptations could enhance relevance and response rates. This scaling opportunity extends beyond simple replication and it encompasses applying responsive principles to additional regulatory requirements beyond risk assessment, creating comprehensive compliance pathways that address multiple obligations through graduated approaches. The integration with digital inspection modernisation further amplifies this potential, enabling sophisticated targeting algorithms that identify enterprises most likely to benefit from specific intervention types.

A critical opportunity emerges in **developing systematic approaches to psychosocial risks**, where current enforcement frameworks struggle with traditional methods designed for physical hazards. Ireland's HSA/WRC code of practice on psychosocial risks can act as a template for addressing complex psychosocial issues through collaborative frameworks rather than traditional enforcement. The development of agreed EEA-wide methods for assessing and controlling psychosocial hazards could transform this challenging area from a regulatory weakness into a strength, providing clear pathways for both enterprises and inspectors to address these increasingly prevalent risks.

Data and learning systems represent perhaps the most transformative opportunity. Portugal's recognition of the need for company-size-specific compliance data highlights how better information architecture could revolutionise targeting and evaluation. Establishing learning feedback loops that

capture not just compliance outcomes but also enterprise responses to different intervention types would enable continuous refinement of approaches. This data revolution could shift enforcement from static models to dynamic systems that adapt based on empirical evidence of what works for different enterprise types and sectors.

The philosophical shift from viewing OSH as a compliance burden to a business investment presents profound opportunities for reframing regulatory relationships. Portugal's vision of demonstrating OSH as productivity enhancement rather than cost could fundamentally alter enterprise receptiveness to regulation. This requires moving beyond medical examination compliance to comprehensive safety conditions encompassing ergonomics, work environment and emerging risks from new forms of work. Education and demonstration projects that quantify the business benefits of strong OSH practices could create voluntary compliance pull rather than relying solely on enforcement push.

Partnership models offer opportunities to **extend regulatory reach beyond direct inspection capacity**. A Portuguese example with an existing connections with seven hairdressing associations demonstrate how sector partnerships can multiply impact. Systematic expansion of such partnerships, particularly in sectors dominated by micro-enterprises, could create self-reinforcing compliance communities where peer influence supplements formal enforcement. These partnerships could also address the persistent challenge of reaching enterprises that remain outside traditional regulatory contact.

Legislative and systematic harmonisation presents opportunities to reduce compliance complexity whilst maintaining protection standards. Portugal's recognition that systematising and harmonising legislation into coherent frameworks could particularly benefit smaller enterprises suggests broader European potential. Clearer, more accessible regulatory frameworks could reduce unintentional non-compliance whilst freeing inspector resources to focus on wilful violations.

The development of implementation guidance beyond initial assessment addresses a critical gap identified across all three cases. Many enterprises, particularly smaller ones, understand what they should do but lack the knowledge of how to implement requirements effectively. Comprehensive implementation support that goes beyond identification to practical application could transform compliance rates whilst building enterprise capability for continuous improvement rather than minimum adherence.

7.2.4 Threats and mitigation

Responsive approaches face **challenges regarding consistency and fairness**. Critics argue that responsive approaches can create too much discretion, leading to inconsistency, uncertainty and potential unfairness. To address this, Portugal and Ireland have developed structured frameworks that guide discretion while maintaining flexibility, ensuring that similar infractions receive comparable responses while accommodating contextual differences.

Resource constraints limit follow-up capacity across all three jurisdictions. In Ireland, informal on-site improvements are common occurrences during inspections, while Portugal focuses on high-impact interventions through risk-based targeting. Digital solutions offer further mitigation potential through automated initial contacts, online self-assessment tools and risk-based targeting algorithms, though human judgement remains essential for complex situations.

Superficial compliance risks, manifesting in a 'tick-box' mentality, threaten substantive safety improvements. Whilst 63% of German enterprises demonstrated adequate risk assessments post-intervention, quality variation remained significant. Mitigation strategies include embedding quality criteria within guidance materials, conducting selective verification inspections and shifting emphasis from documentation to observable safety outcomes.

Legal framework constraints particularly impact emerging hazard enforcement, such as difficulties prosecuting psychosocial hazards. As Ireland's HSA reports, establishing causation for psychosocial issues to the legal standard of 'beyond reasonable doubt' is particularly daunting.

7.2.5 Effectiveness

The three case studies demonstrate differentiated approaches, while revealing important limitations in measuring actual safety outcomes. All three approaches give priority to process indicators over outcome measurements. None systematically track workplace injury rates, near-miss incidents or safety culture improvements that would demonstrate actual effectiveness. Germany validates initial compliance through follow-up visits, whilst Ireland assesses quality during inspections, though neither captures long-term impact.

Germany's KUG 2 initiative provides the most structured measurement approach, achieving an 80% response rate with 75% providing truthful information and 63% demonstrating adequate risk assessments. Significantly, many SMEs took active OSH measures immediately upon receiving the letter, before any inspection occurred, suggesting the approach triggers preventive improvements beyond mere compliance checking. However, without longitudinal tracking, the sustainability of these improvements remains unknown.

Ireland's HSA combines extensive regulatory presence, 10,000 annual inspections generating €1.37 million in fines, with a predominantly persuasive approach that achieves compliance without enforcement in 90% of high-risk sector inspections. For psychosocial risks, both measurement and enforcement remain problematic, with no prosecutions achieved and workplace absences from psychosocial issues neither reportable nor tracked.

Portugal's SME initiative, whilst lacking company-size disaggregated data, demonstrates substantial reach through around 25,000 OiRA tool users and development of 22 sector-specific instruments. The 3,308 portal accesses in 2023 represent only partial engagement metrics. The ACT acknowledges that without follow-up monitoring, implementation quality remains unmeasured which is a significant limitation for an initiative specifically targeting MSEs.

7.2.6 Transferability

Responsive enforcement models offer significant transferability potential, though requiring careful adaptation to specific regulatory contexts.

The three cases illustrate complementary transferable elements. Portugal's structured discretion framework provides clear decision guidelines for inspectors while maintaining case-by-case flexibility. Ireland's 'look, ask and read' methodology offers a practical inspection approach that balances documentation review with direct hazard observation. Germany's graduated communication strategy demonstrates how to implement the enforcement pyramid concept with resource-constrained micro-enterprises.

Cross-case analysis shows that successful transfer depends on several institutional factors: inspector training that develops both technical expertise and judgement skills, legal frameworks that permit discretionary enforcement while maintaining clear minimum requirements, and governance mechanisms that ensure consistent application of discretion.

7.2.7 Conclusion

The responsive enforcement approaches examined across Portugal, Germany and Ireland demonstrate how labour inspectorates effectively balance compliance monitoring with OSH promotion. These models move beyond rigid enforcement towards nuanced approaches that recognise enterprise diversity while

maintaining safety standards. These practices implement Ayres and Braithwaite's (1992) enforcement pyramid concept, beginning with persuasion before escalating to coercive measures when necessary.

- **Key benefits**

Responsive enforcement achieves efficiency by addressing both compliance and promotion simultaneously. Germany's KUG 2 initiative exemplifies this dual approach — the initial letter not only monitored compliance but promoted awareness, resulting in 80% response rates and proactive improvements before inspections. Ireland's immediate remediation during site visits combines enforcement with education, while Portugal's 22 sector-specific tools merge compliance support with capability building.

The collaborative dimension multiplies impact beyond direct inspection capacity. All three countries leverage partnerships with industry associations and OSH organisations — Portugal through webinars reaching 900 participants, Ireland through extensive stakeholder engagement and Germany through cross-agency coordination. This network approach proves essential given universal resource constraints.

- **Key lessons learnt**

Effective responsive enforcement depends on several critical factors. Inspector quality and structured discretion prove fundamental. Ireland's sector-expert inspectors combine technical competence with educational approaches, while Portugal's framework distinguishes non-negotiable requirements (insurance, OSH services) from areas permitting flexibility.

Systematic follow-up separates effective from superficial compliance. Germany's evidence that non-responsive companies often had significant deficiencies validates structured escalation, and ensures that responsive approaches do not in fact end up rewarding non-compliance.

Accessibility enhances engagement with Portugal's 25,000 OiRA tool users and Germany's visual Quick-Starter guidance having succeeded by removing technical barriers and enabling implementation rather than just awareness.

However, critical gaps remain. Measurement is underdeveloped across all countries, with no systematic tracking of safety outcomes versus process indicators. This absence makes demonstrating long-term effectiveness impossible. Additionally, traditional methods fail for psychosocial hazards.

These experiences confirm that effective responsive enforcement requires qualified personnel exercising structured discretion, systematic follow-up mechanisms, accessible implementation resources, robust evaluation systems and continuous adaptation for emerging risks. The integration of compliance monitoring with promotion activities emerges as particularly powerful, creating self-reinforcing cycles where education reduces the need for enforcement while enforcement validates the importance of educational messages.

The calibrated approaches across Portugal, Germany and Ireland demonstrate that adapting regulatory interventions to enterprise characteristics and actions significantly enhances efficiency and effectiveness. Despite distinct national contexts, they share key success factors such as structured discretion frameworks, complementary educational resources, graduated enforcement strategies and recognition of size-based compliance disparities. Responsive enforcement proves most effective when combining clear expectations with practical guidance, maintaining credible enforcement options and tailoring approaches to enterprise capabilities. This offers valuable models for European labour inspectorates facing resource constraints and regulatory complexity.

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7.3 Co-enforcement and broader collaborative approaches

Co-enforcement and collaborative approaches represent strategic coordination mechanisms addressing complex OSH workplace challenges. Norway's Inter-Agency Anti-Crime Cooperation operates through eight regional centres where labour, tax, welfare and police authorities work in physically co-located teams, targeting work-related crime and exploitation of foreign workers through joint inspections. Portugal's Operational Interinstitutional Groups (GIOs) bring together labour inspectors, security forces, tax and social security authorities in 'variable geometry' teams that adapt composition based on specific violations, conducting 2,154 joint inspections in 2023. Poland demonstrates three complementary approaches: formal partnership agreements between the State Labour Inspection and 22 state authorities enabling coordination, sector-specific programmes like 'Construction. STOP accidents!' establishing shared responsibility between regulators and companies through combined inspection-education strategies reaching 7,817 participants; and the industry-led Agreement for Safety in Construction where 17 major contractors self-regulate safety standards. These models address regulatory fragmentation in modern workplaces where traditional single-agency enforcement proves insufficient against sophisticated non-compliance realities crossing multiple regulatory domains.

Co-enforcement involves strategic coordination between multiple regulatory authorities and sometimes private stakeholders to create comprehensive enforcement coverage. This approach addresses fundamental challenges posed by regulatory complexity and fragmentation.

A fundamental distinction exists among these approaches in terms of whether they are led by labour inspectorates or prevention services. Co-enforcement involves multiple authorities conducting joint operations, while broader collaborative approaches create partnerships and shared frameworks without necessarily involving joint operations. Norway's Inter-Agency Anti-Crime Cooperation and Portugal's GIOs represent sophisticated co-enforcement, labour inspectorate-led systems. Norway's model operates through eight regional centres bringing together labour, tax, welfare and police authorities in physically co-located teams. Portugal's approach functions at three levels (interministerial, interinstitutional and sectoral) with 'variable geometry' teams tailored to specific enforcement challenges, also representing a labour inspection-led approach. While the Norwegian and Portuguese models and two of the Polish approaches are led by labour inspectorates, the Polish 'Agreement for

Safety in Construction’ represents an industry-led prevention services model where companies themselves drive implementation with the NLI in a supporting role:

The PIP has developed formal partnership agreements with 22 state authorities and 12 social partners, establishing collaborative frameworks for joint inspections and knowledge-sharing rather than joint enforcement.

The industry-led ‘Agreement for Safety in Construction’ brings together 17 major contractors to implement harmonised safety standards across construction sites, representing a complementary approach to regulatory co-enforcement based on industry self-regulation with regulatory support.

Poland’s sector-targeted preventive and control strategies, exemplified by the ‘Construction. STOP accidents!’ campaign, explicitly establish shared responsibility between regulators and regulated entities, creating a hybrid model where both parties actively participate in achieving compliance.

These various models respond to challenges created by the ‘fissured workplace’ (Weil, 2014) where traditional employment relationships have fragmented, creating regulatory gaps that non-compliant employers may exploit. By combining jurisdictional authorities in Norway and Portugal, these approaches create mechanisms for more effective interventions in complex regulatory environments. This can also be seen by establishing different forms of shared responsibility in Poland.

Rather than comparing all five approaches equally, we are focusing on the primary co-enforcement models while acknowledging the complementary collaborative approaches.⁵ The following analysis (Figure 8) examines, how these different mechanisms create synergistic approaches to workplace safety, from integrated multi-agency operations to industry-led initiatives.

Figure 8: Co-enforcement and collaborative approaches in Norway, Portugal and Poland

Feature	Norway	Portugal	Poland (sector-specific strategies)	Poland (partnership agreements)	Poland (industry-led agreement)
Approach type	Co-enforcement: Multiple regulatory authorities conducting joint inspections	Co-enforcement: Multiple regulatory authorities with ‘variable geometry’ teams	Co-enforcement: Shared responsibility between regulator and regulated entities	Collaborative framework between authorities and partners	Industry self-regulation with authority coordination
Organisational structure	Eight regional centres with physically co-located teams from different agencies	Three-level system (interministerial, interinstitutional, sectoral) with adaptable inspection teams	Central coordination with local implementation through 16 regional inspectorates	Formal agreements implemented through 16 regional labour inspectorates	Industry-led governance structure with technical committees

⁵ The Netherlands demonstrates another collaborative approach through working conditions catalogues (arbocatalogi), where social partners jointly develop compliance guidance with regulatory oversight. In Germany, the Joint German OSH Strategy (GDA) favours strategic coordination between federal and state governments and statutory accident insurance institutions (*supra*, section 3 of this report).

Feature	Norway	Portugal	Poland (sector-specific strategies)	Poland (partnership agreements)	Poland (industry-led agreement)
Primary participating authorities	Labour Inspection, Tax Administration, Labour and Welfare Administration (NAV), Police	ACT, Security forces, Tax Authority, Social Security, Food and Economic Security Authority (ASAE)	State Labour Inspection (PIP) as primary authority partnering with companies and industry associations	State Labour Inspection (PIP) with 22 state authorities and 12 social partners	17 major construction companies with an informal partnership
Coordination mechanism	Knowledge groups (intelligence), control groups (inspections), and steering groups (coordination)	GIOs with protocols defining each agency's role	Explicit shared responsibility framework with five key elements	Formal agreements establishing areas of cooperation	Industry-led committees with standardised protocols
Primary focus	Social dumping and exploitation of foreign workers, including OSH, tax, welfare and criminal violations	Labour law violations, undeclared work, tax evasion, social security fraud across multiple sectors	Sector-specific risks in high-hazard industries (construction, woodworking, meat processing)	Cross-cutting workplace safety issues	Construction-specific safety standards and practices
Role of regulated entities	Intelligence contributions from industry coalition	Input from industry associations for sector-specific knowledge	Active partners with 'joint responsibility' for maintaining safe working conditions	Partners in knowledge sharing and promotional activities	Leaders of industry-driven safety initiative

7.3.1 Strengths

The co-enforcement models in Norway and Portugal and the sector-specific approach in Poland demonstrate distinctive strengths compared to the more collaborative approaches.

The primary strength of the Norwegian and Portuguese models is **creating comprehensive regulatory coverage across multiple domains**. When authorities operate separately, employers can exploit regulatory gaps between different agencies' jurisdictions. For instance, an employer might violate safety regulations while evading taxes and exploiting undocumented workers. These are issues that single agencies cannot address comprehensively. Poland's sector-specific model creates strength through explicitly shared responsibility for compliance, reducing the adversarial relationship between regulator

and regulated entities. The partnership agreements and industry-led initiative in Poland complement these approaches by extending reach and promoting standardisation.

Norway and Portugal **leverage complementary strengths of different authorities during joint inspections**. Norway combines labour inspectors' OSH expertise with police investigative powers and tax authority data access creating enforcement teams with comprehensive legal authorities. Portugal integrates labour, security forces, tax and social security authorities to create comprehensive enforcement teams, using a 'variable geometry' principle that adapts team composition to specific challenges. Poland's sector-specific approach leverages complementary strengths between regulatory authorities and regulated companies through explicit acknowledgement that both parties share responsibility for workplace safety. The other Polish approaches expand this collaborative network to include various state authorities, social partners and industry leaders.

Effective information sharing enhances efficiency across all models, though through different mechanisms. Norway's knowledge groups conduct joint analysis of multiple data sources from different authorities, transforming fragmented information into strategic intelligence. Portugal's shared intelligence enables identification of high-risk employers across regulatory domains. Poland's various approaches promote bidirectional information exchange between the labour inspectorate and its diverse partners with feedback mechanisms and sharing of best practices. This enables regulators to understand industry challenges while helping companies comprehend requirements.

All approaches **incorporate non-governmental stakeholders** to varying degrees. Norway incorporates intelligence from the Fair Play Bygg construction industry coalition, recognising that industry insiders possess unique knowledge about compliance patterns (EU-OSHA, 2024n). Portugal involves sector-specific industry associations for knowledge input, particularly valuable in sectors with complex subcontracting arrangements, for example. Poland's approaches range from formal partnerships with stakeholders to industry-led initiatives where companies themselves drive implementation. This stakeholder engagement expands regulatory reach beyond what authorities could achieve alone, creating networks of compliance champions within industries rather than relying solely on external enforcement.

7.3.2 Weaknesses

Legal and technical infrastructure gaps create operational friction across all models. Despite Norway's 2022 regulation on confidential information sharing, agencies still lack common IT systems. This forces case-by-case solutions that reduce operational efficiency. Portugal faces similar technical constraints, requiring complex protocols for each type of joint operation that slow response times. The absence of integrated databases means inspectors cannot access real-time information from partner agencies during field operations.

Coordination complexity creates structural weaknesses that vary by model type. Norway's requirement for physical co-location limits geographic coverage to eight regional centres, potentially leaving gaps. The withdrawal of police from direct inspection activities due to legal interpretation changes demonstrates how institutional boundaries persist despite formal cooperation agreements. Portugal's 'variable geometry' approach, while flexible, requires extensive planning to determine appropriate team composition, creating delays when rapid response is in fact needed. Poland's partnership agreements often lack detailed operational protocols or action plans, suggesting formal frameworks may not translate into effective field coordination.

Resource demands strain implementation across different dimensions. Norway's model requires dedicated coordination staff, meeting facilities and administrative support for each regional centre. Portugal's joint operations consume significant management time in inter-agency negotiation and planning. Poland faces different resource challenges — maintaining 34 separate partnership agreements requires continuous relationship management, while the construction programme demands

substantial training delivery infrastructure. The absence of dedicated funding streams for coordination activities means these costs compete directly with core inspection functions.

Institutional mandates and culture clashes can create additional weaknesses. Different agencies operate under distinct legal mandates, performance metrics and professional cultures. In Norway, tax authorities focus on revenue collection while labour inspectors give priority to worker safety, creating potential conflicts in operational priorities. Portugal's integration of civilian labour inspectors with uniformed security forces requires careful management of different enforcement philosophies. Poland's collaborative approaches must bridge gaps between regulatory mindsets and business perspectives, with some companies viewing participation as a compliance burden rather than safety investment.

7.3.3 Opportunities

The case studies reveal three primary opportunities for enhancing co-enforcement and collaborative approaches: technological integration to overcome infrastructure gaps, shifts from reactive enforcement to preventive strategies, and enhanced worker engagement mechanisms that adapt to modern employment realities. These interconnected themes address current weaknesses whilst building on existing strengths across the Norwegian, Portuguese and Polish models.

Technological integration and standardisation represent immediate opportunities for enhancement. Norway's lack of common IT systems mirrors Portugal's need for unified reporting mechanisms, whilst Poland's partnership agreements lack supporting digital platforms. Integrated databases with real-time information sharing would transform Norway's inefficient case-by-case solutions and reduce Portugal's planning burdens. Standardised protocols with outcome-based metrics would address Portugal's regional variations and provide Poland's agreements with concrete action plans, moving beyond activity counts to actual compliance improvements.

Shifting from reactive enforcement to preventive approaches offers significant untapped potential. Systematic analysis of Norway's inspection findings could identify emerging risks before violations occur, whilst Portugal's need to expand beyond violation detection could include pre-inspection advisory services and compliance toolkits. Poland's shared responsibility model demonstrates preventive possibilities but requires expansion through tiered programmes scaled to enterprise size, particularly reaching SMEs currently outside the construction agreement's scope.

Enhanced worker engagement and communication mechanisms offer crucial improvement potential. Norway identifies the need for enhanced digital translation capabilities to better reach foreign workers, addressing language barriers that limit vulnerable workers' access to safety information and complaint mechanisms. Poland's construction agreement specifically highlights opportunities to strengthen involvement of workers, supervisors and worker representatives to further embed OSH in daily practices and culture. Portugal's identified need to address platform-based employment suggests these engagement mechanisms must evolve beyond traditional workplace structures. Developing communication tools that work across language barriers and employment types would particularly benefit workers in precarious situations who currently lack effective channels to raise safety concerns without fear of retaliation.

7.3.4 Threats and mitigation

Fragmentation, lack of coordination, resource gaps and the changing motivations of non-compliant actors are the main challenges to co-enforcement and broader collaborative approaches. Mitigation of these threats relies on formal and informal partnerships, joint inspections, harmonised standards, targeted campaigns, capacity building and data-driven strategies.

The Polish State Labour Inspection Partnerships Agreement **lacks coordination** between agencies and there are gaps in knowledge sharing. Formal agreements between the PIP and a wide range of state authorities, social partners and NGOs facilitates joint inspections, knowledge sharing and promotional activities. Joint inspections with law enforcement further leverage resources and expertise. There are

further recommendations for complementing agreements with concrete plans to ensure practical implementation.

A high prevalence of accidents in the construction sector persists, with inconsistent safety standards among subcontractors and small enterprises. Barriers to integrating subcontractor and small firms into the agreement limits overall effectiveness, with there also being challenges related to maintaining CEO and management commitment to safety culture among the participating firms. Moreover, SMEs in Poland often lack resources and expertise for OSH compliance (as discussed more broadly in section 4.2). Mandatory health and safety training, harmonised contract templates, and collective protection guidelines for all signatories and their subcontractors limits this threat. Combined approaches of intensified inspections and promotional campaigns, such as 'Construction. STOP accidents!', also addresses the continued challenges within the construction sector.

7.3.5 Effectiveness

The evidence base for effectiveness across these models varies in both scope and methodological approach, reflecting the inherent challenges in evaluating regulatory interventions.

The case study on Norway's Inter-Agency Anti-Crime Cooperation indicated **enhanced strategic efforts against work related crime**. It focused on process improvements and strategic coordination, rather than quantitative outcome metrics. The theoretical framework suggested that both specific and general deterrence through coordinated enforcement, however empirical measurement of these effects presented methodological challenges. A 2022 evaluation found that information sharing between agencies remained a central barrier to cooperation, with recommendations to develop common IT systems for more effective knowledge management (KPMG, 2022).

Portugal's statistical data shows operational implementation with 2,154 joint inspection actions in 2023 and 1,389 in the first nine months of 2024. These figures demonstrate the approach has been **operationalised at scale**, compared to 850 in 2020. The multi-agency model enables addressing interrelated violations simultaneously, however the available documentation focuses more on implementation processes than outcome evaluation.

Poland's approaches present different types of evidence: The sector-specific construction programme documents extensive reach (405 training sessions reaching 7,817 participants and media campaigns reaching millions). These engagement metrics constitute important process indicators in a comprehensive evaluation framework.

Partnership agreements facilitate joint inspections, particularly with enforcement focused partners. The effectiveness evidence consists primarily of activity indicators and qualitative implementation data.

The industry-led construction agreement operated during a period when Poland's fatal construction accidents decreased from 21.49 to 5.18 per 100,000 employees (2009-2018). This correlation represents an important trend, however standard evaluation methodology would note the challenge of attribution given multiple concurrent safety initiatives and regulatory developments.

Each approach incorporates distinct mechanisms for operational adaptation and learning. Norway utilises dedicated knowledge groups to analyse emerging non-compliance patterns and to refine enforcement strategies. Portugal employs an iterative protocol development process based on field experience from joint operations. Poland has successfully transferred its sector-specific approach across diverse industrial contexts, including woodworking, meat processing and construction, with industry-specific modifications. However, evidence that these mechanisms improve OSH outcomes remains largely anecdotal to date rather than being systematically measured.

7.3.6 *Transferability*

The co-enforcement and collaborative models demonstrate significant transferability potential, although there are different prerequisites reflecting their distinctive approaches. The case studies provide explicit assessments of transferability prospects, though with varying levels of detail.

The Norwegian and Portuguese models **require legal frameworks to enable information sharing** between different authorities, formal coordination protocols and inter-agency training. Poland's sector-specific approach requires regulatory openness to collaborative approaches with regulated entities. The partnership agreements require legal foundations for collaboration, while the industry-led initiative needs committed industry leadership.

Comparative analysis reveals complementary transferable elements from each model. Norway's physical co-location approach demonstrates the value of close operational integration, while Portugal's 'variable geometry' principle shows how to maintain flexibility in team composition based on specific enforcement challenges. Poland's multiple models offer templates for different forms of cooperation, from formal partnerships to sector-specific programmes to industry self-regulation.

Practical transferability has been demonstrated in different contexts. The Norwegian Labour Inspection Authority is cooperating with the Lithuanian Labour Inspectorate on a pilot project concerning an inter-agency anti-crime cooperation similar to the Norwegian model, showing the adaptation of multi-authority approaches. Poland's successful application of its sector-specific partnership model across three different industries demonstrates adaptability across sectoral contexts. Its 'Agreement for Safety in Construction' was itself adapted from a UK model, showing international transferability of industry-specific initiatives.

Implementation in any context requires consideration of legal frameworks, organisational cultures, resource availability and stakeholder relationships. All three countries' experiences suggest that implementation should follow progressive development, starting with the fundamental elements before adding complexity.

7.3.7 *Conclusion*

The co-enforcement and collaborative approaches examined across Norway, Portugal and Poland demonstrate how labour inspectorates evolve beyond traditional single-agency enforcement to address modern workplace complexity. These models range from integrated multi-agency operations to industry-led initiatives, offering complementary strategies for regulatory effectiveness in fragmented labour markets characterised by sophisticated non-compliance.

Key benefits

Co-enforcement enhances regulatory capacity by integrating multiple authorities' powers and expertise. When employers simultaneously violate safety, tax and employment regulations, coordinated responses provide comprehensive interventions that single agencies cannot achieve alone. Norway's multi-agency teams combining labour, tax, welfare and police authorities tackle interconnected violations effectively, while Portugal's joint operations bring diverse regulatory powers together to protect vulnerable workers who might otherwise fall between traditional boundaries. Poland's teams coordinate labour inspection with police and border guards to address undeclared work and exploitation, demonstrating how co-enforcement adapts to different national contexts and enforcement priorities.

Collaborative approaches extend regulatory influence through networks, reaching beyond direct enforcement capacity. Poland's construction agreement harnesses major contractors' influence to improve safety standards throughout supply chains, while sector-specific programmes build compliance capability across industries. This network effect reaches SMEs and informal operations that traditional enforcement struggles to cover systematically, aiming at creating positive peer pressure for compliance that complements regulatory oversight.

These approaches tend to shift towards more preventive intervention compared to traditional single-agency enforcement. Norway's knowledge groups capture emerging risks through industry intelligence, while Poland's shared responsibility framework begins transforming adversarial relationships into collaborative ones. While current implementations contain reactive elements, they demonstrate clear pathways toward deeper prevention. Multi-agency data could enable predictive analytics, while collaborative networks could serve as early warning systems. Co-enforcement strengthens response capability to complex violations, while collaborative approaches show particular promise for building lasting compliance culture through stakeholder ownership.

Key lessons learnt

Legal frameworks enabling information sharing provide essential foundations, with technical infrastructure representing the next critical step forward. While Norway's evaluation revealed persistent information sharing barriers despite new regulations, these challenges clarify exactly what is needed in terms of both formal protocols and supporting systems for real-time coordination. The gap between legal possibility and operational reality points to concrete improvement opportunities.

Flexibility emerges as the key success factor across all models. Portugal's 'variable geometry' teams adapting to specific violations, Poland's three complementary approaches and Norway's sector-specific intelligence groups demonstrate that core principles, coordinated action, information sharing and stakeholder engagement thrive when given operational flexibility for contextual adaptation.

Stakeholder engagement fundamentally transforms enforcement dynamics. The shift from adversarial relationships toward genuine partnerships creates compliance networks, provides valuable intelligence and reaches vulnerable workers through trusted intermediaries. Poland's industry-led construction initiative shows businesses actively driving safety improvements, while Norway's Fair Play Bygg coalition demonstrates how industry intelligence enhances enforcement precision.

These models reveal that co-enforcement and collaboration can function as mutually reinforcing strategies. Formal enforcement may validate voluntary initiatives while partnerships provide intelligence and reach. Yet, implementation requires sustained investment in infrastructure development, stakeholder engagement and operational flexibility.

Current evaluation approaches focus on process metrics, creating opportunities to develop outcome-based assessment frameworks. Resource constraints challenge sustainability but also drive innovation in efficient deployment. Institutional boundaries persist despite formal agreements, highlighting areas for continued organisational development.

For European labour inspectorates confronting sophisticated non-compliance in fragmented labour markets, these approaches show that effective worker protection emerges from matching regulatory innovation to workplace complexity. The strategic opportunity lies not in choosing between enforcement and engagement but in combining both — purposefully creating systems where authority and collaborative networks reinforce each other to achieve safer and healthier workplaces.

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7.4 Digital approaches

Digital guidance and counselling approaches represent labour inspectorates' strategic response to expanding responsibilities amid resource constraints. Norway's comprehensive call service combines telephone, email, chat and algorithm-based chatbot support across multiple OSH categories in several languages. Germany's Tele-OSH platform enables secure video consultations bringing occupational health expertise directly to SMEs through structured remote sessions. Ireland's BeSMART.ie provides an interactive web platform where businesses generate tailored risk assessments and safety statements from extensive hazard databases. Portugal's digital simulators and chatbot offer automated calculations for complex workplace entitlements and instant responses to regulatory queries. Success emerges from user-centred design giving priority to plain language and intuitive interfaces, multi-channel access accommodating diverse user preferences, seamless integration with enforcement activities, and careful balance between automation efficiency and human expertise availability. Critical challenges include measuring actual safety outcomes, addressing digital divides that exclude vulnerable workers and sustaining resources for continuous updates as regulations evolve.

As NLIs, companies and OSH professionals face resource constraints, digital guidance and counselling approaches have emerged to improve OSH compliance and promotion and address this challenge. These approaches aim to bridge knowledge gaps and clarify regulatory requirements without requiring physical presence. The Literature Review highlights that counselling/guidance approaches work best as part of broader strategies that address knowledge of rules as a critical compliance factor (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA, 2021a). It also notes that digital tools are increasingly important for reaching geographically dispersed businesses or those with limited resources for in-person training (EU-OSHA, 2021a). Implementation requires addressing both technical challenges and developing appropriate regulatory frameworks to ensure proper use.

The four distinct models of digital support analysed in this section vary considerably in their technological sophistication, resource requirements and service models.

Multi-channel advisory services are exemplified by Norway's Labour Inspection Authority's call service, which provides guidance through telephone, email, chat and an algorithm-based chatbot. With approximately 21 full-time employees from diverse professional backgrounds, this service answered over 57,500 inquiries across 80 different OSH-related categories in 2022 alone. Its multilingual capabilities, offering support in Norwegian, English, Polish, Lithuanian, Romanian and Russian, make it

particularly valuable for Norway’s diverse workforce. This model gives priority to human interaction supported by technology, rather than technology replacing human expertise.

Video consultation platforms are represented by Germany’s Tele-OSH approach, which enables remote OSH consulting specifically designed for SMEs. Developed through a joint pilot project (2019-2021), this service uses secure video technology with end-to-end encryption to support various consultation scenarios including individual company consulting, participation in OSH Committee meetings, prevention measure follow-up and more specialised services like tele-dermatology consultations. During the pilot, 386 telework safety consultations were conducted, with practical one-page guides developed for different scenarios to facilitate implementation. This approach focuses on bringing expert consultation to companies that might otherwise struggle to access it.

Interactive risk assessment tools are illustrated by Ireland’s BeSMART.ie platform, which allows users to generate and download tailored risk assessments and safety statements as required by Irish legislation. The platform contains over 500 hazards and 5,000 control measures, covering more than 300 business types and with all content written in plain English following national literacy guidelines. With a modest staff of one senior professional, two inspectors and two administrative personnel, BeSMART.ie has generated over 90,000 risk assessments and downloaded more than 250,000 safety statements since 2011. This model emphasises user independence in generating compliance documentation.

Digital simulators and chatbots are demonstrated by Portugal’s ACT digital tools, which include eight interactive calculators covering OSH-specific topics as well as broader work-related ones, such as parental leave and contract termination compensation. These tools have shown impressive engagement, with the chatbot recording over 200,000 interactions by September 2024 and the simulators logging over 11 million visits during 2023-2024. This approach focuses on automating responses to common questions while providing tailored calculations for complex entitlements.

While this analysis focuses on digital approaches for guidance and counselling, significant opportunities exist for enhancing not only guidance and risk assessments but also inspection activities through technology. For example, the Portuguese Labour Authority (ACT) possesses drones that could facilitate inspections in hazardous areas without exposing inspectors to risks, yet regulatory barriers prevent their deployment (EU-OSHA, 2025e). More broadly, emerging technologies can transform risk assessments and inspections making them faster, safer and more tailored. VR enables virtual plant inspections, unmanned aerial systems can collect samples in dangerous areas, and machine learning with big data analysis offers potential for predictive risk assessment through pattern identification from historical accident data (EU-OSHA, 2022a).

Other case studies throughout this report also incorporate digital tools. However, digital tools are not the primary theme of those case studies, which is why they are covered in other sections of the present chapter on innovative approaches.

Figure 9 shows the different models of digital educational support across the four countries, while

Figure 10 shows the common success factors and transferability of the digital approaches discussed in this section.

Figure 9: Models of digital educational support

Country	Approach	What It Is
Norway	Call service with chatbot	Multi-channel advisory service providing guidance on 80 different OSH-related categories
Germany	Video consultation platform	Remote OSH consulting service using secure video

Country	Approach	What It Is
		technology specifically designed for SMEs
Ireland	Interactive risk assessment tool	Web-based platform allowing users to generate tailored risk assessments and safety statements
Portugal	Digital calculators & chatbot	Suite of interactive calculators and automated chatbot providing information on working conditions and OSH matters

Figure 10: Success factors and transferability of digital approaches

Common success factors	Transferability
<ul style="list-style-type: none"> ▪ Accessibility ▪ User-friendly design ▪ Integration with enforcement ▪ Multiple access options ▪ Balance of technology and human support 	<ul style="list-style-type: none"> ▪ Adaptation to regulatory framework, and clear mandate ▪ Technological infrastructure ▪ Initial and ongoing resources ▪ Cultural and language adaptation ▪

7.4.1 Strengths

Despite different implementation models, successful digital approaches share several common strengths.

Accessibility and flexibility are fundamental advantages across all approaches. Norway’s call service operates with defined hours but removes geographical barriers to access. Germany’s Tele-OSH approach enables flexible scheduling for consultations regardless of location. Ireland’s BeSMART.ie and Portugal’s digital tools are available 24/7, allowing users to access support at their convenience. These features are particularly valuable for SMEs with limited resources and rural businesses distant from physical inspection offices.

Multiple communication channels enhance reach and effectiveness. Norway’s service combines telephone, email, chat and chatbot options to meet different user preferences. Germany adds video consultation to the mix, allowing visual demonstration and assessment. Portugal’s approach integrates both automated calculators and interactive chatbot functionality. This multi-channel strategy ensures that different user needs and technological comfort levels are accommodated.

User-centred design is evident across all four approaches. Norway categorises inquiries into 80 different topics to enable specialised responses. Germany developed one-page practical guides for different consultation scenarios. Ireland’s BeSMART.ie uses a step-by-step process with plain language. Portugal’s simulators are designed around concrete user scenarios with clear inputs and outputs. This focus on usability reflects an understanding that educational tools must prioritise user experience to be effective.

Integration with broader enforcement strategies rather than standalone approaches strengthens overall effectiveness. Norway's call service coordinates with enforcement activities, enabling rapid response to emerging issues. Germany positions Tele-OSH as complementary to, rather than replacing, traditional services. Ireland's field inspectors are trained on BeSMART.ie and promote it during site visits. Portugal's inspectors demonstrate the digital tools during workplace visits without directly using them in inspections. This integration creates synergy between educational and enforcement approaches.

Adaptability to emerging challenges has proven crucial, particularly during the COVID-19 pandemic. Norway's call service rapidly incorporated pandemic-related guidance. Germany's Tele-OSH approach became especially valuable when physical visits were restricted. Ireland's and Portugal's online tools allowed continued access to compliance support during lockdowns. This adaptability demonstrates how digital approaches can maintain continuity of support during disruptions.

7.4.2 Weaknesses

Digital tools' inability to handle complex workplace queries reinforces their role as support systems rather than replacements for human expertise. Portugal's simulators cannot process situations involving multiple contract interruptions or prolonged lay-offs, requiring users to consult inspectors for accurate calculations. Norway's chatbot redirects users to human advisors when question complexity exceeds its programmed capabilities. While these boundaries limit automation efficiency, they ensure that professional judgement remains central to addressing nuanced workplace situations where context and interpretation are crucial.

Physical presence remains the preferred method for comprehensive workplace assessments. Germany's evaluation found that nearly all participating occupational physicians and safety specialists still favour on-site consulting, despite rating video consultations as suitable for specific requests. This preference indicates that digital channels may currently serve best as complementary tools rather than complete substitutes for in-person workplace evaluations.

Keeping digital content current with evolving regulations requires continuous effort and resources. Ireland must systematically review and update hazards, control measures and guidance documents whenever safety legislation changes. Portugal faces similar challenges, needing technical corrections and updates to ensure calculators reflect current legal requirements. Unlike one-time development costs, these ongoing updates demand sustained staff time and technical expertise to maintain accuracy and legal compliance.

7.4.3 Opportunities

Enhanced analysis of user inquiries could inform strategic OSH priorities. Norway's call service specifically identifies potential value in gathering data on which industries recur most frequently in enquiries and recognising which OSH topics prove difficult for employers and safety representatives to understand. Systematic analysis of these patterns could help identify areas requiring targeted intervention.

Integration with existing systems could streamline data entry and reduce potential errors. Portugal envisions simulators connecting with other databases so that relevant employee information automatically populates calculation fields, eliminating manual efforts and input mistakes. Ireland sees potential for BeSMART.ie to interface with construction permit applications, embedding safety planning into project approval workflows. These connections could help to reduce duplication and create more seamless user experiences.

International interest suggests collaboration potential. Norway reports that their risk-based strategy presentation to EEA Member States was met with great interest indicating appetite for sharing approaches. Common workplace hazards exist across borders, but each country develops separate digital guidance. Real-time translation capabilities could enable shared platforms, though the case studies note limited actual cross-border initiatives to date.

7.4.4 *Threats and mitigations*

Digital OSH tools face implementation challenges that transcend national contexts, yet the four case studies reveal sophisticated mitigation strategies that enable successful deployment despite constraints.

Data protection and privacy concerns require fundamental design decisions. Germany's ongoing collaboration with the Federal Office for Social Security addresses data protection compliance through migration to cloud infrastructure that keeps sensitive occupational health data within national jurisdiction. Ireland takes a radically different approach, the HSA designed BeSMART.ie with complete anonymisation, preventing any ability to identify users or access individual assessments. This privacy-first design trades monitoring capabilities for user trust, encouraging honest risk reporting without fear of surveillance.

Resource limitations threaten long-term sustainability of digital initiatives. Germany's Tele-OSH remains a pilot project without guaranteed permanent funding. Portugal reports that simulator maintenance competes with enforcement activities for limited budgets. Countries mitigate these constraints through efficiency strategies. Norway operates its call service just four hours daily with technological support maximising impact. Germany developed standardised templates and guides streamlining consultation processes. Ireland maintains BeSMART.ie with only five core staff supplemented by additional expertise when needed. Portugal integrates digital tools within its broader website infrastructure, avoiding duplicate systems.

Regulatory frameworks both constrain innovation and demand continuous updates. Portugal's unused drones and thermal cameras exemplify how existing OSH legislation, designed for physical inspections, restricts technological deployment. Germany navigates this by explicitly positioning Tele-OSH as consultation rather than official inspection. Simultaneously, keeping content current requires sophisticated knowledge management. Norway invests in structured training programmes with dedicated time for staff to study regulatory changes. Ireland's team systematically updates content whenever legislation changes. Portugal regularly adjusts simulators to reflect evolving labour law requirements.

Digital divides risk excluding vulnerable workers who most need OSH support. Norway maintains telephone options alongside digital channels, recognising varying technological access and comfort levels. Germany acknowledges video consultation's limitations, positioning it as complementary to essential physical visits. Ireland designs BeSMART.ie with simple navigation requiring minimal technical skills. Portugal creates straightforward interfaces accessible via both web and mobile platforms. These multi-channel approaches ensure technology enhances rather than restricts access to safety guidance.

Maintaining quality while balancing automation efficiency with human expertise demands careful design. Norway's chatbot handles routine queries but escalates complex issues to human advisors through established quality control procedures. Germany develops robust quality management systems with clear remote consultation protocols, emphasising that video supplements rather than replaces physical assessment. Ireland bases BeSMART.ie content on established risk assessment methodologies validated through stakeholder consultation, while maintaining a contact centre for personalised support. Portugal continuously refines tools based on user feedback, acknowledging that complex workplace situations exceed automated calculation capabilities. This deliberate balance ensures technology amplifies rather than replaces professional OSH expertise.

7.4.5 *Effectiveness*

Measuring digital tool effectiveness proves challenging as direct links between usage and workplace safety outcomes remain difficult to establish. However, the case studies provide multiple indicators suggesting these approaches deliver value.

User satisfaction and perceived effectiveness are positive across approaches. Norway's call service users report high satisfaction with guidance received. Germany's evaluation found nearly 90% of occupational physicians and safety specialists rated video consultation as effective as in-person appointments for specific requests. Ireland's steady year-on-year increase in users (except during

COVID-19 years) suggests ongoing satisfaction. Portugal's labour inspectors report positive feedback on the tools' utility. These satisfaction indicators suggest the approaches meet user needs effectively.

Resource efficiency improvements are notable in several assessments. Norway's chatbot was predicted to handle 60,000 inquiries in 2024, increasing capacity without corresponding staff increases, though whether this operational efficiency translates to improved workplace safety outcomes remains unmeasured. Germany's evaluation showed significant time savings from eliminated travel and waiting times. Ireland maintains BeSMART.ie with a modest staff of five despite its reach. Portugal's labour inspectors report the tools allow them to focus on situations requiring deeper and more specialised analysis. These efficiency gains represent important outcomes, which can prove effective in resource-constrained environments.

Direct compliance impacts are difficult to measure definitively across all approaches. Norway's call service addresses knowledge gaps directly linked to compliance, particularly evident during COVID-19 when rapid guidance was essential. Germany's approach enables timely follow-up on prevention measures that might otherwise be delayed. Ireland's platform has generated over 90,000 risk assessments and 250,000 safety statements since 2011, directly supporting documentation compliance. However, this represents modest coverage over a 14-year period, translating to slightly more than 6,400 risk assessments per year in a country of about 290,000 workplaces (Central Statistics Office, 2021). Portugal's most popular simulator focuses on contract termination compensation, addressing a complex compliance area. While correlation with accident or illness reduction remains difficult to establish, these approaches clearly support compliance activities.

7.4.6 *Transferability*

The four digital approaches offer different transferability profiles, with requirements and adaptation needs varying significantly based on technological, regulatory and resource factors.

Technological prerequisites differ significantly between approaches. Norway's call service requires basic telecommunications infrastructure and customer relationship management systems. Germany's video consultation demands adequate digital infrastructure (internet bandwidth) and secure video conferencing capabilities. Ireland's and Portugal's web-based platforms necessitate web development expertise and hosting infrastructure. These varying technological requirements allow countries to select approaches aligned with their existing capabilities.

Regulatory framework compatibility influences transferability. Norway's and Portugal's advisory services require clear mandates for providing guidance within their legal frameworks. Germany's approach must integrate with existing consultation regulations and quality requirements. Ireland's risk assessment tool must align with national documentation requirements. Successful transfer requires adaptation to these country-specific regulatory contexts.

Resource requirements and scalability vary between models. Norway's call service with 21 staff represents significant resource commitment but enables direct person-to-person guidance. Germany's approach requires initial investment in secure technology but can scale with limited additional personnel. Ireland's platform demands substantial initial content development but can serve unlimited users with minimal ongoing staffing. Portugal's tools require programming expertise but offer highly scalable deployment. These different resource profiles allow countries to select approaches matching their capabilities. **Language and cultural adaptation needs** are important considerations. Norway's multilingual service demonstrates adaptation to workforce diversity. Germany's standardised consultation protocols may require cultural adaptation for different workplace contexts. Ireland's and Portugal's content requires not just translation but adaptation to national regulatory frameworks and industry practices. Successful transfer must account for these linguistic and cultural dimensions.

7.4.7 *Conclusion*

The four remote and digital approaches examined — Norway's multi-channel advisory service, Germany's video consultation platform, Ireland's interactive risk assessment tool, and Portugal's digital simulators and chatbot — demonstrate how technology can effectively extend the reach of labour inspectorates facing resource constraints. These innovative models share key success factors, including

user-centred design, integration with broader enforcement strategies and adaptability to emerging challenges, whilst representing different balances between human expertise and automation.

▪ Key benefits

Each approach offers scalable and flexible alternatives to traditional in-person support, particularly valuable for reaching geographically dispersed businesses, SMEs with limited resources and workers requiring multilingual assistance. Norway's multi-language service exemplifies this accessibility, while Ireland's and Portugal's 24/7 platforms remove temporal barriers entirely. This reach proves transformative for enterprises rarely encountering traditional inspection services. This is essential when considering that work increasingly occurs outside traditional workplace boundaries. As employment relationships become more complex through subcontracting, platform work and flexible arrangements, digital tools provide continuous touchpoints with workers, employers and OSH professionals who might otherwise escape regulatory oversight and have difficulties accessing informative resources.

Indeed, digital approaches enable proactive support rather than reactive enforcement, fundamentally shifting how inspectorates engage with evolving workplaces. By providing instant access to risk assessment, guidance and compliance tools, these platforms empower businesses to address OSH challenges before violations occur. This preventive capacity becomes crucial as workplace hazards evolve faster than traditional regulatory cycles can address.

▪ Lessons learnt

Accessibility through multiple channels emerges as fundamental. Successful approaches combine traditional telephone support with chat, email, video and web platforms, ensuring user groups face little to no exclusion. User-friendly design demonstrates how simplicity enhances rather than limits effectiveness.

The balance between technology and human support proves crucial for maintaining quality while achieving efficiency. All successful implementations preserve pathways to professional consultation, recognising that, to date, workplace complexity often exceeds algorithmic capabilities for nuances.

Transferability depends critically on national contexts. Clear regulatory mandates must authorise digital guidance provision, while technological infrastructure determines feasible approaches. Initial development demands substantial investment, but ongoing resources for maintenance and updates prove equally crucial as regulations evolve continuously. What is more cultural and language adaptation may in fact extend beyond these dimensions to encompass how different societies approach authority, technology adoption and workplace relationships.

Ultimately, as workplaces continue to evolve with changing employment patterns and emerging risks, these digital models provide important templates for how OSH compliance support can adapt whilst maintaining accessibility, quality and relevance. This is all supported by consistently high engagement levels and user satisfaction that suggest they meet genuine needs among their target audiences.

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7.5 Capacity-building approaches

Capacity-building approaches develop the knowledge, skills and systems needed to manage and promote OSH. The 15 case studies in this section represent practical solutions to address persistent and new and emerging OSH challenges at multiple levels: within regulatory bodies, across professional networks, within workplaces, and among vulnerable worker populations. These approaches are a promising and reveal a consistent pattern of strong process indicators but weak outcome evidence.

Success factors prove remarkably consistent: practitioner-led governance, progressive development pathways, integration with existing frameworks, and sustainable funding mechanisms. While transferability analysis reveals that institutional and socio-cultural prerequisites vary substantially, the most viable transferability pathway involves component-based, incremental implementation.

Capacity building initiatives fall into four distinct but interconnected categories, which are jointly analysed in this section 7.5:

- **Capacity building for labour inspectorates** (three case studies) addresses the fundamental challenge of maintaining effective oversight despite challenges related to inspector-to-enterprise ratios and increasingly complex workplace hazards.
- **Communities of practice** (four case studies) create self-sustaining professional networks that facilitate knowledge exchange and collective learning among OSH practitioners. These approaches extend regulatory impact by fostering professional excellence through peer-to-peer engagement.
- **Internal OSH capacity development** (five case studies) builds knowledge and systems within organisations for effective self-management of workplace hazards. These approaches help enterprises, particularly SMEs, develop sustainable OSH capacity.
- **Supporting vulnerable workers** (three case studies) extends OSH protections to those who face barriers accessing traditional support systems. These approaches address the needs of workers who may experience disproportionate OSH risks while having reduced capacity to advocate for safer conditions.

7.5.1 Capacity building for labour inspectorates

Three innovative approaches from Ireland, Germany and Portugal address challenges related to resource constraints, changing risk landscapes, and regulatory complexity and fragmentation.

Ireland's HSA demonstrates how strategic expansion of regulatory capacity can create the foundation for more comprehensive OSH oversight through comprehensive workforce expansion. Germany's safe

handling of carcinogenic hazardous substances (KEGS) programme shows how structured qualification systems can ensure consistent application of specialised technical knowledge for complex hazards. Portugal’s paired inspection approach illustrates how work organisation can enhance both inspector safety and capability development by embedding continuous learning into daily operations. Together, these cases represent a spectrum of innovative approaches to strengthening the human dimension of labour inspection systems, addressing different aspects of the inspector capacity challenge while recognising that effective labour inspection requires both sufficient human resources and appropriate capabilities.

Figure 11 contrasts, rather than compares, key features of each approach highlighting their distinctive characteristics. Each addresses different aspects of the inspector capacity challenge, but all recognise that effective labour inspection requires both sufficient human resources and appropriate capabilities.

Figure 11: Recruitment, training and safety in Ireland, Germany and Portugal

Feature	Ireland	Germany	Portugal
Primary focus	<u>Recruitment</u> : Expanding regulatory capacity through substantial recruitment, following post-pandemic review that identified staffing shortfall	<u>Training</u> : Enhancing technical expertise for complex hazard assessment by training inspectors to effectively assess and monitor carcinogenic hazardous substances in workplaces	<u>Safety</u> : Improving operational effectiveness through paired inspections by enhancing inspectors’ safety, providing corroborating evidence, enabling knowledge transfer, dividing tasks and protecting complainant anonymity
Scale	Increasing total staff from 190 (in 2020) to 317, meaning an additional 217 staff to be recruited. By 2023, 273 were employed	Part of a national programme to conduct 200,000 workplace inspections focusing on companies handling carcinogenic substances	Standard practice for all 448 labour inspectors throughout the country, applied to all inspection visits
Implementation	Multiple planned recruitment campaigns each year with review after each; phased onboarding to manage training demands	Self-study online training system with standardised technical data sheets for consistent assessment	Rotating pairs within teams organised by economic sectors; teams rotate every four years while pairs rotate more frequently
Knowledge transfer	Experienced senior inspectors mentor new inspectors through a structured 11-month development programme	Four detailed online training modules with self-assessment quiz and practical guidance materials	Continuous learning through working alongside different colleagues; experienced inspectors accompanying newer ones to stimulate knowledge exchange

Feature	Ireland	Germany	Portugal
Practical training	20 days of accompanied inspections and five days of supervised inspections before independent work	Training modules covering technical assessment, exposure determination and administrative actions	On-the-job learning through collaborative inspection activities with informal task division

▪ **Strengths**

All three approaches recognise that **effective labour inspection requires both technical expertise and practical application skills**. Ireland develops this through a structured programme where experienced inspectors accompany new inspectors during workplace visits, specifically 20 days of accompanied inspections and five days of supervised inspections. Germany combines technical knowledge with practical assessment techniques through comprehensive qualification modules delivered via online platforms. Portugal enables observational learning through its system where two inspectors conduct workplace visits together daily.

The approaches **balance standardisation with flexibility** effectively. Ireland provides a structured framework for inspector development with an 11-month probationary period that can be adapted to different technical areas. Germany offers standardised hazardous substance assessment approaches through technical data sheets while preserving inspector autonomy in applying them. Portugal maintains organisational consistency in always using inspector pairs while enabling flexible task division based on specific workplace situations.

The **knowledge transfer mechanisms are complementary**. Ireland implements formal mentoring relationships between senior and new inspectors, with senior inspectors signing off on competence. Germany creates structured technical modules with self-assessment tools for inspectors to test their knowledge. Portugal facilitates informal knowledge exchange through its system of regularly rotating which inspectors work together in pairs. These mechanisms address both explicit technical knowledge and tacit practical knowledge that comes from experience.

Each creates distinct measurement opportunities. Ireland can track recruitment progress (217 additional staff recruited), new inspector retention and ultimate inspection capacity (273 staff by 2023). Germany can assess qualification module completion rates and subsequent consistency in carcinogenic hazard assessment across its planned 200,000 inspections. Portugal generates qualitative feedback from inspectors about safety, quality and learning benefits despite lacking formal metrics for its paired approach.

▪ **Weaknesses**

Despite their innovative elements, all three approaches exhibit certain limitations that may constrain their potential impact.

Ireland’s recruitment expansion faces **sustainability challenges** beyond initial implementation. The approach requires continuous political commitment and funding that may prove vulnerable to economic downturns or shifting government priorities. The 11-month development programme, while comprehensive, creates substantial resource demands as experienced inspectors must balance mentoring responsibilities with their regulatory duties. This dual burden resulted in inspection numbers remaining static in 2023 despite increased staff.

Germany’s KEGS programme demonstrates technical sophistication but reveals **implementation complexities**. The self-study format, while resource-efficient, may not adequately address the practical challenges inspectors face when assessing complex workplace situations. Additionally, the voluntary nature of the qualification modules may result in inconsistent uptake across regions, undermining the standardisation objectives. The programme’s focus on carcinogenic substances, though important, represents only one category of workplace hazards.

Portugal's paired inspection approach doubles the inspector resources required per workplace visit which is a significant **efficiency concern in resource-constrained environments**, with SLIC reports questioning this practice. The informal knowledge transfer mechanism lacks structure and documentation, making it difficult to ensure consistent learning outcomes or identify knowledge gaps. The absence of formal evaluation after decades of implementation suggests organisational inertia rather than evidence-based practice.

▪ Opportunities

The three approaches present significant opportunities for enhancing labour inspection effectiveness across Europe. Ireland's expanded workforce creates immediate opportunities for **specialisation and innovation**. With 83 additional inspectors recruited over a three-year period from 2020, the HSA has developed dedicated teams including new divisions for occupational hygiene and education sectors.

Germany's digital qualification system presents opportunities for **rapid scaling and continuous updating**. The modular format enables incremental expansion to cover additional hazard categories beyond carcinogens. The self-assessment components could evolve into a comprehensive competency system, identifying knowledge gaps across the inspector workforce and targeting professional development accordingly.

Portugal's paired inspection suits **multifaceted inspections required for the new world of work**, where different types of expertise may be required. Documentation of the informal knowledge exchange could generate valuable insights for enhancing capabilities and targeting approaches.

▪ Threats and mitigation

Resource challenges manifest differently across approaches. Ireland's substantial recruitment drive requires significant investment in both hiring and inspector development, which they mitigate through phased implementation and strategic use of specialist recruitment agencies. Germany's qualification modules demand considerable development resources to create comprehensive technical content, addressed through digital delivery that maximises accessibility for inspectors. Portugal's paired inspection approach requires twice the inspector time per workplace visit compared to individual inspections, partially offset through efficient division of tasks between the two inspectors during visits.

Knowledge management presents another challenge for all three approaches. Ireland transfers institutional knowledge from experienced inspectors to new inspectors without disrupting ongoing regulatory activities. Germany needs to capture highly technical expertise about carcinogenic substances in formats accessible to inspectors with varying backgrounds.

Maintaining consistency while building capacity poses difficulties across all cases. Ireland addresses this through clearly defined competency requirements and structured development programmes with progressive responsibility. Germany creates standardised assessment tools and technical data sheets supporting uniform application across different regions. Portugal rotates inspector pairs to prevent isolated practice development while maintaining consistency through shared experiences among the inspection workforce.

Organisational constraints require careful navigation in each case. Ireland operates within civil service recruitment frameworks and pay scales that can limit the availability of qualified candidates. Germany works within its complex dual structure requiring coordination between federal state authorities and accident insurance institutions. Portugal must regularly justify the resource-intensive nature of paired inspections to external evaluators who question efficiency.

▪ Effectiveness

The three approaches demonstrate varying levels of evidence regarding their effectiveness.

Ireland shows concrete **progress in addressing inspector capacity**, increasing staff from 190 to 285 (against a target of 317) including 164 inspector positions, of which 85 are field based and therefore are conducting inspections and investigations. This enhancement in capacity has facilitated a 10% rise in planned inspections for 2025 (11,000 inspections) (EasySAFE, n.d.; Gravity, n.d.). While direct causation is complex, the record low in workplace fatalities in 2024 (33 deaths, down from 43 in 2023)

aligns with the increased inspection presence and targeted campaigns in high-risk sectors (NISO, n.d.; HSA, n.d.). Broader research evidence confirms that increased inspector numbers improve compliance and safety outcomes. A longitudinal study of 24 European countries (2008-2015) demonstrated that a 10% increase in inspections per worker reduced work accident rates by 1.68% (Lafuente and Daza, 2020). Besides, inspections mitigate risks in sectors with high migrant labour or undeclared work by enforcing rights uniformly (Vegas and Robert, 2013).

Germany has implemented a **structured qualification system for carcinogenic hazard assessment**, but the case study lacks empirical evidence demonstrating its impact. While the standardised technical data sheets appear logically designed to promote uniform assessment approaches, there is no documented evidence that inspectors actually apply these standards consistently or that hazard identification has improved. The claimed standardisation benefits require verification through comparative assessment data that the case study does not provide.

Portugal's paired inspection approach receives **positive qualitative feedback from participating inspectors**, who report benefits regarding safety, evidence quality and knowledge transfer. While these self-reported assessments tendentially represent a weak form of evidence, they in fact offer some indication of perceived value, particularly because they come from seasoned inspectors with decades of professional experience. However, despite long-term implementation, Portugal has not collected quantitative data comparing paired versus solo inspection outcomes, making it difficult to assess whether the resource-intensive paired approach delivers proportionate benefits.

Regarding **adaptability to evolving workplace hazards**, the case studies provide limited concrete examples. Ireland's increased capacity has enabled creation of new specialised divisions, demonstrating some adaptation capability. Germany's qualification system addresses one of three GDA priority areas. Portugal's rotation system creates opportunities for knowledge exchange between inspectors with different backgrounds and experience levels.

None of the approaches provide substantive evidence regarding their long-term effectiveness. The timeframes for realising benefits remain largely prospective. This evidence gap across all three approaches significantly limits conclusions about their long-term effectiveness and highlights the need for more robust evaluation focusing on outcomes related to inspector performance and workplace safety improvements.

▪ **Transferability**

Each approach contains independently transferable elements adaptable to different national contexts. Ireland's structured inspector development programme could be implemented at different scales depending on recruitment needs. Germany's qualification module approach could be applied to various technical hazards beyond carcinogens. Portugal's paired inspection principle could be applied selectively to high-risk or complex inspections even if resource constraints prevent universal implementation.

Successful transfer requires several prerequisites. Ireland's approach depends on political willingness to invest in regulatory capacity through additional inspector positions. Germany's system requires technical expertise in the target hazard area and digital learning infrastructure to deliver training modules. Portugal's approach needs sufficient inspector resources and organisational flexibility in work allocation. All three require supportive leadership recognising the value of inspector capacity building alongside immediate regulatory priorities.

The cases demonstrate varying degrees of adaptation potential. Ireland's phased recruitment could be scaled to match available resources in different settings. Germany's qualification approach could be simplified for jurisdictions with less complex regulatory structures. Portugal's paired inspections could be targeted to specific inspection types where safety or evidence benefits are greatest. This adaptability enhances transferability across different resource environments.

All three cases suggest that **incremental implementation enhances transferability**. Ireland's phased recruitment campaigns allow adaptation based on experience with each cohort. Germany's modular approach enables progressive development of qualification resources focusing on priority hazards first.

Portugal's long-standing practice demonstrates how approaches can be refined through sustained implementation over time. This incremental perspective makes transfer more feasible by allowing adaptation to specific national contexts.

▪ **Conclusion**

The three capacity-building approaches examined, Ireland's recruitment expansion, Germany's KEGS qualification programme and Portugal's paired inspection practice, represent different strategies for addressing inspector capacity challenges. Each focuses on a specific aspect: Ireland on increasing numbers, Germany on technical training, and Portugal on work organisation through collaborative fieldwork.

▪ **Key benefits**

Germany's KEGS programme highlights the advantages of standardised digital training modules, facilitating geographically independent learning and consistent assessment procedures across federal states. The comprehensive support materials and emphasis on carcinogenic substances systematically address critical workplace health risks.

Portugal's practice of conducting inspections in pairs demonstrates multiple advantages including improved inspector safety in potentially volatile situations, effective knowledge transfer between seasoned and novice inspectors, and enhanced evidence collection through dual witnessing. This approach also safeguards complainant anonymity and acts as a deterrent against corruption.

Ireland's HSA recruitment initiative illustrates how significant investment in regulatory capacity can transform an inspectorate's effectiveness. The increase from 190 to 273 staff members over three years alongside a robust mentoring scheme has enabled the formation of new specialist divisions and improved regulatory coverage in emerging sectors.

▪ **Lessons learnt**

These case studies offer valuable insights for labour inspectorates across Europe. Germany's KEGS programme reveals the complexity of implementing standardised procedures within dual regulatory systems, necessitating extensive coordination between federal and state authorities. The ongoing difficulty in populating their best practice database suggests that collecting and disseminating practical solutions requires sustained effort beyond initial programme development.

Portugal's experience underscores that while paired inspections are considered effective, they present resource challenges. Inspectors conduct twice the number of visits, yet only the process holder receives formal recognition, potentially obscuring the true workload. This highlights the need for recognition systems that acknowledge all contributors.

Ireland's recruitment drive demonstrates that rapid expansion demands careful planning and acceptance of short-term trade-offs. Despite the increase in inspector numbers, overall inspection rates initially remained static due to the intensive mentoring required. The persistent 14% vacancy rate reflects the challenges posed by competitive labour markets and constraints within government pay structures.

These case studies illustrate that effective innovation in labour inspection hinges on balancing traditional practices with modern approaches, ensuring adequate resource allocation and securing strong institutional backing. All three cases emphasise that successful innovation requires not only initial implementation, but also continuous adaptation informed by feedback and evolving circumstances

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7.5.2 Communities of practice

Communities of practice (CoPs) have emerged as structures that connect practitioners, experts and stakeholders to exchange knowledge, develop resources and build collective capability in OSH, addressing the challenges related to resource constraints. The Literature Review (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA 2021a) highlights that CoPs can effectively complement regulatory approaches by addressing knowledge gaps, promoting innovation and fostering professional development networks that sustain ongoing improvement.

Four distinct CoPs described in the case studies demonstrate different approaches to collaborative learning. Ireland’s business-led professional community, Ireland’s dedicated safety organisation network, Poland’s professional development initiatives, and Portugal’s practitioner-led integration initiatives between external and internal OSH services. Each addresses country-specific challenges while demonstrating how structured networks can enhance OSH knowledge and practice.

Figure 12 summarises the key features of each country’s CoP approach. While each model reflects national contexts and priorities, they share common principles of peer-to-peer learning, practice-oriented knowledge exchange and continuous professional development. These approaches extend the reach of OSH promotion beyond what inspectorates and prevention services could achieve through direct intervention alone.

Figure 12: Communities of practice approaches in Ireland, Poland and Portugal

Feature	Ibec Member-Led Online Community (Ireland)	National Safety Organisation (NISO) (Ireland)	Irish Polish OSH Expert Initiatives	Portugal’s OSH Services Interface
Community Type	Business representative-led professional community within membership organisation	Dedicated safety organisation with national and regional networks	Professional development initiatives, including competitions and networks	Service integration framework connecting safety and health professionals
Organisational Structure	Virtual community (following COVID-19) with monthly meetings led by members with regional offices throughout Ireland	Regional networks throughout Ireland with national coordination	BHP Team Championships competitions and Network of Industry HSE Consultants initiatives	Structured protocols between external and internal OSH services

Feature	Ibec Member-Led Online Community (Ireland)	National Safety Organisation (NISO) (Ireland)	Irish Polish OSH Expert Initiatives	Portugal's OSH Services Interface
Primary Participants	OSH professionals across diverse industries within Ibec membership	OSH professionals, safety representatives and managers across all sectors	OSH professionals and experts from various industries	Specialised safety professionals and occupational health practitioners
Scale	80-100 participants in monthly meetings, reaching 17,500 people in 2022	National reach with hundreds of organisations participating in annual events	Nationwide competitions with regional and national rounds	Framework affecting all workplaces using combined services
Core Activities	Topic-specific discussions, resource sharing, problem-solving sessions	Annual conference, regional meetings, awards programmes, publications, competitions	Team competitions testing knowledge and skills, network meetings sharing best practices	Joint workplace assessments, coordinated prevention planning, information sharing
Focus Areas	Risk assessment, psychosocial risks, industry-specific challenges	Cross-cutting OSH issues with competitions actively engaging frontline workers	Emergency response, risk assessment, professional mentoring	Integration of technical safety measures with health surveillance data
Governing Principles	Member-led with minimal organisational direction	National framework with regional implementation	Competitive and collaborative professional development	Structured collaboration protocols with professional autonomy

▪ **Strengths**

A fundamental strength across all approaches is **practitioner-led governance**. The Ibec CoP is explicitly member-led, with professionals determining discussion topics and leading sessions. NISO's regional structure enables locally relevant activities driven by member interests. Poland's Network operates through working groups led by experienced practitioners. Portugal's OSH technicians develop voluntary protocols and practices that allow professionals to determine implementation specifics within the existing regulatory framework. This practitioner-led approach ensures relevance to daily challenges and builds ownership among participants.

Multiple engagement pathways enhance inclusivity and sustained participation. Ibec combines regular virtual meetings with online discussion forums and resource sharing. NISO offers competitions, awards, training and networking events to accommodate different preferences. Poland's initiatives include both competitive events and collaborative networks. Portuguese OSH technicians create voluntary touchpoints between external and internal services through initiatives like joint workplace visits

and team meetings, fostering professional relationships. These varied pathways accommodate different learning styles and professional interests.

Practice-oriented knowledge exchange rather than theoretical discussions strengthens practical impact. Ibec's sessions focus on real-world implementation challenges and solutions. NISO's competitions test practical skills in realistic scenarios. Poland's championships include hands-on emergency response demonstrations. Portugal's framework emphasises joint workplace assessments with occupational doctors to address working conditions. This practice orientation ensures that knowledge exchange translates to workplace improvements.

Integration with formal structures, rather than operating in isolation, enhances legitimacy and sustainability. Ibec's community exists within an established business organisation's infrastructure, with meetings often attended by the HSA. NISO maintains formal relationships with regulatory bodies and industry associations. Poland's initiatives connect with professional certification frameworks. Portugal's approach is embedded within the national regulatory framework for OSH services, while relying on voluntary practitioner initiatives. This integration creates stability while connecting informal learning to formal systems.

Recognition mechanisms motivate continued engagement and quality contributions. Ibec acknowledges member expertise by inviting them to lead sessions. NISO's awards programme provides public recognition for exemplary practices. Poland's championships offer prestigious recognition for technical excellence. Portugal's framework creates professional visibility across disciplinary boundaries. These recognition pathways incentivise sustained participation and knowledge sharing.

▪ Weaknesses

Despite their innovative elements, all approaches exhibit certain limitations that may constrain their potential impact.

Ireland's business-led model faces **inherent selection bias**. Ibec only reaches companies willing to invest in membership and allocate professional time, which may reflect self-selection rather than broad applicability. NISO's budget supports just seven staff managing extensive programming for 900 members, creating capacity constraints that may likely limit deeper engagement.

Poland's competitive format may **deter participation from professionals uncomfortable with testing environments or those from collaborative cultures**. The championships' varying levels in participation suggests inconsistent appeal. The network's requirement for 10+ years' experience excludes newer professionals who might benefit most from structured learning opportunities.

Portugal's integration approach **depends entirely on individual initiative despite regulatory frameworks**. OSH technicians report that joint visits occur when possible, rather than more systematically. The absence of formal time allocation or compensation for collaborative activities could create inconsistent implementation across services and regions.

Knowledge management remains ad hoc across all approaches. Ibec's valuable polling data disappears after meetings without systematic capture. NISO's quiz content and award-winning practices lack comprehensive documentation. Poland's network aims to share best practices but provides no evidence of systematic knowledge repositories. Portugal's rich informal exchanges during visits often go unrecorded.

▪ Opportunities

The established networks create immediate platforms for addressing emerging OSH challenges. Ibec's virtual infrastructure could expand beyond synchronous meetings to include asynchronous knowledge repositories and discussion forums. The tenfold increase in participation following the shift online suggests untapped demand for flexible engagement formats.

Digital transformation enables exponential scaling. Ibec demonstrates that virtual formats can increase participation from 20-25 to 80-100 professionals while reducing costs. NISO's online training already reaches previously excluded rural areas. Poland's CIOP-PIB platform infrastructure could

support collaborative features beyond current e-learning modules. Portugal's digital data integration platforms could evolve into comprehensive knowledge management systems.

Emerging workplace challenges create natural expansion opportunities. The post-COVID-19 emphasis on employee wellbeing aligns with CoP approaches to collaborative problem-solving. Ibec reports this as a key driver of engagement. Environmental and social governance requirements present opportunities for CoPs to address integrated sustainability challenges beyond traditional safety concerns.

▪ Threats and mitigation

Sustaining voluntary engagement beyond initial enthusiasm presents ongoing challenges. Ibec addresses this through member-led topic selection ensuring continued relevance, with over 60% of members actively participating in monthly sessions. NISO creates annual cycles of events maintaining regular touchpoints throughout the year. Poland's championships build anticipation through qualifying rounds leading to national finals. Portugal establishes mandatory collaboration points while encouraging additional voluntary engagement. These approaches maintain momentum beyond initial launch phases.

Balancing knowledge sharing with intellectual property concerns requires careful management. Ibec establishes clear protocols for what information can be shared across competing organisations. NISO creates pre-competitive spaces where collective learning does not compromise commercial interests. Poland's initiatives focus on general methodologies rather than proprietary systems. Portugal's framework specifies what information must be shared while respecting confidentiality boundaries. These boundaries enable meaningful exchange while protecting legitimate business interests.

Bridging theory and practice divides demands thoughtful facilitation. Ibec ensures sessions include practical implementation examples alongside legislative updates. NISO incorporates case studies and site visits into its programmes. Poland's championships include scenario-based testing reflecting real world complexity. Portugal emphasises joint workplace assessments connecting medical surveillance data with engineering controls. These approaches make theoretical knowledge actionable in workplace contexts.

Geographical and accessibility barriers potentially limit participation. Ibec's shift to virtual meetings during COVID-19 significantly increased participation, leading to a permanent online format. NISO maintains regional structures ensuring activities throughout Ireland. Poland's initiatives include regional qualifying rounds before national events. Portugal's framework accommodates both urban and rural implementation contexts. These adaptations help overcome distance barriers while maintaining community cohesion.

▪ Effectiveness

The evidence base for assessing CoP effectiveness remains largely anecdotal and process-oriented, presenting significant limitations for determining robust effectiveness.

OSH initiatives demonstrate well-documented engagement metrics — Ibec maintains consistent participation (80-100 professionals monthly), NISO reaches hundreds of organisations annually, Poland's championships attract significant professional involvement and Portugal's framework covers all mandated workplaces.

However, **establishing clear connections between participation and improved OSH performance remains methodologically challenging.** This challenge stems partly from the dominance of self-reported benefits, which raises validity concerns. Ibec members report implementing specific practices without independent verification. Similarly, NISO's award participants report performance improvements, though selection bias likely influences these reports. Poland generates positive participant feedback but lacks objective outcome measures, whilst Portugal's approach relies on practitioner testimonials without systematic effectiveness studies.

Even where objective improvements might be documented, **attribution challenges complicate assessment** across all models. When workplace improvements coincide with CoP participation, establishing causal relationships remains problematic due to multiple concurrent influences including

regulatory changes, technological advancements and broader organisational developments. Comparative studies examining accident rates of participating organisations against sector or national averages could provide more robust evidence, as demonstrated by initiatives like the Finnish Vision Zero Forum (Vision Zero Finland, 2019), yet none of the examined approaches employs such methodologies.

These methodological limitations are compounded by the notable **absence of longitudinal data**, which restricts understanding of sustained impact. Consequently, resource efficiency claims, whilst plausible, remain under-evidenced without rigorous comparative analysis or established return-on-investment metrics compared to alternative OSH improvement strategies.

▪ **Transferability**

The transferability of CoP approaches depends heavily on contextual factors, with varying implementation requirements across the examined models.

Institutional and cultural prerequisites significantly influence transferability potential. Ibec's model presupposes an existing business membership organisation with credibility among OSH professionals, a structure not universally available across European contexts. NISO's approach requires a tradition of voluntary professional association that may be less developed in some EU Member States. Poland's competitive format reflects cultural preferences that might encounter resistance in contexts emphasising collaboration over competition. Portugal's framework depends on a regulatory structure defining both external and internal OSH services, a distinction not present in all national systems.

Resource implications vary substantially between models, affecting feasibility in different settings. Ibec's virtual community requires modest technological infrastructure but depends on sufficient professional density within its membership base. NISO's comprehensive programme demands substantial organisational resources that might be prohibitive in less-resourced environments. Poland's competitive approach requires logistical capacity for managing multi-level competitions. Portugal's system depends on regulatory mandates for OSH service provision, but relies primarily on voluntary practitioner initiatives, with limited monitoring of actual compliance quality.

Adaptation requirements, rather than wholesale adoption, characterise successful transfers. Ireland's experience demonstrates how both business-led (Ibec) and dedicated safety organisation-led (NISO) models can coexist within the same country, suggesting potential for complementary approaches rather than selecting a single model. Poland's competitive element could be moderated in contexts preferring collaborative approaches while maintaining the professional development focus. Such a competitive element is also present in the Ireland CoPs noted above. Portugal's practitioner-led integration practices, including joint visits, team meetings and digital platforms, could be adapted as voluntary frameworks in contexts where regulatory mandates are unlikely.

Geographic and linguistic considerations affect practical implementation. Ibec's virtual model overcomes physical distance limitations while maintaining regional offices throughout Ireland. NISO's regional structure provides a template for addressing geographical dispersion but requires sufficient professional concentration within regions to maintain viability. Poland's multi-level approach demonstrates one solution to geographical challenges by combining local events with national coordination. Portugal's framework must function across both urban centres and rural areas with varying professional density, with some areas experiencing severe shortages of occupational doctors.

Successful transfer examples provide important insights into adaptation processes. NISO's approach has informed similar national networks in other European countries, though with significant modifications reflecting local professional cultures. Poland's championships were themselves influenced by international competitions while incorporating distinctive national elements. Portugal's framework evolved partially from comparative analysis of service integration approaches in other European contexts. These examples suggest that transfer typically involves substantial adaptation rather than direct replication.

▪ Conclusion

The CoPs examined demonstrate significant potential for enhancing OSH knowledge exchange and professional development through structured collaboration. While each model emerged from different national contexts, they share key success factors: practitioner led governance, multiple engagement pathways, practice oriented knowledge exchange, integration with formal structures and recognition mechanisms that motivate participation. These approaches extend the reach of labour inspectorates and prevention services by creating self-sustaining professional networks that can drive continuous improvement.

▪ Key benefits

The examined approaches demonstrate transformative potential through different mechanisms. Ibec's virtual platform significantly increased engagement following the shift to online formats, creating competitive benchmarking effects where companies adopt practices after learning what peers implement. NISO successfully engages diverse stakeholders including micro-enterprises through its multifaceted approach combining awards, competitions and training. Poland's dual initiatives energise professional development through competition and recognition, offering both prestige and tangible benefits to participants. Portugal's integration model transforms service delivery by enabling occupational health professionals to witness actual workplace conditions, fundamentally changing assessment approaches and enhancing credibility with stakeholders.

▪ Lessons learnt

The effectiveness evidence, while largely qualitative and process-oriented, indicates substantial engagement across all approaches, however robust outcome evaluation remains a significant gap. The predominance of self-reported benefits, attribution challenges and limited longitudinal data points to the need for more rigorous evaluation frameworks to establish the specific contributions of CoPs to workplace safety outcomes. Despite these limitations, the consistent patterns of professional engagement across diverse models suggest these approaches address genuine needs among OSH practitioners.

Resource sustainability emerges as a universal challenge requiring creative solutions. Each model depends on different funding mechanisms and voluntary contributions, from membership fees to sponsorship arrangements. The capacity constraints noted across all approaches highlight the tension between ambitious programming and limited resources.

Trust and confidentiality underpin all successful models but require sustained effort to establish and maintain. The institutional histories and established relationships provide essential foundations for meaningful knowledge exchange, whether through anonymous polling systems, professional networks or collaborative service delivery arrangements.

Transferability depends on thoughtful adaptation to specific institutional contexts rather than direct replication. The diversity of models examined, from business-led communities to national networks, competitive frameworks to regulatory integration systems, offers a range of templates that can be modified to suit different national, cultural and organisational environments. Successful implementation requires alignment with existing professional structures and practices

while maintaining the core principles of collaborative learning that define effective CoP.

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7.5.3 *Internal OSH capacity*

Labour inspectorates and prevention services increasingly recognise that building OSH capacity within organisations is essential for sustainable compliance beyond what inspections alone can achieve. The Literature Review (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA 2021a) highlights that internal capacity development is particularly important in contexts where labour inspectorates face resource constraints that limit direct oversight. These approaches aim to develop the knowledge, skills and systems needed for effective self-management of OSH risks.

Four distinct approaches demonstrate how different European countries have enhanced internal OSH capacity:

Mandatory training requirements are exemplified by Portugal's designated employer/employee training, which establishes comprehensive education for internal OSH representatives. Portuguese law requires that organisations designate specific employees or the employer to perform OSH functions, with mandatory training based on company risk level and size. This training ranges from 40 hours for low-risk sectors to 100+ hours for high-risk sectors, with refresher training required every five years. The approach ensures all organisations have personnel with standardised OSH knowledge, with content covering risk assessment, accident investigation, emergency planning and regulatory frameworks. This model gives priority to formal knowledge transfer to specific individuals with explicit OSH responsibilities.

Alternative supervision models are represented by Germany's AB+ project, which offers SMEs flexibility in meeting OSH expertise requirements. Developed to address challenges faced by companies struggling with traditional supervision models, AB+ replaces fixed schedules with demand-based support. Companies receive initial comprehensive consultations establishing OSH management basics, followed by customised support based on their specific needs. During the pilot approaches were tailored to different sectors including metal manufacturing, food service and healthcare. This model focuses on developing internal risk management capacity through external support aligned with business operations rather than rigid requirements.

Management-oriented OSH training is illustrated by Germany's approach to OSH for non-OSH professionals, which expands capacity beyond specialists to leadership roles. These programmes target managers, team leaders and supervisors who make daily decisions affecting workplace safety. Training addresses leadership responsibilities, risk recognition, accident prevention and communication skills tailored to managerial roles rather than technical specialists. Delivered through a combination of classroom instruction, practical exercises and mentoring, this approach emphasises integrating OSH considerations into routine management practice. This model focuses on mainstreaming safety capacity throughout organisational hierarchies.

Professional service integration is demonstrated by Norway's occupational health service system, which combines external expertise with internal capacity development. Norwegian legislation requires most employers to provide OHS coverage through either in-house or external services. OHS providers must be approved by authorities and include multidisciplinary teams covering occupational medicine,

ergonomics, psychosocial factors and other specialities. Services include workplace assessments, health surveillance, risk management guidance and employee training. This approach focuses on bringing specialised prevention knowledge into organisations to enhance internal practices through both direct service and knowledge transfer.

Figure 13 presents the different target groups, approaches, mechanisms, primary focuses and implementation scales of the approaches from Portugal, Germany and Norway to build internal OSH capacity.

Figure 13: Building internal OSH capacity approaches in Portugal, Germany and Norway

Feature	Designated Employer/Employee Training (Portugal)	Alternative Supervision Project AB+ (Germany)	OSH for Non-OSH Professionals (Germany)	Occupational Health Service (Norway)
Target group	Employers and employees designated for OSH functions	SMEs with limited access to OSH expertise	Managers, team leads and other non-OSH professionals	Employers across all industries
Approach	Mandatory training requirements with certification	Demand-based supervision model offering flexibility	Training programmes focused on leadership OSH roles	Compulsory external service with internal integration
Mechanism	Knowledge transfer through standardised curricula	Tailored risk assessment support and consultancy	Integration of OSH into management roles	Specialised professional support with knowledge transfer
Primary focus	Basic and advanced OSH competencies for designated staff	Risk management processes aligned with company needs	Mainstreaming OSH across organisational functions	Prevention-oriented expertise across health hazards
Implementation scale	National requirement affecting all organisations	Pilot initiative with selected companies	Industry-wide training programmes	Universal coverage (mandatory for most companies)

▪ **Strengths**

Despite their different implementation models, successful internal capacity-building approaches share several common strengths and success factors.

Tailoring to organisational context is fundamental across approaches. Portugal’s training requirements vary by company size and risk level, acknowledging different capacity needs. Germany’s AB+ project explicitly adapts supervision to company-specific factors including operations, existing knowledge and risk profile. Germany’s non-OSH professional training incorporates industry-specific scenarios and challenges. Norway’s OHS providers develop company-specific action plans based on workplace assessments.

Complementary expertise sources strengthen overall effectiveness. Portugal combines internal designated staff with external training providers certified by authorities. Germany's AB+ creates structured partnerships between companies and OSH professionals. Germany's approach for non-specialists establishes connections between managers and OSH experts. Norway's system integrates external OSH professionals with internal management systems. These complementary relationships combine external expertise with internal contextual understanding.

Progressive capacity development enables sustainable improvement. Portugal's multi-level training framework establishes pathways from basic to advanced OSH knowledge. Germany's AB+ begins with foundational consultations before developing more sophisticated risk management approaches. Germany's management training builds capacity through progressive modules addressing increasing complexity. Norway's OHS providers typically begin with basic assessments before developing more comprehensive programmes. This progressive approach acknowledges that capacity building occurs incrementally over time.

Integration with operational practices, rather than standalone initiatives, enhances practical impact. Portugal's training includes application-oriented content focused on workplace implementation. Germany's AB+ explicitly connects OSH management with business processes. Germany's non-OSH professional training emphasises practical application in daily management activities. Norway's OHS providers develop interventions designed to integrate with work processes. This integration ensures that capacity development translates to actual workplace practices.

Professional identity reinforcement motivates sustained engagement. Portugal's certification framework provides formal recognition of OSH competence. Germany's AB+ establishes companies as active OSH management partners rather than passive recipients. Germany's approach for managers positions OSH as an integral leadership responsibility. Norway's system creates clear professional roles and responsibilities within organisations.

▪ Weaknesses

Models report **inconsistent engagement and quality** of OSH services or interventions, especially in smaller enterprises. Some businesses treat OSH as a cost to minimise, leading to superficial compliance. Effective implementation often requires significant resources such as personnel, time, funding and so on, which can be a barrier for both service providers and SMEs. Moreover, there is a lack of robust data on the effectiveness of interventions, making it difficult to assess real improvements in OSH outcomes.

There is significant **variance in how enterprises and occupational health services cooperate** on OSH matters in Norway. Some services provide good assistance, while others are distant or minimally involved. Additionally, for some private businesses, the cost of mandatory occupational health services is seen as a burden, which can reduce motivation for meaningful engagement. Some management teams give priority to cost over quality, choosing the cheapest service. This limits opportunities for good cooperation and effective OSH outcomes.

There is **no validated data** yet on the effectiveness of the OSH consulting provided by non-OSH professionals in Germany. Advisors are not OSH professionals and therefore their expertise is limited and they cannot provide technical OSH support, therefore must referring to specialists for complex issues. The approach relies on trusted advisors (e.g. tax advisors) to raise OSH issues, but there is a risk that companies may not follow through with substantive OSH improvements.

The AB+ model requires **significant personnel resources** for management training and OSH support management, which may be challenging for some UVTs. Only companies with specific requirements can participate which potentially excludes some SMEs. Labour inspectors and UVT management must be fully convinced and involved meaning that a lack of buy-in can lead to resistance or withdrawal from the project.

In Portugal the designated employer/employee model is scarce, with **only few companies opting for it, despite legal provisions**. There are also challenges in evaluating the impact of training actions and whether they lead to effective OSH improvements in micro-enterprises. It is thought that the

effectiveness may be limited as most training has been carried out with employees, rather than employers.

▪ Opportunities

Opportunities persist in these approaches to reach SMEs and enable cooperation between agencies.

Recent regulatory changes in Norway have clarified the **preventive focus of occupational health services**, potentially increasing their effectiveness and impact. The scheme also benefits from strong cooperation between authorities and social partners, which can be leveraged for future improvements. The approach can also improve information dissemination by the Labour Inspection Authority, increasing awareness and engagement through webinars and newsletters.

The OSH for non-OSH professionals network covers around three million SMEs representing around 70% of the German labour market. This offers significant potential for **widespread OSH awareness**. Regular contact with SMEs through trusted advisors can also provide long-term attention to OSH issues and challenges. The scalability of the approach has been made possible by the online qualification workshops and digital resources.

The AB+ model similarly fosters **continuous improvement, OSH management and working conditions**, especially in SMEs. The needs-based support and targeted expert involvement results in efficient use of scarce or limited resources. Participating companies and managers found the model helpful and expressed interest in its continuation and expansion. The model demonstrates that high-quality OSH support in SMEs is achievable with the right approach and resources.

In Portugal, the designated employer/employee training **makes OSH knowledge more accessible** by offering free and high-quality training to micro-enterprises. The training is offered in person and online which increases its accessibility for employers and employees, with is also being offered at a variety of times, within and outside of standard working hours. The initiative increases knowledge, promotes dialogue and fosters a safety culture in micro-enterprises.

▪ Threats and mitigations

Internal capacity building approaches face several common implementation threats and challenges that require specific mitigation strategies.

Resource constraints affect implementation across all models. Portugal addresses this through differentiated requirements based on company size, with micro-enterprises allowed to use external services when internal capacity is impractical. Germany's AB+ develops resource efficient supervision models with flexible scheduling and targeted interventions. Germany's management training offers modular formats accommodating different time constraints. Norway allows smaller companies to use external services rather than developing comprehensive internal capability. These adaptations help match capacity development expectations with available resources.

Quality assurance challenges require specific monitoring approaches. Portugal establishes certification requirements for training providers and standardised curricular content. Germany's AB+ includes structured evaluation protocols assessing both process implementation and outcome achievements. Germany's non-OSH professional training incorporates practical assessments verifying applied knowledge. Norway maintains approval requirements for OHS providers with regular quality audits. These quality mechanisms maintain integrity while accommodating different implementation contexts.

Knowledge transfer limitations potentially restrict practical application. Portugal addresses this through refresher training requirements and practice-oriented curricula. Germany's AB+ includes follow-up consultations specifically focused on implementation challenges. Germany's management training incorporates on-the-job application exercises with feedback. Norway's OHS providers develop workplace-specific guidelines and resources supporting knowledge application. These transfer enhancing approaches help bridge divides between theory and practice.

Organisational resistance potentially limits implementation effectiveness. Portugal's mandatory requirements create compliance obligations while certification enhances perceived value. Germany's

AB+ emphasises business benefits including regulatory compliance simplification and operational integration. Germany's management training connects OSH with broader organisational performance metrics. Norway's system provides expertise that many organisations recognise as valuable beyond compliance. These approaches address resistance through both compliance requirements and perceived value enhancement.

▪ Effectiveness

The effectiveness evidence for internal capacity-building approaches varies in both scope and methodological approach, reflecting inherent evaluation challenges.

Knowledge and skill development shows positive indicators across approaches. Portugal's certification system ensures minimum knowledge standards for thousands of designated staff annually, with examination requirements verifying learning. Germany's AB+ evaluation found improved risk assessment capacity among participating companies. Germany's management training programmes demonstrate knowledge gains through pre-post assessments. Norway's OHS system shows enhanced risk identification through systematic workplace assessments. These learning outcomes represent important intermediate indicators, though their translation to workplace practice varies.

Resource efficiency gains are notable in several approaches. Portugal's differentiated requirements prevent overburdensome obligations on smaller companies while ensuring proportionate capacity development. Germany's AB+ demonstrated cost savings compared to traditional supervision models while maintaining similar or improved outcomes. Germany's management training distributes OSH capacity across existing roles rather than requiring additional specialist positions. Norway's shared service model enables access to specialised expertise that would be unaffordable for many organisations individually. These efficiency considerations are particularly important in resource-constrained environments.

Measuring effectiveness beyond compliance presents evaluation challenges. Portugal tracks certification numbers but struggles to assess workplace impact comprehensively. Germany's AB+ pilot included both process and outcome measures but faced attribution challenges. Germany's management training programmes incorporate pre-post assessments but long-term evaluation remains difficult. Norway's system includes service delivery metrics but connecting these to health outcomes presents methodological challenges. These evaluation limitations reflect the inherent difficulty of attributing complex workplace changes to specific capacity building interventions. What is more **long-term impact assessment** remains methodologically challenging.

Cultural impact evidence suggests broader influence beyond specific measures. Portugal's long-standing requirements have normalised the concept of designated OSH responsibility within organisational structures. Germany's AB+ evaluation noted shifts in safety perception among company leadership, though measurement was qualitative. Germany's management training programmes report enhanced safety communication, though systematic documentation is limited. Norway's system establishes prevention-oriented frameworks within participating organisations. These cultural elements, while difficult to quantify, may represent important factors in sustainable capacity development.

▪ Transferability

The transferability of internal capacity building approaches varies depending on several factors, with each model offering different implementation requirements and adaptation needs.

Regulatory framework compatibility influences transferability significantly. Portugal's mandatory approach requires legal authority to establish training requirements and certification standards. Germany's AB+ needed regulatory flexibility to permit alternative supervision models alongside traditional approaches. Germany's non-OSH professional training operates within existing training frameworks but without specific mandates. Norway's OHS system depends on legislative requirements for company participation. These varying regulatory dependencies affect which approaches might be most readily transferable to specific contexts.

Institutional capacity prerequisites differ between approaches. Portugal's system requires certification infrastructure for training providers and content standardisation mechanisms. Germany's

AB+ depends on OSH professionals able to deliver flexible, customised services. Germany's management training needs qualified trainers with both OSH and leadership expertise. Norway's approach requires access to multidisciplinary health professionals with occupational specialisation. These institutional requirements influence practical implementation feasibility in different contexts.

Cultural adaptation needs are important considerations. Legislative underpinnings used by labour inspectorates in different jurisdictions is complex due to varying political, economic and social development of individual EEA Member States (EU-OSHA, 2022b). Portugal's hierarchical designation approach may require adjustment in contexts emphasising distributed responsibility. Germany's AB+ collaborative model requires mutual trust between regulators and regulated entities. Germany's integration of OSH into management functions works best in contexts valuing decentralised responsibility. Norway's professional service model aligns with preventive healthcare orientations. These cultural elements suggest adaptation needs beyond technical implementation.

Resource implications vary substantially between models. Portugal's approach requires significant training infrastructure but distributes costs across stakeholders. Germany's AB+ demands initial consultation resources but potentially reduces ongoing supervision costs. Germany's management training requires curriculum development and delivery capacity but leverages existing management development frameworks. Norway's system requires significant professional resources but creates economies of scale through shared services. These different resource profiles allow implementers to select approaches matching their capabilities.

Incremental implementation potential varies between approaches. Portugal's system could be implemented progressively by prioritising high-risk sectors before expanding. Germany's AB+ explicitly began as a pilot project before broader implementation. Germany's management training can be introduced module by module targeting specific roles initially. Norway's system allows phased implementation beginning with priority sectors. This potential for incremental development enables adaptation to local conditions and learning through implementation.

▪ **Conclusion**

The four approaches to building internal OSH capacity demonstrate how labour inspectorates and prevention services can enhance sustainable compliance beyond what inspections alone can achieve. Portugal's voluntary training, Germany's alternative supervision and management training, and Norway's occupational health service represent complementary approaches targeting different aspects of organisational capacity — from designated specialists to management integration, and from external service support to internal expertise development.

▪ **Key benefits**

These capacity-building approaches establish sustainable foundations for OSH improvement by creating systems that function beyond initial interventions and develop lasting organisational capabilities. They cultivate internal expertise that combines deep organisational context understanding with access to external specialised knowledge, creating a powerful synergy between local insight and professional competence. The approaches establish progressive learning pathways that build competence incrementally over time, acknowledging that meaningful capacity development occurs through sustained engagement rather than one-off training events. Most significantly, these approaches establish ongoing support relationships through mandatory refresher training, continuous improvement processes, adviser networks, or integrated prevention services that sustain momentum and adapt to evolving organisational needs and changing risk landscapes.

▪ **Lessons learnt**

These approaches share key success factors: tailoring to organisational context, complementary expertise sources, progressive development pathways, integration with operational practices, and reinforcement of professional identity. However, each approach faces similar implementation challenges regarding resources, quality assurance, knowledge transfer, organisational resistance and effectiveness measurement. While comprehensive impact evaluation remains methodologically challenging, the evidence suggests these approaches enhance knowledge, skills and implementation capacity across

diverse organisational contexts. Their transferability depends on regulatory compatibility, institutional capacity, cultural factors and resource availability — with each model offering different adaptation pathways to suit specific national and sectoral conditions.

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7.5.4 Capacity building for vulnerable workers

Labour inspectorates and prevention services face particular challenges with regards to the changing risk landscape in protecting workers who are vulnerable due to employment status, language barriers, disability or other factors that may limit their access to traditional OSH frameworks. These groups often face disproportionate OSH risks while simultaneously having reduced capacity to advocate for safer working conditions. The Literature Review (Improving Compliance with Occupational Safety and Health Regulations: An Overarching Review, European Risk Observatory Literature Review, EU-OSHA 2021a) highlights that addressing these vulnerabilities requires targeted approaches that go beyond standard inspection activities.

Three distinct approaches demonstrate how different European countries have developed initiatives to support vulnerable workers: Portugal's national association for workers with work-related disabilities and injuries (ANDST), Poland's response to Ukrainian refugees and Norway's regional safety representatives system. The country case studies vary considerably in their target groups, institutional frameworks, and service models. Each represents a different approach to extending OSH protections to vulnerable groups while addressing country-specific challenges.

Peer support and advocacy is exemplified by Portugal's ANDST, which guarantees the provision of legal, social and psychological support, as well as support for the social and professional reintegration of workers who are victims of accidents or occupational diseases. Founded in 1976 and recognised as a public utility organisation since 1990, ANDST operates through 32 local delegations serving over 20,000 members nationwide (of which only 4,000 workers receive direct support). The association emerged to address the insufficient support available for those who suffer workplace injuries or occupational diseases. ANDST's intervention aims to respond to workers' concrete needs when

interacting with different institutions (e.g. Labour Court, Social Security Institute), often associated with the lack of information as well as limited economic and educational resources. It also addresses the unequal relationship that often exists between workers and the institutions with which they can claim the safeguarding of their rights regarding safety and health at work. This model uniquely addresses the aftermath of OSH failures, focusing on workers who have already experienced harm and face social and economic marginalisation as a result.

Crisis response frameworks are represented by Poland’s initiatives for Ukrainian refugees, which rapidly adapted OSH systems to address the needs of a sudden vulnerable population. Following Russia’s invasion of Ukraine in February 2022, Poland experienced an unprecedented influx of refugees, with over 1.5 million Ukrainians joining the Polish labour market by 2023. The PIP implemented a multifaceted approach while the Nofer Institute of Occupational Medicine (NIOM) launched an initiative to support their integration into the Polish labour market and safeguard their OSH rights. With financial support from the World Health Organisation (WHO), NIOM developed information materials in Ukrainian on the principles of preventive occupational health checks, prevention of common work-related diseases, and recommended vaccinations. The initiative provided linguistically and culturally adapted information and tools, empowering Ukrainian workers to understand their rights and entitlements, and access appropriate preventive care. This approach demonstrates how existing institutions can pivot to address emerging vulnerabilities through coordinated information campaigns, targeted enforcement, and linguistic accessibility measures.

Regional representative systems are illustrated by Norway’s regional safety representatives scheme (RVO), which extends OSH support to workers in enterprises without their own safety representative. While not specifically targeting vulnerable workers, the system indirectly protects employees who might otherwise lack any form of safety representation due to company size or sector characteristics. Established in the 1980s for the construction industry and expanded to hotels/restaurants, cleaning, and hairdressing sectors in 2010, this system addresses gaps in representation for workers in small enterprises and precarious employment. The scheme employs 107 regional representatives who visit approximately 15,000 workplaces annually, providing practical support to businesses with fewer than 10 employees. RVOs help establish functioning safety services and coordination agreements within businesses, provide guidance to motivate systematic OSH work, contribute to OSH research in their industries, and cooperate with the Labour Inspection Authority, social partners and other stakeholders. Representatives have legal authority to enter workplaces, advise employers and workers, halt dangerous work (particularly common in the construction sector), and coordinate with labour inspectors when necessary. Funded by employer fees and government subsidies, the system operates within a tripartite framework where representatives are appointed by trade unions but serve all workers regardless of union membership. This model addresses structural barriers that limit OSH representation in small enterprises and fragmented work arrangements.

Figure 14 shows the different target groups, approach types, vulnerabilities addressed, institutional structures and scales for the different innovative approaches discussed in this section.

Figure 14: Capacity building for vulnerable workers approaches in Portugal, Poland and Norway

Feature	National Association for Disabled Workers (Portugal)	Support for Ukrainian Refugees (Poland)	Regional Representatives (Norway)	Safety
Target Group	Workers with work-related disabilities and injuries	Ukrainian refugees in Polish labour market	Workers in sectors with limited OSH representation	

Feature	National Association for Disabled Workers (Portugal)	Support for Ukrainian Refugees (Poland)	Regional Representatives (Norway)	Safety
Approach Type	Peer support and advocacy organisation with direct services	Multi-faceted response coordinating information, guidance and resources	Regional representative system supplementing workplace representatives	
Primary Services	Rehabilitation support, legal advice, social reintegration, advocacy	Multilingual information, targeted inspections, cooperation with Ukrainian authorities	Workplace visits, risk assessment support, training, advice to unrepresented workers	
Vulnerability Addressed	Physical/psychological disabilities and social marginalisation following workplace injuries	Language barriers, unfamiliarity with regulations, precarious employment	Small workplaces, temporary employment, industries with limited representation	
Institutional Structure	Independent association with governmental recognition	State Labour Inspectorate with interagency cooperation	Tripartite framework with trade union implementation and government funding	
Scale	32 local branches serving over 20,000, of which 4,000 workers directly	Over 250,000 Ukrainians reached through targeted initiatives	107 representatives covering 120,000+ enterprises across multiple sectors	

▪ **Strengths**

Despite their different implementation models, successful capacity building approaches for vulnerable workers share several common strengths and success factors.

Identification of specific vulnerability factors enables targeted interventions. ANDST recognises that workers with injuries face both physical/psychological disabilities and administrative burdens in accessing support systems. NIOM’s initiative for Ukrainian refugees acknowledges the compound barriers including language limitations, unfamiliarity with regulations and potential exploitation. Norway’s RVO system addresses structural representation gaps in specific sectors with high risk and precarious employment. This precise identification allows resources to be directed toward addressing the most critical barriers to OSH protection.

Linguistic and cultural accessibility is fundamental across approaches. ANDST ensures services are accessible to members regardless of educational background or cognitive limitations resulting from injuries. Poland created comprehensive Ukrainian-language materials including printed guides, online resources, and native-speaking helpline staff. Norway’s representatives are recruited from the sectors

they serve, ensuring familiarity with industry practices and worker perspectives. These accessibility measures help overcome fundamental barriers that often exclude vulnerable workers from mainstream OSH frameworks.

Complementary capabilities strengthen overall effectiveness. ANDST combines legal expertise, medical knowledge, and peer support within an integrated service model. Poland's approach leverages NIOM's recognised expertise in occupational medicine and its ability to rapidly mobilise this knowledge to produce targeted, practical resources. Norway's RVO system integrates representative visits with labour inspectorate activities while connecting unrepresented workers to broader OSH institutions. These complementary capabilities create more comprehensive support than single-dimensional approaches could provide.

Network-based implementation extends reach and sustainability. ANDST's 32 local delegations ensure services remain accessible throughout Portugal while building community support networks. Poland's initiatives engaged Polish-Ukrainian employer associations, community organisations, and media channels to amplify messaging. Norway's system operates across regional boundaries while maintaining sector-specific knowledge through representative specialisation. These networked approaches leverage existing relationships and structures to maximise impact with limited resources.

Legislative support provides authority and legitimacy. ANDST is recognised as a public utility organisation, enhancing its credibility with both members and institutions. Poland's initiatives operate within the established authority of the State Labour Inspectorate. Norway's RVOs have a legislative mandate and the authority to stop work processes that pose an imminent danger to life or health. This legislative foundation ensures these approaches have sufficient authority to be effective while securing their legitimacy within their respective contexts.

▪ Weaknesses

Implementation challenges affect all three approaches, though with varying degrees of severity and different manifestations. Portugal's ANDST faces structural limitations arising from the country's private responsibility system for handling occupational accidents, which creates fundamental challenges in recognising and managing incidents. This privatised approach often leads to adversarial relationships between injured workers and insurance companies, with the latter frequently hiring specialised investigation companies to challenge accident claims. ANDST attempts to mediate these power imbalances, but this is inherently difficult given the resources available to insurance companies. The association is further constrained by workers' economic and educational resources, which significantly influence their ability to seek clarification about their rights and access support services. Besides, despite having over 20,000 members, ANDST provides direct support to only 4,000 workers annually, highlighting significant capacity constraints.

Poland's initiative for Ukrainian refugees, while comprehensive in scope, demonstrates **limited integration with broader OSH policies and programmes targeting migrant workers**. The approach focuses primarily on individual worker empowerment through information provision, with less emphasis on addressing structural OSH barriers and working conditions that create vulnerabilities. Gaps may exist in reaching Ukrainian workers in informal, temporary, or isolated employment situations, who may have minimal contact with occupational health services.

Norway's RVO system, despite its established history, faces **limitations in its formal powers beyond the right to halt dangerous work**. This constraint may limit RVOs' ability to drive systemic improvements in OSH management, particularly when dealing with resistant employers or complex organisational structures. The scheme experiences difficulties maintaining a consistent presence and support to dispersed and subcontracted workforces, particularly pronounced in sectors like construction and hospitality where workforce mobility is high. Additionally, the narrow focus on a limited number of high-risk sectors leaves workers in other industries without access to RVO support, creating coverage gaps.

▪ Opportunities

The examined approaches present specific opportunities for enhancement and expansion. ANDST is experiencing **increasing requests for support from workers in the services and commerce sectors**, providing an opportunity to expand its services beyond traditional industrial contexts. Its innovative dual action model, combining preventive and reactive services, positions it well to capitalise on this growing demand.

Poland's initiative offers **clear pathways for development** through expanded collaboration with labour inspectorates, social partners and migrant worker organisations to integrate materials into their OSH training and support activities. Opportunities exist to develop additional tools and guidance for employers on creating safe, healthy and inclusive workplaces for Ukrainian and other migrant workers. The initiative could conduct systematic evaluation research to inform continuous improvement and build evidence for policy advocacy. Furthermore, sharing experiences and resources with occupational health institutes in other countries could promote good practices and mutual learning, leveraging the initiative's success to advocate for more comprehensive, prevention-oriented OSH policies for migrant workers at national and EU levels.

Norway's RVO scheme has identified opportunities to **expand the model to other sectors with high prevalence of SMEs**, vulnerable workers and subcontracting, such as agriculture, retail, logistics and personal services. The system could strengthen its ability to reach and represent migrant workers by recruiting representatives with diverse language skills and cultural competencies. Development of sector-specific training and guidance materials in collaboration with industry bodies and OSH professionals would enhance RVOs' technical capabilities. Additionally, systematic evaluation of RVO interventions using both quantitative OSH indicators and qualitative feedback would provide evidence for continuous improvement and demonstrate value to stakeholders.

▪ Threats and mitigations

Capacity building approaches for vulnerable workers face several common implementation challenges that require specific mitigation strategies.

Resource sustainability presents ongoing challenges. ANDST addresses this through a diversified funding model combining membership contributions, project funding, and public support based on its recognised public utility status. Poland's response required rapid resource mobilisation during a crisis period, achieved by reprioritising existing inspectorate resources while securing additional funding from the WHO for translation and materials development. Norway's RVO system is sustained through a statutory employer levy combined with government support through collective agreements, creating stable financing independent of political fluctuations. These sustainable financing mechanisms are essential for maintaining consistent services to vulnerable populations.

Authority and legitimacy limitations require strategic positioning. ANDST establishes credibility through its public utility status, active participation in government consultations, and membership in international networks. Poland's initiatives operated with clear legal mandate through the established authority of the State Labour Inspectorate, enhanced by cooperation with Ukrainian authorities and the WHO's involvement adding credibility and resources. Norway's representatives possess statutory rights of workplace access and intervention, though with minimal formal powers beyond the right to halt dangerous work, which may constrain the ability of RVOs to drive systemic improvements in OSH management. These legitimacy-building approaches enhance effectiveness in contexts where vulnerable workers often face power imbalances.

Service consistency across regions presents quality assurance challenges. ANDST maintains standardised service models while allowing local delegations to adapt implementation to regional conditions. Poland developed centralised information resources while training local inspectorate offices in refugee-specific issues to ensure consistent handling. Norway's RVO scheme faces difficulties in maintaining a consistent presence, with some sectors having more dispersed coverage than others. These approaches balance standardisation with necessary contextual flexibility.

Target population reach demands proactive strategies. ANDST develops relationships with hospitals and rehabilitation centres to identify potential members immediately following workplace accidents. Poland implemented comprehensive information campaigns through diverse channels including border crossing points, employment agencies and community gathering places. Norway's representatives initiate contact with enterprises that haven't requested assistance, proactively extending services beyond those who seek support. However, all three approaches face potential gaps in reaching the most isolated or informal workers, requiring continuous refinement of outreach strategies.

System-specific challenges require tailored solutions. In Portugal, private responsibility for handling occupational accidents leads to challenges in recognising and managing incidents, while workers' economic and educational resources can influence their ability to seek clarification about their rights and access support. ANDST assists workers in filing petitions to the Labour Court without requiring them to pay legal fees. Poland's initiatives faced potential gaps in reaching Ukrainian workers in informal, temporary, or isolated employment situations. Norway's RVO scheme is limited by its narrow focus on a limited number of sectors, leaving other industries without access to RVO support. These specific challenges highlight the need for ongoing adaptation of approaches to address emerging needs.

▪ Effectiveness

The evidence base for effectiveness across these models varies considerably, with significant methodological limitations that make robust evaluation challenging. Critical assessment reveals both promising indicators and substantial gaps in evidence.

Service delivery indicators demonstrate significant operational activity but provide limited insight into actual outcomes. In 2023, ANDST held 2,673 individual sessions regarding occupational accidents and 426 individual sessions regarding professional diseases at a national level, with 2,377 sessions for male workers and 722 for female workers. These figures show substantial service provision but reveal little about the quality or impact of these interactions. Poland's initiatives reportedly reached over 250,000 Ukrainian workers through various channels, though this reach metric fails to capture engagement depth or behavioural change. Norway's representatives conduct approximately 15,000 workplace visits annually, yet the variable quality and impact of these interactions remains largely unassessed. These activity metrics, while impressive, represent outputs rather than outcomes.

Practical intervention evidence shows mixed results with considerable variation across contexts. ANDST claims a high success rate in getting occupational accidents recognised and ensuring worker compensation, though these claims lack independent verification through controlled studies. Poland's initiatives demonstrate improved information accessibility for Ukrainian workers, but with limited evidence on whether this translated to improved workplace conditions or reduced incidents. Norway's RVOs have documented use of their work-stopping powers, particularly in construction, but the frequency, appropriateness and preventive impact of these interventions lack systematic assessment. These intervention indicators suggest potential protective value but fall short of demonstrating consistent effectiveness.

Attribution challenges severely limit causal claims about effectiveness. ANDST operates alongside statutory compensation and rehabilitation systems, making it impossible to isolate the specific contribution of its services to member outcomes without controlled comparison groups. Poland's initiatives coincided with broader integration programmes for Ukrainian refugees, creating methodological difficulties in determining which specific interventions most effectively addressed workplace vulnerabilities. Norway's system functions within a comprehensive regulatory framework where improvements cannot be attributed solely to representative activities. These fundamental attribution problems reflect the complex, multi-factor nature of OSH interventions.

Longitudinal and comparison data are notably absent across all three approaches. ANDST lacks systematic tracking of member outcomes over time, with no comparison data between supported and unsupported workers with similar injuries. Poland's initiatives remain too recent for meaningful long-term evaluation, though follow-up monitoring continues. Norway's RVO system, despite decades of operation, lacks robust longitudinal studies with appropriate comparison groups that might demonstrate

sustained impact. This absence of rigorous longitudinal and comparative data represents a significant limitation in the evidence base for all three approaches.

Theoretical demonstrated effectiveness characterises much of the available evidence. The logical mechanisms through which these approaches should improve outcomes are plausible — providing legal support should improve compensation outcomes, offering native-language information should enhance understanding, and workplace inspections should identify hazards. However, the actual demonstration of these mechanisms functioning as intended remains limited. This gap between theoretical and demonstrated effectiveness highlights the need for more rigorous evaluation frameworks to better understand the actual impact of these well-intentioned initiatives.

▪ **Transferability**

The transferability of capacity building approaches for vulnerable workers depends on several interdependent factors that must be carefully considered when adapting models to new contexts.

Institutional framework prerequisites vary substantially between approaches and represent critical considerations for transferability. ANDST's model requires legal frameworks recognising independent worker associations and supporting their participation in social dialogue — elements that vary significantly across European contexts. Poland's approach depends on existing labour inspectorate infrastructure with capacity for rapid adaptation during crises, plus research institutions like NIOM that can provide technical expertise. Norway's RVO scheme requires legislation mandating safety representatives, a funding mechanism through company contributions, and institutional arrangements allowing external representatives to access workplaces — typically established through tripartite agreements uncommon in many European countries. These institutional requirements significantly constrain which models might be viably transferred to specific national contexts, with Norway's approach likely facing the most substantial institutional barriers.

Target population specificities heavily influence transferability considerations. There are significant differences between Portugal and other EEA Member States regarding how workplace injuries are managed, with Social Security typically responsible for the process in other countries, focusing primarily on professional reintegration and rehabilitation rather than accident recognition as in Portugal. This fundamental difference limits direct transferability of ANDST's model, though elements of its service provision might be adapted. Poland's approach to Ukrainian migrant workers demonstrates higher transferability potential to other EEA Member States facing similar challenges with migrant populations, requiring primarily linguistic and regulatory adaptation rather than structural changes. Norway's RVO scheme could potentially transfer to sectors with similar characteristics across different countries, with construction being a recommended starting point given similar challenges throughout Europe.

Resource implications differ significantly between approaches and affect feasibility in resource-constrained environments. ANDST's comprehensive service model requires substantial ongoing investment in professional staff and local infrastructure — a necessity arising from Portugal's private accident insurance system where workers must actively pursue compensation claims. In countries with public accident insurance systems, such advocacy organisations are largely unnecessary as workers' compensation rights are automatically protected through state mechanisms. Poland's crisis response demonstrated a more resource-efficient model using existing institutions with targeted enhancements, potentially offering greater transferability to contexts with limited additional resources. Norway's system requires significant sustained funding through employer levies and government subsidies — a resource commitment that may be politically challenging in many European contexts without strong social partnership traditions. These varying resource requirements significantly affect which models might be practically implemented in different economic and political contexts.

Cultural and labour relations contexts substantially influence transferability success. ANDST's peer support model reflects Portuguese traditions of solidarity and collective advocacy that may face resistance in more individualistic contexts. Poland's rapid response to Ukrainian refugees was facilitated by cultural and historical connections that enabled effective communication and trust-building — connections that may be absent when addressing other migrant populations. Norway's RVO system

builds on Nordic labour relations traditions characterised by high trust between social partners and accepted roles for trade unions — elements that differ significantly across Europe. These cultural contextual factors suggest that implementation in different environments requires thoughtful adaptation rather than direct replication, with potentially significant modifications needed to align with local cultural and labour relations traditions.

Incremental implementation pathways offer the most promising transferability approach. Rather than attempting wholesale adoption of these models, selective adaptation of specific components to match local institutional, resource and cultural contexts likely offers the most viable transferability pathway. ANDST's service coordination approach could be implemented within different institutional frameworks. Poland's linguistic accessibility strategies could be adapted for other migrant populations. Norway's model could be piloted in single sectors before broader application. This component-based, incremental approach to transferability acknowledges the significant contextual differences across European labour markets while still enabling valuable learning from these innovative models.

▪ **Conclusion**

The three approaches demonstrate how labour inspectorates and prevention services can extend protection to workers often excluded from traditional OSH frameworks. Portugal's ANDST, Poland's response to Ukrainian refugees and Norway's regional safety representatives address different vulnerability aspects — from workplace injury aftermath to refugee integration to representation gaps in small enterprises.

These approaches share key success factors including precise identification of vulnerability factors, linguistic and cultural accessibility, complementary capabilities, and legislative support providing necessary authority. However, the evidence base for their effectiveness remains limited, with significant methodological challenges including attribution problems, lack of comparison groups and limited longitudinal data.

▪ **Key benefits**

The examined approaches deliver critical benefits by breaking down barriers that traditionally exclude vulnerable workers from OSH protection. They demonstrate that targeted interventions can effectively reach workers with disabilities, migrants facing language barriers, and employees in small enterprises lacking representation. By providing advocacy, linguistic adaptation, and proactive support, these initiatives reduce the power imbalances that often leave vulnerable workers unable to exercise their safety rights. The approaches create vital feedback mechanisms between vulnerable populations and policy makers, improving system responsiveness to emerging needs. Most importantly, they show that protecting vulnerable workers is not only a moral imperative but also practically achievable through innovative service models that combine multiple capabilities within integrated frameworks.

▪ **Lessons learnt**

Analysis of these three approaches reveals that vulnerability in OSH contexts requires targeted responses addressing specific barriers rather than generic solutions. Success depends on combining legal, medical, linguistic and cultural capabilities within integrated service models, supported by sustainable funding mechanisms independent of political fluctuations. Legislative backing and institutional legitimacy prove essential for effectiveness, while proactive outreach remains necessary as vulnerable workers rarely seek support independently. The absence of built-in evaluation frameworks across all approaches highlights a critical gap that must be addressed in future initiatives. Transferability requires careful attention to institutional contexts rather than direct replication, with incremental, component-based implementation offering the most viable pathway. Ultimately, these experiences demonstrate that protecting vulnerable workers demands deliberate, sustained efforts that extend beyond traditional OSH frameworks through collaboration between state institutions, social partners and civil society organisations.

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8 Conclusion

This comparative analysis of innovative OSH approaches across five European countries reveals how labour inspectorates and prevention services are adapting to the profound challenges of the changing world of work. The 31 case studies examined demonstrate that while traditional regulatory approaches remain important, they are no longer sufficient to address the complex OSH landscape characterised by fragmented workplaces, non-standard employment, technological transformation and increasingly diverse workforce vulnerabilities.

8.1 Key findings

Several overarching themes emerge from this analysis, as found below:

1. The importance of new technologies to enhance OSH enforcement and promotion for labour inspectorates

The challenge related to resource constraints make comprehensive labour inspectorate coverage difficult and undermine OSH promotion capabilities. The innovative approaches examined, from Norway's machine learning-based risk assessment to Ireland's BeSMART platform, Portugal's chatbots and the German PPMS or telemedicine, demonstrate how technology and data analytics can multiply regulatory impact. These innovations do not replace or overpower human expertise but rather enable and empower inspectors to focus their limited resources where they can achieve maximum effect.

2. The shift from pure OSH enforcement to an emphasis also on promotion

The traditional command and control enforcement model is evolving towards more nuanced approaches that recognise the diverse capacities, constraints and contexts of different enterprises. Portugal's structured discretion for micro-enterprises, Germany's graduated communication strategies, and Poland's shared responsibility frameworks illustrate how responsive (e.g. calibrated, graduated) enforcement can create more achievable compliance pathways while maintaining credible deterrence for serious violations.

3. The importance of collaborative networks

No single institution can effectively address modern OSH challenges alone. The co-enforcement models in Norway and Portugal, Poland's industry-led safety agreements and Ireland's CoPs demonstrate how

strategic partnerships can extend regulatory reach and create self-sustaining improvement mechanisms. There is also evidence from Germany and the collaboration through the GDA (Joint German OSH Strategy). These collaborative approaches are particularly crucial for reaching SMEs and vulnerable workers who often fall outside traditional regulatory frameworks.

4. The digital transformation of OSH support

Remote and digital approaches have moved from emergency pandemic responses to permanent features of the regulatory landscape. These tools, from video consultations to AI-powered chatbots, offer scalable solutions to persistent challenges of geographic dispersion and resource constraints. However, their effectiveness depends on thoughtful integration with traditional approaches rather than complete replacement.

5. The importance of capacity building

Sustainable OSH improvements ultimately depend on developing internal capabilities within organisations and among employers and workers. The diverse capacity-building approaches examined — from formal training requirements to professional competitions to peer support networks — demonstrate that building knowledge and skills requires multiple complementary strategies tailored to different contexts and target groups.

8.2 Considerations for policymakers and practitioners

This comparative analysis suggests key implications for policymakers and practitioners including the importance of **adaption, human involvement and combining strategies**. Moreover, evaluation gaps remain which limits the effectiveness of innovative approaches.

The ability to adapt is essential. The approaches that demonstrate greatest effectiveness are those that can be calibrated to different contexts, from micro-enterprises to multinationals, from traditional manufacturing to platform work, from domestic workers to migrant or mobile ones. Effective OSH regulation in the modern context requires a portfolio approach combining multiple strategies. No single innovation, whether technological, collaborative or educational, can address the full spectrum of challenges. The most successful systems layer complementary approaches that reinforce each other in a virtuous circle. The human dimension remains paramount. Despite technological advances, the most effective approaches maintain strong emphasis on human expertise, judgement and relationships. Technology serves best as an enabler of human capacity rather than a replacement.

Evidence-based development and evaluation remain critical gaps given the focus on activities rather than outcomes, which requires mandating and financing outcome tracking. While many innovative approaches show promise, the evidence base for their effectiveness often remains limited to process indicators rather than outcome measures. Investing in robust evaluation frameworks that can demonstrate impact on workplace safety and health outcomes is essential for justifying resource allocation and guiding continuous improvement.

8.3 Future direction: transferability and adaptation

The analysis reveals that successful transfer of innovative approaches requires careful attention to context. While specific tools and methods can be adapted across borders, their effectiveness depends on alignment with:

- legal and institutional frameworks;
- resource availability and constraints;
- cultural and labour relations traditions;
- economic structures and workforce characteristics; and
- existing OSH infrastructure and capabilities.

The most promising transferability pathway involves selective adoption of specific components rather than wholesale replication of entire systems. Countries can identify elements that address their particular challenges and adapt them incrementally, learning through implementation.

Looking ahead, several priorities emerge for strengthening OSH compliance systems based on the evidence examined in this report:

1. Developing integrated and interoperable data systems

The fragmentation of data systems documented across all five countries, from Germany's separate federal and UVT databases to Portugal's parallel information platforms, fundamentally constrains regulatory effectiveness. Priority actions include:

- establishing common data exchange protocols between OSH authorities, social insurance institutions (where present), and other relevant local or sectoral agencies (as Germany attempts through its Joint OSH Strategy);
- creating standardised data formats that enable cross-border learning while respecting GDPR requirements; and
- building on successful models like Norway's machine learning system that integrates multiple data sources for risk prediction.

2. Building evaluation capacity beyond activity metrics

Current approaches predominantly measure outputs (inspections conducted, tools developed) rather than outcomes (workplace safety improvements), and evaluation competes with service delivery for resources. Future priorities should include:

- developing longitudinal tracking of workplace safety performance following interventions;
- creating standardised outcome indicators that flexibly work across different contexts; and
- learning from gaps identified in initiatives like Portugal's paired inspections⁶ and Germany's AB+ project.⁷

3. Strengthening preventive approaches for new and emerging hazards

The reactive nature of many current systems, as documented particularly in Poland and Portugal, must evolve to address new hazards proactively:

- building on innovations like Ireland's BeSMART, and on EU-OSHA's Online interactive Risk Assessment (OiRA) tools, that enable self-assessment before problems arise;
- expanding Germany's systematic approach to carcinogenic substances to other emerging hazards; and
- developing frameworks for psychosocial hazards, which are proving challenging in all five countries.

4. Expanding vulnerable worker protections

The approaches examined reveal significant gaps in reaching migrant workers, platform workers and those in micro-enterprises including with no safety representatives:

- scaling successful targeted interventions like Poland's Ukrainian refugee initiatives; and
- expanding models like Norway's regional safety representatives to sectors with precarious employment.

5. Fostering collaborative ecosystems

The isolated nature of many innovations may limit their impact and transferability:

⁶ Lack of quantitative outcome data, absence of cost-benefit analysis, no comparison with solo inspections.

⁷ Attribution challenges, limited long-term follow-up data, incomplete evaluation of sustained impacts.

- creating formal mechanisms for sharing approaches like those documented in Ireland's communities of practice;
- establishing cross-border networks for labour inspectorates to exchange digital tools and methodologies; and
- building on collaborative models like Poland's partnership agreements to create sustained innovation networks.

The changing world of work will continue to present new challenges — from algorithmic management to climate-related hazards to evolving psychosocial hazards. The innovative approaches examined in this report demonstrate that labour inspectorates and prevention services can adapt and evolve to meet these challenges. Success requires embracing innovation while maintaining focus on the fundamental goal of ensuring safe and healthy workplaces for all workers.

The journey towards effective OSH compliance in the 21st century is not about choosing between traditional and innovative approaches, but rather about thoughtfully integrating both to create systems that are robust and flexible, comprehensive and targeted, standardised and adaptive. The experiences of Norway, Germany, Poland, Portugal and Ireland offer valuable lessons for all EEA Member States, demonstrating both what is possible and what remains to be achieved.

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10 Annex 2: Case studies

10.1 Risk-based approaches

a. Risk-based approaches

Title	Norwegian Labour Inspectorate's Risk-Based Strategy: Supporting Occupational Safety and Health Compliance
Organisations involved	<ul style="list-style-type: none"> ▪ Norwegian Labour Inspection Authority ▪ Ministry of Labour and Social Inclusion ▪ Social partners (represented in the Labour Inspection Authority's council) ▪ National Institute of Occupational Health in Norway (STAMI) ▪ Statistics Norway (national statistical institute) ▪ Regional safety representatives ▪ Private enterprises (including those obligated to have occupational health services)
Description	The Norwegian Labour Inspection Authority supervises over 220,000 land-based enterprises with employees and 430,000 enterprises without employees. They use a machine-learning based risk assessment model to classify enterprises into four risk categories for targeted inspections. The model uses past inspection findings, tip-offs, RAS notifications, data from Statistics Norway, and analyses from STAMI.
Relevance	The risk-based approach allows for more targeted and impactful inspections, focusing on workers at the highest risk. It aligns with the Authority's goal of resource-efficient, risk-based and precise efforts.
Success factors	<ul style="list-style-type: none"> ▪ Rich dataset of past OSH violations ▪ Culture of data-driven decision-making ▪ Engagement of experienced inspectors ▪ Balance between central planning and local knowledge ▪ Continual model updates ▪ Use of regression analysis and machine learning ▪ Complementary approach with prediction index and inspector expertise
Transferability	High potential for transferability to other European labour inspectorates, with key enablers being a comprehensive database, skilled data analysts, and a culture of data-driven planning. National processes and data availability are crucial factors.
Effectiveness	Inspections in high-risk enterprises led to reactions 78% of the time compared to 49% in low-risk enterprises. The model claims 80% accuracy, but more robust evaluation of long-term, ideally longitudinally, OSH outcomes is needed.
Strengths	<ul style="list-style-type: none"> ▪ Leverages rich data on past OSH violations ▪ Proactive, prevention-oriented inspections ▪ Balances data-driven planning with local knowledge ▪ Evidence-based, learning-oriented culture ▪ Dual approach of supervision/sanctions and prevention

Title	Norwegian Labour Inspectorate's Risk-Based Strategy: Supporting Occupational Safety and Health Compliance
Weaknesses	<ul style="list-style-type: none"> ▪ Covers multiple risk factors including psychosocial risks ▪ Prediction index may not suit all inspection types ▪ Perceived limitation of professional discretion by inspectors ▪ Risk of 'supervised learning bias' ▪ Rigid checklists ▪ Under-reporting of some working environment issues
Opportunities	<ul style="list-style-type: none"> ▪ Expand use of machine learning for inspections ▪ Incorporate additional OSH data sources ▪ Develop sector or hazard-specific risk models ▪ Detailed registration and analysis of inspectors' notes ▪ Improve checklists to cover all relevant risk factors
Threats and Mitigations	<ul style="list-style-type: none"> ▪ Data quality issues; mitigated by multiple data sources and continual model refinement ▪ Resistance from inspectors; addressed by emphasising the complementary nature of the model ▪ Missing emerging hazards; mitigated by combining model with inspector knowledge and conducting inspections outside the prediction model

Title	The Prevention Process Management System (PPMS) in Germany: Supporting Occupational Safety and Health Compliance
Organisations Involved	<ul style="list-style-type: none"> ▪ German Social Accident Insurance Institution for the foodstuffs and catering industry (BGN) ▪ Oracle Germany (technology partner) ▪ German Social Accident Insurance Institutions (UVTs) including: ▪ Social accident insurers for the private sector (Berufsgenossenschaften, BGs) ▪ Public Sector Accident Insurers (Unfallkassen, UK) ▪ Municipal Accident Insurance Associations (Gemeindeunfallversicherungsverbände, GUV) ▪ Federal Office for Social Security (BAS) ▪ Federal state OSH authorities (as potential data exchange partners)
Description	<ul style="list-style-type: none"> ▪ The Prevention Process Management System (PPMS) is a digital software programme developed by the German Social Accident Insurance Institution for the foodstuffs and catering industry (BGN) in collaboration with Oracle Germany. The system is based on an Oracle database and is designed for use by BGN labour inspectors. ▪ The PPMS facilitates inspectors' work through several features including mobile working capabilities via notebooks, smartphones and tablets using a web function accessible through VPN. This enables operational information to be accessed and updated from anywhere at any time. The system also features 'geocoding', which links data to physical locations,

Title	<p>The Prevention Process Management System (PPMS) in Germany: Supporting Occupational Safety and Health Compliance</p>
	<p>making it easier to select companies for inspection based on various criteria including calculated risk index and automatically generated filters.</p> <ul style="list-style-type: none"> ▪ Beyond basic company data, the PPMS contains information on accidents, occupational diseases, documentation of previous inspections, measurement reports, participation in incentive schemes, training measures, and more. The system serves as both an information retrieval tool and a data recording platform, allowing inspectors to document findings and upload photos during site visits.
Relevance	<p>The PPMS addresses critical challenges facing labour inspectorates in today's work environment. It helps maximise efficiency of Germany's limited inspector resources (conducting only 127,737 inspections across 54,784 companies in 2021 from 3.1 million establishments) through better targeting and reduced travel time. The geocoding feature helps manage geographically dispersed workplaces by enabling optimal route planning and spontaneous adjustments. The system transforms inspection data from case management information into strategic intelligence, creating a comprehensive knowledge management system that supports expertise development and consistency across inspectors. Additionally, PPMS has potential to facilitate data exchange between federal state OSH authorities and UVTs, addressing a key coordination challenge in Germany's dual regulatory system. The system aligns with the Joint German Occupational Safety Strategy (GDA) objectives of standardising assessment approaches across federal states and improving coordination between regulatory bodies.</p>
Success factors	<ul style="list-style-type: none"> ▪ Development involved labour inspectors' practical experience and needs, leading to high acceptance ▪ Continuous adaptation and improvement of the system based on user feedback ▪ Backed by specialised IT expertise through partnership with Oracle Germany ▪ Training and qualification modules to familiarise inspectors with the system ▪ Integration with existing legal frameworks and compliance requirements ▪ Addresses multiple objectives simultaneously (digitalisation, reduced bureaucracy, sustainability, improved knowledge management) ▪ Web functionality enables mobile working with real-time information access
Transferability	<p>The PPMS concept has high transferability potential to other EEA Member States. Digital assistance systems for labour inspectorates are already in use in various European countries. Key requirements for implementation would include:</p> <ul style="list-style-type: none"> - Specialised IT department/agency for development and maintenance - Training programmes for inspectors - Adaptation to country-specific regulatory frameworks - Addressing data protection considerations (as BGN is doing with the Federal Office for Social Security) <p>The system could be particularly valuable in countries with dual OSH systems similar to Germany's, where multiple authorities share inspection responsibilities and data exchange is beneficial.</p>

Title	The Prevention Process Management System (PPMS) in Germany: Supporting Occupational Safety and Health Compliance
Effectiveness	<p>The evidence of effectiveness is largely qualitative and process-oriented rather than outcome-based. The case study indicates high satisfaction among labour inspectors using the system, with particular appreciation for increased flexibility and spontaneity in field operations. The system enables more efficient selection of companies for inspection based on risk indicators and location data, potentially improving targeting.</p> <p>However, the case lacks quantitative metrics demonstrating improved OSH outcomes, reduced accident rates, or enhanced compliance resulting from the system's implementation. No data is provided on how the system has affected inspection frequency, quality, or impact. This represents a significant gap in evidence of effectiveness beyond user satisfaction and process improvements.</p>
Strengths	<ul style="list-style-type: none"> ▪ Enables mobile working with access to up-to-date information regardless of time and place ▪ 'Geocoding' feature links data to locations, facilitating more efficient selection of inspection targets ▪ Supports spontaneous rescheduling of company visits when obstacles arise ▪ Reduces paper consumption through digitalisation of data ▪ Comprehensive knowledge management system containing rich company-specific information ▪ Supports the 'pilot function' by facilitating communication with competent authorities ▪ High acceptance among labour inspectors due to their involvement in the development process
Weaknesses	<ul style="list-style-type: none"> ▪ Development and implementation require specialised IT expertise and resources ▪ Ongoing development indicates the system is not yet fully mature ▪ Data protection issues still being addressed ▪ Dependence on technical infrastructure (VPN, mobile devices, connectivity) ▪ Potentially high initial implementation and training costs ▪ Lack of quantitative evidence on improved OSH outcomes
Opportunities	<ul style="list-style-type: none"> ▪ Potential for data exchange between federal state OSH authorities and UVTs ▪ Could facilitate compliance with the OSH Inspection Act's requirements for information exchange ▪ Integration with the Joint German Occupational Safety Strategy (GDA) ▪ Potential for extension to other Social Accident Insurance Institutions beyond BGN ▪ Could incorporate additional risk assessment or prioritisation tools ▪ Expansion to include more sophisticated data analytics to identify emerging risks

Title	The Prevention Process Management System (PPMS) in Germany: Supporting Occupational Safety and Health Compliance
Threats and Mitigations	<p>Data protection and privacy concerns; being addressed through collaboration with the Federal Office for Social Security and moving to a sovereign cloud</p> <p>Risk of technical failures or system downtime; mitigated through proper IT infrastructure and backup systems</p> <p>Potential resistance to digital transformation among some inspectors; addressed by involving inspectors in the development process and providing adequate training</p>

Title	The State Claims Agency (SCA): Data-Driven Approach to OSH Compliance in Ireland
Organisations Involved	<ul style="list-style-type: none"> ▪ State Claims Agency (SCA) ▪ National Treasury Management Agency (NTMA) ▪ Enterprise Risk Management Unit ▪ Health and Safety Authority of Ireland (HSA) ▪ Approximately 150 State organisations including: <ul style="list-style-type: none"> ▪ Government departments ▪ Defence Forces ▪ Office of Public Works ▪ Irish Prisons Service ▪ Tusla (Irish child and family agency) ▪ An Garda Síochána (State Police Force) ▪ Public health and social care services ▪ Critical Incident Stress Management Network Ireland (CISM)
Description	<p>The State Claims Agency (SCA) was established in 2001 to manage personal injury and property damage claims against the State while providing risk management advice to state authorities. Its Enterprise Risk Management Unit conducts mandated risk management audits of client organisations.</p> <p>The cornerstone of the SCA's approach is the National Incident Management System (NIMS) — a comprehensive database that enables evidence-based risk assessment and targeted interventions. NIMS captures workplace accidents, ill health, fatalities, personal injury claims, and near misses, with approximately 3 million incidents recorded to date. Over 4,500 staff have direct access, with 20,000 having electronic point of entry capability.</p> <p>The SCA uses a risk-based approach to target organisations for audit, classifying them into three risk categories using a weighted assessment of claims numbers, incident data, and financial liabilities. Audits typically involve 1-2 day site visits with walkthrough assessments and staff engagement, using ISO 45001 and ISO 31000 as benchmarks for risk management effectiveness.</p>

Title The State Claims Agency (SCA): Data-Driven Approach to OSH Compliance in Ireland

Relevance

The SCA’s approach addresses key OSH compliance challenges through sophisticated risk-based targeting that optimises limited inspector resources (14 field staff covering 150 organisations). For geographically dispersed facilities, the SCA employs strategic sampling based on known risk trends.

The SCA balances enforcement and advisory functions through a persuasion-centred approach (‘Persuasion is the key’), providing training and assistance rather than imposing sanctions. This reflects their statutory position which lacks enforcement powers.

NIMS provides comprehensive incident data that transforms reactive information into strategic intelligence for proactive intervention. Innovations like electronic point of entry reporting have improved data quality and reporting rates, strengthening the foundation for evidence-based decision-making.

The SCA’s collaborative activities with the Health and Safety Authority demonstrate effective coordination between regulatory agencies, addressing traditional challenges in regulatory alignment.

- **Success Factors**
 - Legal mandate requiring incident reporting to the SCA through NIMS
 - Risk-based categorisation system enabling targeted resource allocation
 - Use of recognised international standards as compliance benchmarks
 - Comprehensive incident management system providing quality data
 - Electronic point of entry technology improving reporting completeness
 - Balance of qualitative assessments and quantitative data analysis
 - Cross-sectoral collaboration with other regulatory bodies
 - Persuasion-based approach emphasising support rather than punishment

- **Transferability**
 - The SCA’s data-driven approach has high transferability potential to other jurisdictions. Key transferable elements include:
 - The NIMS database structure for comprehensive incident capture
 - Risk-based categorisation methodology for resource allocation
 - Electronic reporting technology for streamlined data collection
 - Systematic approach to data analysis for intervention planning
 - Measurement framework for evaluating intervention effectiveness
 - Effective transfer would require enabling legislation for mandatory reporting, appropriate database infrastructure, and analytical capabilities.

- **Effectiveness**
 - The SCA demonstrates effectiveness through quantifiable outcomes derived from NIMS data:
 - Reduction in knife injuries after implementation of new PPE measures
 - Improved infection control for Tuberculosis in the Irish Prison Service

Title	The State Claims Agency (SCA): Data-Driven Approach to OSH Compliance in Ireland
<ul style="list-style-type: none"> ▪ Strengths 	<ul style="list-style-type: none"> ▪ Measurable reduction in violent assaults on prison staff following targeted interventions ▪ Decreased incidents after seatbelt wearing recommendations in military vehicles ▪ Reduction in road traffic collisions involving police vehicles ▪ The SCA has established a key performance indicator — Claims Previously Reported as Incidents — which has shown improvement in reporting culture since 2016. This quantitative evidence is stronger than many OSH interventions that rely primarily on qualitative assessments. ▪ Statutory basis providing clear mandate for data collection ▪ Comprehensive incident data enabling targeted interventions ▪ Risk-based approach optimising resource allocation ▪ Balance of persuasion and compliance monitoring ▪ Evidence-based measurement of intervention outcomes ▪ Electronic reporting technologies improving data quality ▪ Collaborative relationships with other regulatory bodies ▪ Sectoral expertise within the Enterprise Risk Management Unit
<ul style="list-style-type: none"> ▪ Weaknesses 	<ul style="list-style-type: none"> ▪ Reliance on reactive data despite proactive intentions ▪ Some underreporting despite technological improvements ▪ Limited ability to enforce recommendations (lacks sanctions power) ▪ Resource constraints with only 14 field staff for 150 organisations ▪ Possible inconsistency in sampling approach across organisations ▪ Potential time delays between audits and implementation
<p>Opportunities</p>	<ul style="list-style-type: none"> ▪ Further development of predictive analytics to identify emerging risks ▪ Greater integration with other regulatory bodies' data systems Development of sector-specific benchmarking to drive improvement ▪ Increased focus on psychosocial risks (building on existing initiatives) ▪ Extension of approach to broader public or private sector organisations ▪ Enhanced cross-jurisdictional collaboration to share best practices
<p>Threats and Mitigations</p>	<ul style="list-style-type: none"> ▪ Data quality issues from underreporting; addressed through electronic reporting ▪ Resistance to implementing recommendations; countered through persuasion ▪ Risk of over-focusing on claims reduction rather than prevention; balanced by using international standards ▪ Potential over-reliance on incident data; supplemented by broader risk assessment approaches

b. Responsive enforcement

Title	Initiative 'Microenterprises and Risk Assessment (KUG 2)' in Germany: Supporting Occupational Safety and Health Compliance
Organisations involved	<ul style="list-style-type: none"> ▪ Occupational Safety and Health Administration North Rhine-Westphalia District Governments (Arnsberg, Düsseldorf, Münster) ▪ Federal State Institute for Occupational Safety and Health ▪ Ministry for Work, Health and Social Affairs of North Rhine-Westphalia ▪ State Association West – German Social Accident Insurance ▪ German Social Accident Insurance Institutions (trade/logistics and chemical industries)
Description	<p>KUG 2 exemplifies responsive enforcement by applying graduated regulatory responses based on enterprise behaviour. Initially, 100 microenterprises received letters requesting risk assessment information. The approach then escalated to inspection visits for non-responsive or non-compliant companies. This responsive model incorporates collaborative elements through cross-agency coordination and learning components via the 'Quick-Starter' guidance development. By verifying self-reported compliance through selective inspections, authorities efficiently directed resources where most needed.</p>
Relevance	<p>The initiative addresses the compliance gap in microenterprises through responsive regulation principles — starting with persuasion and escalating to deterrence only when necessary. This approach aligns with evidence that small enterprises respond better to supportive interventions before punitive measures. The collaborative work between state authorities and insurance institutions demonstrates how coordinated action enhances regulatory reach. By combining enforcement with practical guidance, the initiative reflects research showing that microenterprises need both compliance pressure and implementation support.</p>
Success factors	<ul style="list-style-type: none"> ▪ Clear escalation criteria moving from letters to inspections ▪ Strategic targeting based on compliance response ▪ Collaborative cross-agency implementation ▪ User-centred guidance materials using plain language ▪ Balance between compliance assistance and enforcement ▪ Verification of self-reported information through selective visits ▪ Evidence-based selection of enterprises for inspection
Transferability	<p>The responsive model requires modest resources while offering significant compliance leverage. The approach demonstrates practical implementation of responsive regulation theory in OSH context. Other jurisdictions could adopt the graduated compliance methodology, adjusting selection criteria and guidance materials to local regulatory frameworks. The collaborative aspects between different authorities provide a template for coordination that transcends specific national structures.</p>

Title	Initiative 'Microenterprises and Risk Assessment (KUG 2)' in Germany: Supporting Occupational Safety and Health Compliance
Effectiveness	With 80% response rate and 63% showing adequate risk assessments, the approach demonstrated that initial persuasive interventions can drive compliance. The letter alone triggered proactive improvements, while follow-up inspections validated the targeting strategy by identifying significant deficiencies in non-responsive enterprises. This confirms research suggesting that responsive approaches can achieve higher compliance rates than uniform enforcement strategies, particularly with resource-constrained small enterprises.
Strengths	<ul style="list-style-type: none"> ▪ Efficient resource allocation through graduated enforcement ▪ Verification mechanism through selective inspection ▪ Cross-agency collaboration enhancing regulatory reach ▪ Evidence-based targeting of non-compliant enterprises ▪ Balanced enforcement and support approach ▪ Practical compliance assistance tailored to microenterprise capabilities ▪ High response rate demonstrating effective engagement
Weaknesses	<ul style="list-style-type: none"> ▪ Limited to single OSH requirement (risk assessment) ▪ Some enterprises misunderstood compliance standards ▪ Reliance on enterprise capacity to understand and respond ▪ Potential for temporary rather than sustained compliance ▪ Resource constraints limiting comprehensive follow-up
Opportunities	<ul style="list-style-type: none"> ▪ Expansion to 500 enterprises as planned ▪ Development of sector-specific responsive approaches ▪ Integration with digital inspection modernisation ▪ Application to additional regulatory requirements ▪ Establishment of learning feedback loops for continuous improvement
Threats and Mitigations	Primary threats include inspector resource constraints, work organisation changes requiring new approaches, and potential 'tick-box' compliance without substantive risk management. Mitigations include digital modernisation, standardised inspection protocols, and embedding responsive approaches within broader prevention strategies that sustain compliance motivation beyond initial interventions.
Title	OSH compliance in micro, small and medium enterprises, Portugal
Organisations involved	<ul style="list-style-type: none"> ▪ Authority for Working Conditions (ACT), Portugal ▪ Strategy and Planning Office (GEP) ▪ Senior Labour Inspectors' Committee (SLIC) ▪ EU-OSHA
Description	This practice exemplifies responsive enforcement through Portugal's ACT adapting inspection approaches to the unique challenges of micro, small and medium enterprises (SMEs). With SMEs constituting 99.6% of Portuguese enterprises (81% being micro-enterprises) and employing 68.8% of the workforce, inspectors implement a graduated enforcement strategy. Labour

Title Initiative ‘Microenterprises and Risk Assessment (KUG 2)’ in Germany: Supporting Occupational Safety and Health Compliance

inspectors consistently report adapting their approach based on company context — being more pedagogical and using simplified language with family businesses while maintaining clear communication and expectations for larger companies with established compliance structures. While legal requirements remain consistent across all business sizes, inspectors exercise discretion in selecting enforcement tools — ranging from advisory notices to fines — based on company context, infraction severity and compliance history. This responsive approach is supplemented by ACT’s development of sector-specific self-assessment tools, including 22 OiRA (Online interactive Risk Assessment) tools adapted for Portuguese contexts, covering diverse sectors from agriculture to hairdressing.

Relevance The practice addresses the fundamental challenge of ensuring OSH compliance in smaller enterprises facing three key structural disadvantages: (i) Internal OSH services in Portugal are an exception in SMEs, being more common amongst larger companies; (ii) SMEs often lack organised internal structures like HR departments, resulting in deficient know-how for developing OSH diagnoses and action plans; and (iii) SMEs have limited resources to respond to enforcement actions or accommodate workplace adjustments — high fines can lead to business closure, complainant anonymity is harder to maintain in small workforces, and relocating injured workers is challenging due to limited alternative functions. In response, labour inspectors exercise structured discretion within the legislation. This responsive enforcement is particularly relevant for high-risk sectors dominated by SMEs, such as construction, where inspectors distinguish between non-negotiable requirements (like insurance and basic OSH services) and other infractions that may be addressed through non-punitive measures.

- Success factors**
- Discretionary enforcement powers allowing inspectors to tailor responses to company context
 - Differentiated approach based on infraction type, with certain violations (lack of insurance, absence of OSH services) deemed non-negotiable regardless of company size
 - Range of enforcement tools including notifications requiring improvement (15,966 in 2023) and warning notices that avoid fines if compliance is achieved
 - Responsive language and communication adapted to company sophistication, emphasising self-regulation in smaller enterprises
 - Complementary educational resources including 22 OiRA tools and extensive sector-specific checklists
 - Active promotion through webinars reaching up to 900 participants, seminars, exhibitions and industry partnerships
 - Legal framework that maintains consistent OSH obligations whilst applying penalties proportionate to company revenue

Title	Initiative 'Microenterprises and Risk Assessment (KUG 2)' in Germany: Supporting Occupational Safety and Health Compliance
Transferability	The responsive enforcement model could be transferred to other contexts where SMEs represent a significant proportion of the business landscape. Key transferable elements include: the structured discretion framework for inspectors, the complementary self-assessment resources, and the promotional activities targeting sector-specific associations. The OiRA tools are already shared across EEA Member States, though Portugal's approach to their implementation and promotion offers valuable lessons. The effectiveness of transfer would depend on institutional factors including inspector training and autonomy, legal frameworks that permit discretionary enforcement whilst maintaining clear requirements, and mechanisms to ensure consistency in the application of discretion.
Effectiveness	The effectiveness of responsive enforcement is demonstrated through the balance of enforcement actions undertaken by ACT, including 6,070 fines, 15,966 improvement notifications, and 462 work stoppage orders in 2023. However, as ACT does not currently collect data on actions broken down by company size, specific impact on SMEs cannot be quantified. The self-assessment tools recorded 3,308 portal accesses in 2023 and 2,349 by September 2024, indicating some voluntary engagement with compliance resources. The effectiveness varies across sectors, with construction highlighted as particularly challenging due to its predominantly SME structure where managers typically fail to recognise OSH investment as beneficial to organisational productivity and quality.
Strengths	<ul style="list-style-type: none"> ▪ Calibrated enforcement approach recognising specific SME constraints ▪ Clear inspector guidelines distinguishing between non-negotiable and negotiable requirements ▪ Extensive range of sector-specific tools covering over 30 sectors and topics ▪ Multiple enforcement options allowing escalation from advisory to punitive measures when necessary ▪ Strong connections with industry associations (e.g. working with seven hairdressing associations) ▪ Pedagogical approach using simplified language appropriate to company context ▪ Prevention of business closure through proportionate enforcement ▪ Comprehensive online resources in Portuguese accessible to employers and workers
Weaknesses	<ul style="list-style-type: none"> ▪ Lack of data on compliance levels or enforcement actions broken down by company size ▪ Limited follow-up capacity after initial assessments or inspections ▪ Insufficient monitoring mechanisms compared to formal safety management system requirements ▪ Potential inconsistency in the application of inspector discretion across different regions

Title	Initiative 'Microenterprises and Risk Assessment (KUG 2)' in Germany: Supporting Occupational Safety and Health Compliance
	<ul style="list-style-type: none"> ▪ Focus on minimum legal compliance rather than continuous improvement ▪ Cultural barriers including persistence of medical examination focus rather than comprehensive safety conditions ▪ Resource constraints limiting inspector capacity to reach the vast number of micro-enterprises
Opportunities	<ul style="list-style-type: none"> ▪ Improving data collection on company size and compliance to better target interventions ▪ Developing implementation guidance beyond initial assessment ▪ Systematising and harmonising legislation into more coherent frameworks ▪ Expanding partnerships with sector associations to enhance reach and credibility ▪ Shifting from medical examination focus to comprehensive safety conditions including ergonomics and work environment ▪ Encouraging the view of OSH as business investment through education and demonstration projects ▪ Adapting tools to address emerging workplace risks and new forms of work
Threats and Mitigations	<p>Primary threats include potential inconsistency in enforcement, limited follow-up resources, and persistent compliance challenges in high-risk sectors dominated by SMEs such as construction. In these sectors, companies often lack the necessary training and commitment to effectively implement safety practices. Potential mitigations include standardising discretionary frameworks to ensure consistent application, developing stronger follow-up mechanisms, expanding sector-specific partnerships for self-regulation, and shifting emphasis from medical examinations to creating comprehensive safety conditions addressing ergonomics and work environment factors. Establishing metrics for company-size specific compliance would help target interventions and demonstrate effectiveness.</p>

Title	Health & Safety Authority Inspector Conduct & Style
Organisations involved	<ul style="list-style-type: none"> ▪ Health & Safety Authority (Ireland) - national Irish Labour Inspectorate with broad OSH remit ▪ Workplace Relations Commission ▪ Various industry partners (Construction Industry Federation, Irish SMEs)
Description	<p>This practice exemplifies responsive enforcement through the HSA inspectors' graduated approach to workplace hazard regulation. As the national Irish Labour Inspectorate, the HSA has a very wide remit over workplace safety and is categorised by EU-OSHA (2021) as a single inspectorate responsible for work-related OSH monitoring, regulation and compliance. Inspectors predominantly employ persuasion and education whilst maintaining readiness to escalate to</p>

Title Health & Safety Authority Inspector Conduct & Style

sanctions when necessary. They conduct approximately 10,000 annual unannounced inspections (9,995 in 2023), with formal enforcement (improvement or prohibition notices) required in roughly 10% of cases in high-risk sectors. For physical hazards, inspectors use a 'look, ask and read' methodology, conducting site tours to observe hazards first-hand, supplemented by questioning and document review. In contrast, psychosocial hazard assessment relies more heavily on interviews and documentation analysis. During visits, inspectors adjust their regulatory approach based on company size, sector risk level and observed compliance motivation.

Relevance

The practice addresses the challenge of efficient resource allocation in enforcement by using a graduated approach that reserves stronger interventions for non-compliant businesses. In high-risk sectors like construction, manufacturing and agriculture, inspectors primarily assess physical hazards through direct observation, whilst psychosocial hazard regulation requires different skills and assessment methods. This responsive model allows inspectors to tailor their approach to each workplace context. The practice reveals significant differences in compliance capabilities between large and small enterprises, with inspectors noting that 'the larger the company, the better the standard of risk assessments.' By addressing both traditional occupational safety hazards and emerging psychosocial ones, the approach demonstrates how responsive enforcement must adapt to different hazard types whilst still maintaining a balanced persuasion-sanction approach

Success factors

- Highly qualified, experienced inspectors with sector-specific knowledge
- Risk-based inspection targeting informed by annual work programmes focusing on high-risk sectors
- Balanced persuasion-sanction approach with escalation to improvement or prohibition notices when necessary
- Educational and accommodative conduct during visits, aiming to build a safer and more supportive OSH compliance culture
- Informal immediate remediation required during site tours (e.g. PPE use)
- Extensive collaboration with the wider OSH community extending regulatory reach
- Evidence-based sector targeting using analyses of HSA strategies and data
- Primary focus on observable hazards rather than just documentation

Transferability

The responsive regulation model employed by HSA inspectors offers transferability across different regulatory contexts. The practice demonstrates that effective regulation depends on strategic deployment of limited resources. The balance of persuasion and enforcement reflects the principle that regulatory effectiveness lies in the flexible application of both approaches rather than rigid adherence to either. The HSA's emphasis on collaboration with the wider OSH community is particularly transferable, as inspectors proactively seek out collaborative opportunities to leverage their influence and reach as wide an audience as possible. The significant difference in approach between regulating physical hazards versus psychosocial hazards offers valuable insights for

Title Health & Safety Authority Inspector Conduct & Style

addressing the full spectrum of workplace risks within existing regulatory frameworks.

Effectiveness The predominantly persuasive approach is effective in achieving compliance, with formal enforcement action required in only approximately 10% of inspections in high-risk sectors. The differentiated approach to traditional versus psychosocial hazards demonstrates necessary adaptability in regulatory methods. For psychosocial hazards, effectiveness is more challenging due to the legal burden of proof required, as one expert noted: ‘under current legislation it’s difficult to show in court what is the hazard, and is it the cause of the psychosocial related issues beyond all reasonable doubt.’ The emphasis on observation during site tours rather than mere document review ensures inspection targets substantive compliance. Total fines from 19 prosecutions in 2023 amounted to €1,377,500, with penalties ranging from €500 to €750,000, providing deterrent effect.

- Strengths**
- Educational, accommodative approach building a safer OSH compliance culture
 - Adaptability of enforcement methods to different workplace hazards
 - Leveraging influence through extensive collaboration with industry and social partners
 - Professional, highly qualified inspectorate with sector-specific expertise
 - Informal on-site improvements addressing immediate hazards during site tours
 - Data-driven targeting approach focusing resources on high-risk sectors
 - Balance between persuasion and sanction preserving enforcement credibility
 - Collective collaboration with the wider OSH community in Ireland

- Weaknesses**
- Enforcement of psychosocial hazards problematic due to legal burden of proof required
 - Resource constraints with only two professionals specifically working on psychosocial risk regulation
 - Absences resulting from psychological health issues not being reportable to HSA
 - Smaller companies exhibiting poorer standards in risk assessments
 - Prosecutions described as problematic due to complexity and time required
 - Significant variation in the standard of risk assessments encountered during inspections

- Opportunities**
- Extending the collaborative approach to further enhance regulatory reach
 - Developing the HSA/WRC code of practice on bullying as a model for other psychosocial risks
 - Refining the systematic variation between persuasion and sanction
 - Addressing the need for ‘fundamental review and changes to existing systems’ for psychosocial hazards

Title	Health & Safety Authority Inspector Conduct & Style
	<ul style="list-style-type: none"> ▪ Developing agreed EU methods for assessing and controlling psychosocial hazards across different industry types ▪ Improving support for smaller companies to enhance their risk assessment standards
Threats and mitigations	<p>Primary threats include inspectorate resource limitations, legal constraints on psychosocial hazard enforcement particularly concerning the standard of proof required, and compliance gaps in smaller enterprises. Potential mitigations include further development of collaborative approaches to extend regulatory reach, legislative reforms to address the legal burden of proof for psychosocial hazards, and enhanced guidance for smaller enterprises in high-risk sectors where ‘the standard of risk assessments varies widely from ‘shockingly poor’ to ‘good’.</p>

c. Co-enforcement and broader collaborative approaches

Title	Norway’s Inter-Agency Anti-Crime Cooperation: Supporting Occupational Safety and Health Compliance
Organisations involved	<ul style="list-style-type: none"> ▪ Norwegian Labour Inspection Authority, Tax Administration, Norwegian Labour and Welfare Administration (NAV), Police ▪ Service Centre for Foreign Workers, municipalities, other external partners ▪ Fair Play Bygg (construction industry coalition)
Description	<p>Norway’s Inter-Agency Anti-Crime Cooperation operates through eight regional centres established in 2015 to combat work-related crime. Centres use knowledge groups (intelligence), control groups (inspections), and steering groups (coordination). Joint inspections target social dumping and exploitation of foreign workers, with Labour Inspection addressing OSH violations while partner agencies tackle related tax, welfare and criminal offences.</p>
Relevance	<p>Work-related crime presents complex, overlapping violations that individual agencies cannot effectively address alone. Exploitative employers deliberately violate multiple regulatory domains simultaneously (OSH, tax, social security, immigration), requiring coordinated enforcement. The fragmentation of authority across different agencies creates regulatory gaps that non-compliant businesses exploit. Inter-agency cooperation overcomes these fragmentation challenges by pooling powers, intelligence and expertise to create comprehensive enforcement coverage. This enables detection of sophisticated evasion tactics, such as the use of shell companies and fraudulent documentation, that might otherwise escape single-agency oversight. Joint inspections also reduce the burden on compliant businesses by streamlining multiple regulatory visits.</p>
Success factors	<ul style="list-style-type: none"> ▪ Physical co-location enabling efficient information exchange ▪ Complementary expertise from different agencies ▪ Data-driven targeting through knowledge/control group structure

Title	Norway's Inter-Agency Anti-Crime Cooperation: Supporting Occupational Safety and Health Compliance
	<ul style="list-style-type: none"> ▪ Legal framework for information sharing ▪ Staff language skills for engaging foreign workers ▪ Social partner intelligence contribution ▪ Political commitment sustaining resources
Transferability	Highly transferable to countries facing similar cross-cutting compliance challenges. Key enablers include data-sharing frameworks, interagency agreements, co-location and joint inspection programmes. Core agencies should include labour, tax and police authorities. A Lithuanian pilot project demonstrates practical transferability.
Effectiveness	A 2022 evaluation confirmed strengthened strategic efforts against work-related crime and successful coordinated enforcement actions. The approach creates both specific and general deterrence through comprehensive interventions. However, data sharing limitations and performance measurement challenges remain areas for improvement.
Strengths	<ul style="list-style-type: none"> ▪ Coordinated approach crossing traditional enforcement boundaries ▪ Complementary sanctioning powers from multiple agencies ▪ Intelligence-led targeting of high-risk sectors ▪ Immediate intervention capability for serious OSH violations ▪ Language capacity for engaging vulnerable workers ▪ Strategic intelligence from social partners
Weaknesses	<p>Incomplete data sharing despite legal framework</p> <p>Lack of common IT systems</p> <p>No unified public reporting channel</p> <p>Organisational culture differences between agencies</p> <p>Varied participation levels across partners</p>
Opportunities	<ul style="list-style-type: none"> ▪ Expand to cover emerging work-related crime risks ▪ Develop common IT system and central reporting point ▪ Strengthen cross-border cooperation ▪ Enhance digital translation capabilities ▪ Conduct systematic pattern analysis from inspection findings
Threats and Mitigations	Key threats include shifting political priorities, conflicting agency demands, and data protection limitations. Mitigations focus on sustained political commitment, building shared agency culture, and developing data-sharing frameworks within legal constraints.

Title	Polish State Labour Inspection Partnerships Agreements: Supporting Occupational Safety and Health Compliance
Organisations involved	<ul style="list-style-type: none"> ▪ State Labour Inspection (PIP) ▪ 22 state authorities and institutions (including Police, Border Guard, Technical Inspection Authority, Social Insurance Institution, Chief Sanitary Inspectorate) ▪ 12 social partners and non-governmental organisations (including trade unions, industry associations, OSH organisations, employer federations)
Description	<p>The State Labour Inspection (PIP) in Poland has established formal partnership agreements with diverse public and private entities to enhance workplace safety and compliance with labour laws. These agreements fall into two categories: those with state institutions focusing on inspections, knowledge-sharing and promotion; and those with social partners emphasising inspection activities, promotional initiatives, training, and legislative work. While providing a framework for cooperation, the practical implementation varies based on the specific needs of participating entities.</p>
Relevance	<p>The agreements address the challenge of improving OSH compliance through coordinated action across multiple stakeholders. By formalising these partnerships, PIP extends its reach and effectiveness beyond what would be possible working in isolation. The agreements serve as a legal or strategic framework for advancing OSH standards across multiple sectors, translating legal provisions into more tangible collaboration. This approach is particularly relevant in contexts where enforcement resources are limited and compliance requires both educational and enforcement components.</p>
Success factors	<ul style="list-style-type: none"> ▪ Legal mandate for collaboration in the Act on State Labour Inspection ▪ Formal frameworks establishing areas of cooperation ▪ Flexibility in implementation based on parties' specific needs ▪ Mutual dependence driving closer cooperation with entities having complementary resources ▪ Collaboration at both central and local levels ▪ Balance between enforcement and promotional activities ▪ Strategic selection of partners relevant to workplace safety goals
Transferability	<p>The model has limited transferability where local legislation already guides joint inspections and data sharing. The agreements emphasise promotional activities rather than inspection efforts, which may not align with all labour inspection mandates. Pre-existing relationships between labour inspections and social partners affect the necessity of formal agreements. For effective transfer, agreements should be adapted to each country's specific legal and institutional contexts, ideally complemented by specific action plans to enhance practical implementation.</p>
Effectiveness	<p>Joint inspections are most frequent with partners having necessary enforcement resources (Police and Border Guard). Information sharing occurs through both formal and informal channels. Promotional activities extend beyond entities with formal agreements, with regional labour inspectorates facilitating partnerships at</p>

Title	Polish State Labour Inspection Partnerships Agreements: Supporting Occupational Safety and Health Compliance
	the grassroots level. Effectiveness varies based on the mutual needs and complementary resources of the participating organisations rather than being directly determined by the formal agreements themselves.
Strengths	<ul style="list-style-type: none"> ▪ Formal framework establishing collaboration beyond mandatory legal obligations ▪ Structured approach to information exchange and educational programmes ▪ Implementation of preventive strategies for safer work environments ▪ Coordination at both central and local levels ▪ Strategic partnerships with organisations having complementary expertise ▪ Flexibility in practical implementation based on specific needs ▪ Symbolic significance highlighting commitment to collaboration
Weaknesses	<ul style="list-style-type: none"> ▪ Lack of accompanying action plans to guide implementation ▪ Limited quantifiable data on agreements' effectiveness ▪ Variability in actual execution of collaborative activities ▪ Not all OSH stakeholders have formal agreements ▪ Practical implementation dependent on implicit factors not detailed in agreements ▪ Focus on promotional rather than enforcement activities in some agreements ▪ Challenges in measuring impact of knowledge-sharing activities
Opportunities	<ul style="list-style-type: none"> ▪ Development of accompanying action plans to enhance implementation ▪ More structured approach beyond expressions of intent ▪ Extension of agreements to other OSH stakeholders ▪ Increased emphasis on joint inspection efforts where beneficial ▪ Enhanced data collection on effectiveness of collaborative efforts ▪ Development of annual action plans even without formal agreements ▪ Greater focus on knowledge-sharing between partner organisations
Threats and Mitigations	Key threats include formal agreements not translating to practical cooperation, cooperation being heavily dependent on specific contexts, limited implementation resources, and lack of measurable outcomes. These could be mitigated by complementing agreements with specific action plans, developing annual implementation plans, ensuring agreements translate into concrete measures and establishing metrics to evaluate collaboration effectiveness.

Title	Combined Co-Enforcement Inspection Practices Between Public Authorities and Private Sector Organisations, Portugal
Organisations involved	<ul style="list-style-type: none"> ▪ Authority for Working Conditions (ACT) - Portugal's labour inspectorate responsible for OSH enforcement ▪ Security forces (Republican National Guard, Public Security Police, Maritime Police) ▪ Tax Authority, Social Security - address tax evasion and social security fraud ▪ Food and Economic Security Authority (ASAE) - collaborates on food service and economic compliance ▪ Industry associations and sectoral bodies - provide industry-specific knowledge
Description	<p>Portugal has developed a co-enforcement approach through Operational Interinstitutional Groups (GIOs) that bring together different public authorities and private sector organisations to conduct coordinated inspections. The model operates at three levels: interministerial (policy coordination), interinstitutional (operational coordination), and sectoral (industry engagement). Each inspection team follows a 'variable geometry' principle, meaning its composition adapts to address specific challenges — for example, combining labour inspectors, tax officials, and police when inspecting construction sites with potential undeclared work issues.</p> <p>Portugal follows a generalist inspection model where inspectors handle both OSH and labour relations issues rather than specialising in specific domains. This approach influences how inspections are conducted, particularly the practice of working in pairs, which allows inspectors with different expertise to complement each other's knowledge when addressing the country's fragmented regulatory framework.</p>
Relevance	<p>Modern workplace violations increasingly cross traditional regulatory boundaries through complex employment arrangements and subcontracting chains. When authorities operate separately, employers can exploit gaps between different agencies' jurisdictions. Portugal's co-enforcement approach addresses this by combining the complementary powers of various agencies, creating comprehensive enforcement coverage. This is particularly valuable for addressing sophisticated non-compliance strategies where employers deliberately violate multiple regulatory domains simultaneously (OSH, tax, employment law) to reduce costs.</p>
Success factors	<ul style="list-style-type: none"> ▪ Multiple agencies conducting joint physical inspections, enabling them to address different violations simultaneously ▪ Clear protocols defining each agency's specific role during joint operations to ensure efficient coordination ▪ Adaptable enforcement strategies that evolve when employers develop new evasion tactics ▪ Leveraging each agency's specific legal powers to create comprehensive enforcement coverage

Title	Combined Co-Enforcement Inspection Practices Between Public Authorities and Private Sector Organisations, Portugal
	<ul style="list-style-type: none"> ▪ Developing protocols based on field experience rather than theoretical models Sharing intelligence between agencies to target high-risk employers more effectively ▪ Engaging with industry stakeholders to gain sector-specific knowledge about compliance challenges
Transferability	<p>The model can be implemented in any jurisdiction where multiple agencies enforce different aspects of workplace regulations. Implementation requires a legal framework allowing information sharing between agencies, formal protocols establishing how joint inspections will be conducted, and training for inspectors on multi-agency approaches. The Portuguese authorities specifically note that similar approaches are being applied in other European countries and could be replicated internationally with appropriate adaptations to local regulatory frameworks.</p>
Effectiveness	<p>Portugal's co-enforcement approach conducted 2,154 joint inspection actions in 2023 and 1,389 joint actions in the first nine months of 2024. The approach enables faster action by combining agencies' complementary powers and sharing intelligence, creating comprehensive interventions that address multiple violations simultaneously. When employers adopt new evasion tactics, inspectors adapt their strategies through continuous learning and protocol refinement, maintaining effectiveness despite evolving non-compliance strategies.</p>
Strengths	<ul style="list-style-type: none"> ▪ Creates comprehensive enforcement coverage that prevents employers from exploiting regulatory gaps ▪ Enables immediate intervention using multiple agencies' enforcement powers during a single inspection ▪ Facilitates rapid adaptation to emerging non-compliance strategies through cross-agency intelligence sharing ▪ Reduces the administrative burden on businesses by combining multiple inspections into a single coordinated visit ▪ Targets limited inspection resources more efficiently through shared risk intelligence ▪ - Applies enforcement pressure across multiple regulatory domains simultaneously, creating stronger deterrence
Weaknesses	<ul style="list-style-type: none"> ▪ -Implementation varies across different regions, creating inconsistent enforcement approaches ▪ Current evaluation focuses primarily on activity metrics (number of inspections) rather than outcome measures ▪ Requires complex coordination between agencies with different organisational cultures and priorities ▪ Resource-intensive approach that demands significant planning and interagency communication

Title	Combined Co-Enforcement Inspection Practices Between Public Authorities and Private Sector Organisations, Portugal
	<ul style="list-style-type: none"> ▪ Tends to emphasise detecting violations over providing compliance assistance to help employers prevent issues ▪ Presents information security challenges when sharing sensitive data across multiple agencies
Opportunities	<ul style="list-style-type: none"> ▪ Develop standardised national protocols to ensure consistent implementation across all regions ▪ Create outcome-focused evaluation metrics that measure actual improvements in compliance ▪ Expand the approach to include more preventive elements alongside enforcement actions ▪ Establish unified reporting channels for the public to report violations to multiple agencies simultaneously ▪ Apply the model to emerging forms of work like platform-based employment ▪ Develop joint training programmes to build multi-agency inspection capabilities
Threats and Mitigations	<p>The primary threats include employers continuously developing more sophisticated evasion tactics and coordination difficulties between agencies with different organisational cultures. Portugal mitigates these challenges through clear protocols defining each agency's responsibilities, building long-term relationships between inspectors through regular collaboration, and maintaining political support for the approach. The model includes continuous improvement processes that allow for adaptation to emerging challenges based on field experience.</p>

Title	Polish 'agreement for safety in construction': supporting occupational safety and health compliance
Organisations involved	<ul style="list-style-type: none"> ▪ The 'Agreement' is currently signed by the 17 companies: Warbud, Eiffage, NDI, Eurovia, Polaqua, Unibep, Strabag, AMW Sinevia, Skanska, Porr, Polimex-Mostostal, Mota-Engil, Mostostal Warszawa, Karmar, Hochtief Polska, Erbud, Budimex
Description	<ul style="list-style-type: none"> ▪ The 'Agreement for Safety in Construction' is an industry-led initiative established in 2010 by leading Polish general contractors to reduce accidents and promote a culture of safety on construction sites. The 'Agreement' involves 17 signatory companies, who commit to implementing common OSH standards, sharing best practices and engaging with stakeholders to drive continuous improvement. Key elements include harmonised training requirements, qualification certification, standardised contract provisions, collective protection guidelines and joint awareness campaigns.

Title Polish 'agreement for safety in construction': supporting occupational safety and health compliance

Relevance

- The construction sector in Poland has long been recognised as a high-risk industry, with a persistently high rate of accidents, including fatalities. Traditional OSH enforcement approaches have struggled to control these risks, particularly given the fragmented and multi-employer nature of most construction projects.
- Aligns OSH practices across multiple contractors and subcontractors to ensure consistent standards and effective coordination.
- Harnesses the market power and resources of large contractors to drive OSH improvements among smaller subcontractors.
- Provides practical tools and guidance to implement OSH management systems adapted to the realities of construction work.
- Engages workers and site managers in proactive risk assessment, training and problem-solving to foster a strong safety culture.

Success factors

- A core group of committed top executives who champion OSH as a strategic priority and drive accountability throughout their organisations.
- A robust governance structure that enables both high-level strategic steering and hands-on technical collaboration, with clear roles and responsibilities.
- The development of harmonised, industry-specific standards and tools that provide a common reference point for all signatories and their business partners.
- The integration of OSH requirements into contractual provisions and qualification criteria, creating tangible business incentives for implementation.
- An emphasis on worker involvement, practical training and accessible communication to engage the frontline workforce in safety leadership.
- Collaboration with government, unions, professional associations and other stakeholders to build trust, leverage expertise and amplify impact.
- A data-driven approach to identifying priorities, monitoring progress and evaluating outcomes, to focus efforts and demonstrate value.

Transferability

- The 'Agreement' model holds significant potential for adaptation by construction industry stakeholders in other EEA Member States, as the challenges it addresses are largely common across the sector.
- The model in place was based on an example from the UK which further demonstrates the ability to replicate the initiative. Key considerations for successful transfer include:
 - Identifying a critical mass of leading contractors committed to OSH excellence and industry leadership, to champion the initiative.
 - Engaging government, unions and professional bodies early on as partners, to ensure alignment with national regulatory and industrial relations frameworks.
 - Conducting a thorough assessment of the most critical OSH risks, standards gaps and improvement opportunities in the national context, to inform priorities.

Title Polish 'agreement for safety in construction': supporting occupational safety and health compliance

- Establishing a lean but effective governance structure, with clear criteria for participation, decision-making and accountability, as well as adequate resources.
- Developing tailored implementation tools, training programs and communication campaigns that resonate with the national industry culture and practices.
- Agreeing on common KPIs and evaluation methods to track progress, enable benchmarking and demonstrate business value.
- Connecting with other national and European initiatives to share learning and foster harmonisation of good practices over time.

Effectiveness According to the Eurostat data, the Polish construction industry stands out as having made significant strides in enhancing safety on construction sites compared to other EEA countries. Poland has transitioned from having the highest number of fatal accidents per 100,000 employees, at 21.49, to being among the nations with the lowest rate of the most serious incidents, at 5.18. Remarkably, this improvement occurred over a relatively short period of just 10 years, spanning from 2009 to 2018.⁸

- Strengths**
- Provides a clear and comprehensive framework of OSH management and training standards, tailored to the construction context.
 - Fosters a data-driven, learning-oriented approach to OSH improvement, through common metrics, tools and knowledge-sharing.
 - Enables a strong focus on engaging workers and site managers in OSH leadership and problem-solving, as well as on shaping a proactive safety culture.
 - Builds productive collaboration with government, unions, and other stakeholders, enhancing the credibility and influence of the initiative.
 - Demonstrates the business case for OSH as a driver of quality, efficiency and competitiveness, not just regulatory compliance.

Weaknesses Membership is limited to large general contractors, missing the direct participation of the many subcontractors and SMEs who employ most construction workers.

Resource intensive to coordinate and maintain active participation, with a risk of momentum loss if key champions move on or business conditions deteriorate.

Insufficient linkage with the public OSH enforcement and oversight system to cover the whole industry and sanction non-compliant actors.

- Opportunities**
- Expand membership and participation to a wider range of contractors, subcontractors and other actors like clients, designers, and suppliers.

⁸ Agreement for Safety in Construction (2020). *Budownictwo polskie w latach 2009-2019*. Report. Available at: <https://www.porozumieniedlabezpieczenstwa.pl/baza-wiedzy/budownictwo-polskie-w-latach-2009-2019.html>

Title	Polish 'agreement for safety in construction': supporting occupational safety and health compliance
	<ul style="list-style-type: none"> ▪ Strengthen the involvement of and outreach to construction workers, supervisors and worker representatives to further embed OSH in daily practices and culture. ▪ Develop new services and tools to support OSH improvement among SMEs and in the construction supply chain
Threats and Mitigations	<ul style="list-style-type: none"> ▪ There are varied approaches to legal and system requirements for health and safety, making it challenging to improve safety on a wider scale. ▪ The lack of uniformity among subcontractors poses a barrier to improving worker safety and the diverse operations of member companies mean that while goals are shared, the paths to achieving them differ. Implementing a mandatory health and safety training system supported by materials provided by the 'Agreement'. This ensures that all workers, including subcontractors, receive consistent and comprehensive training on safety practices. Developing a set of collective protection guidelines to raise awareness among site supervisors and enforcement forces. These guidelines would aim to improve planning processes and reduce unsafe behaviour. Using a common template for health and safety requirements in contracts for subcontracting, transport and provision of tower and high-speed crane services. This would ensure that all companies follow the same regulatory guidelines. ▪ Member companies compete daily for contracts and positions, leading to rivalry and divisions. Maintaining commitment to safety amidst this competition is challenging. ▪ Small and micro-enterprises often lack the funds for necessary OSH investments and have inadequate health and safety management skills. There is a need to expand safety competencies at all organisational levels, from line workers to management. Participating in the development of a qualification framework for the construction industry to enhance safety competencies at all organisational levels.

Title	Polish sector targeted combined prevention and inspection programmes: supporting occupational safety and health compliance
Organisations involved	<p>Government bodies: State Labour Inspection (PIP) and its Regional Labour Inspectorates (OIPs), Social Insurance Institution (ZUS), Office of Technical Inspection (UDT), Central Office of Construction Supervision</p> <p>Research institutions: Central Institute for Labour Protection (CIOP-PIB), Building Research Institute (ITB), Nofer Institute of Occupational Medicine (NIOM)</p>

Title Polish sector targeted combined prevention and inspection programmes: supporting occupational safety and health compliance

Industry and social partners: Agreement for Safety in Construction, Nationwide Association of OSH Service Employees, Trade Union 'Budowlani', Polish Association of Construction Engineers and Technicians

Description Poland's State Labour Inspection implemented the 'Preventative and Control Strategy for the Construction Industry' (2022-2024) with its campaign 'Construction. STOP accidents!' This strategy is a 'co-enforcement' approach — meaning regulatory authorities and companies work together rather than through enforcement alone. The programme represents one of PIP's 'strategic initiatives' combining increased inspections with educational campaigns in high-risk sectors. Unlike traditional enforcement that focuses solely on punishing violations, this model explicitly states that 'regulatory authorities and construction companies are jointly responsible for maintaining safe working conditions.' Key elements include: collaborative partnerships, company-led safety management, focus on highest-risk activities, practical support from inspectors, and continuous improvement through feedback. Similar programmes were previously implemented in woodworking (2016-2018) and meat processing (2019-2021) industries.

Relevance

The construction sector consistently records the highest number of workplace accidents in Poland. While injuries have decreased since 2016, fatal accidents have remained constant. In 2022, construction represented 20% of all inspections but accounted for 73.5% of all work stoppage orders and 66.3% of worker diversion orders — showing serious safety problems in the sector. This shared responsibility approach helps address common construction hazards like falls from height, equipment safety, and excavation dangers. The strategy particularly benefits small construction companies that typically lack safety expertise and resources, helping them understand requirements and implement practical safety measures rather than just focusing on penalties.

Success factors The approach succeeds through: (1) Clear agreement that both inspectors and companies share responsibility for safety; (2) Building partnerships where all parties understand requirements; (3) Clear roles for central and regional inspectors; (4) Working with industry associations and technical experts; (5) Using multiple communication channels including traditional and digital media; (6) Targeting resources based on accident data analysis; (7) Building on experience from previous successful programmes in other industries; (8) Innovative outreach including collaboration with construction YouTube influencers; (9) Delivering practical safety training directly on construction sites; and (10) Creating an 'open cooperation' system allowing companies to join as supporters. The strategy was developed using thorough analysis of construction accident data and with input from experienced construction inspectors.

Transferability

The approach has proven adaptable across different industries in Poland - from woodworking to meat processing to construction — over eight years. Applying this model in other countries would require: appropriate legal frameworks, supportive industry relationships, and sufficient resources. The most transferable elements include: the partnership-based approach, using data to

Title	Polish sector targeted combined prevention and inspection programmes: supporting occupational safety and health compliance
	identify high-risk sectors, and coordinating national strategy with local implementation. This approach works particularly well for addressing safety in sectors with many small companies. Success would depend on the regulatory authority's ability to build relationships with industry partners and a willingness to move beyond purely enforcement-based approaches.
Effectiveness	The first year (2022) demonstrated significant reach, with labour inspectors conducting 405 training sessions reaching 7,817 participants, including 1,912 employers, 3,290 employees and 483 OSH experts. The promotional campaign included 3,237 radio broadcasts reaching 3.8 million people, digital advertising generating 201,300 clicks, and distribution of over 28,000 publications in Polish and Ukrainian. The PIP leveraged industry partnerships through events like 'Safety Week', resulting in 145 additional training sessions. A particular success was collaboration with a YouTube construction influencer whose safety video reached over 100,000 viewers. The campaign continued in 2023 with expanded promotional efforts, including video content on public transport screens.
Strengths	Key strengths include: (1) Establishing clear shared responsibility instead of relying solely on enforcement; (2) Combining oversight with practical partnership; (3) Extending reach beyond what inspection resources alone could achieve; (4) Providing site-specific training tailored to actual construction projects; (5) Using diverse communication methods to reach different audiences; (6) Building on proven success in other industries; (7) Balancing national coordination with local implementation; (8) Using innovative digital approaches including construction influencers; (9) Creating materials in Ukrainian for migrant workers; (10) Using accident data to target highest-risk areas; and (11) Allowing flexible ways for companies to participate.
Weaknesses	Based on the programme's structure, likely limitations include: (1) Resource intensity; (2) Evaluation metrics focusing more on activities than outcomes; (3) Significant coordination requirements between multiple stakeholders; (4) Challenges in maintaining consistent approach across different regions; and (5) Difficulty in reaching the smallest and most informal construction operations.
Opportunities	Opportunities include: (1) Developing more formal mechanisms for shared responsibility; (2) Extending the approach to additional high-risk sectors based on accident data; (3) Developing more sophisticated outcome measurement methodology; (4) Further leveraging digital platforms to reach younger construction workers; (5) Expanding international cooperation to address cross-border workforce issues in construction; (6) Developing permanent structural supports for ongoing prevention; and (7) Applying the model to address new workplace challenges in construction and other high-risk sectors.
Threats and Mitigations	Main threats include resource constraints limiting implementation capacity and coordination challenges between multiple organisations. PIP addresses these challenges through regular coordination meetings and updating guidelines based on field experience. The division of responsibilities between central coordination and local implementation helps manage resources while

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	maintaining consistent quality across regions. The approach has proven sustainable through successful application across multiple sectors over eight years, showing adaptability to different industry contexts. PIP's announced reforms in 2024 (including simplifying inspection procedures and increasing resources) may further support implementation of sector-targeted programmes.

d. Digital approaches

Title	Norwegian Labour Inspectorate's Call Service: Supporting Occupational Safety and Health Compliance
Organisations Involved	<ul style="list-style-type: none"> ▪ Norwegian Labour Inspection Authority (Department of Communication and User Dialogue) ▪ Service Centre for Foreign Workers (SUA) (for multilingual support) ▪ Norwegian Directorate of Health (provided guidance during COVID-19) ▪ Norwegian Institute of Public Health (coordination during pandemic)
Description	<ul style="list-style-type: none"> ▪ The call service is the Norwegian Labour Inspection Authority's nationwide guidance and counselling service based in Bodø. With approximately 21 full-time employees from diverse professional backgrounds, it operates on weekdays from 9-11 a.m. and 12-2 p.m. The service provides information and guidance on OSH matters in accordance with the Working Environment Act, the General Application Act and additional regulations within the Authority's scope. The service handles enquiries through multiple channels including telephone, email, live chat, and an algorithm-based chatbot (introduced in January 2023). In 2022, it provided 33,433 answers through telephone guidance and 24,106 through email and chat, addressing questions across 80 different OSH-related categories, with working hours being the most frequent topic. ▪ To accommodate Norway's diverse workforce, the service provides answers in several languages beyond Norwegian, including English, Polish, Lithuanian, Romanian and Russian through its cooperation with the Service Centre for Foreign Workers.
Relevance	<ul style="list-style-type: none"> ▪ The call service is highly relevant to OSH compliance as it: ▪ Provides accessible guidance on complex regulatory requirements ▪ Serves as a first line of support for employers, workers and safety representatives ▪ Reaches both Norwegian and foreign workers in their native languages ▪ Addresses emerging OSH issues quickly (as demonstrated during the COVID-19 pandemic) ▪ Collects valuable data on common compliance challenges through categorisation of enquiries

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Success Factors	<ul style="list-style-type: none"> ▪ Multilingual capabilities enabling communication with diverse workforce ▪ Highly knowledgeable staff with diverse professional backgrounds ▪ Multiple access channels (phone, email, chat, chatbot) ▪ Strong coordination with other government agencies ▪ Systematic categorisation and tracking of enquiries (80 different categories) ▪ Adaptability in crisis situations (as demonstrated during COVID-19) ▪ Implementation of innovative technology (algorithm-based chatbot)
Transferability	<ul style="list-style-type: none"> ▪ The call service model could potentially be transferred to other EEA Member States with adaptations based on: <ul style="list-style-type: none"> ▪ Each country's specific legal framework for labour inspectorates ▪ Available technological infrastructure ▪ Language diversity requirements ▪ Resource availability for staffing and training ▪ A key prerequisite would be regulations that include provisions for providing guidance within the existing legal framework of the respective country.
Effectiveness	<ul style="list-style-type: none"> ▪ The call service effectively addresses businesses' challenges related to OSH compliance by: <ul style="list-style-type: none"> ▪ Providing clear information on regulatory requirements ▪ Answering 57,539 enquiries in 2022 across all channels ▪ Offering guidance in multiple languages to reach foreign workers ▪ Responding rapidly to emerging issues (e.g. COVID-19 regulations) ▪ Using the chatbot to increase capacity (expected to handle 60,000 enquiries in 2024) ▪ Supporting Norwegian youth through 'ung.no' website
Strengths	<ul style="list-style-type: none"> ▪ Diverse, multidisciplinary team providing comprehensive guidance ▪ Multiple communication channels increasing accessibility ▪ Multilingual support removing barriers for foreign workers ▪ Ability to scale services during crises ▪ Systematic categorisation of enquiries enabling data analysis ▪ Integration of modern technology (chatbot) enhancing efficiency
Weaknesses	<ul style="list-style-type: none"> ▪ Limited operational hours (four hours per day) ▪ Potential for analysis of enquiries could be further developed (for example, the call service could conduct more detailed analysis of enquiry patterns by industry sector, business size, and geographic location to better target prevention efforts) ▪ The call service staff's dependence on up-to-date knowledge of rapidly changing regulations ▪ Possible knowledge gaps for highly specialised or complex enquiries ▪ Limited resources compared to the large volume of enquiries
Opportunities	<ul style="list-style-type: none"> ▪ Further development of data analytics to identify compliance trends (such as analysing seasonal patterns in enquiries, tracking emerging

Title	Norwegian Labour Inspectorate’s Call Service: Supporting Occupational Safety and Health Compliance
	<p>issues across industries, and identifying regulatory areas causing the most confusion)</p> <ul style="list-style-type: none"> ▪ Enhanced integration with other digital platforms ▪ Expansion of proactive guidance based on common enquiry patterns ▪ Development of more sophisticated AI solutions for automated guidance ▪ Potential for cross-border coordination with other national labour inspectorates.
Threats and Mitigations	<ul style="list-style-type: none"> ▪ Evolving regulatory landscape requiring constant updating of staff knowledge: Mitigated through structured training programmes and dedicated time for staff to study regulatory changes. ▪ Risk of providing incorrect information on complex cases: Mitigated by implementing quality control processes and escalation procedures for challenging enquiries. ▪ Increasing volume of enquiries straining capacity: Mitigated through continued development of digital solutions like the chatbot and potentially extending service hours. ▪ Growing complexity of work arrangements creating new OSH challenges: Mitigated by specialisation among staff and close coordination with policy experts on emerging workplace issues. ▪ Language barriers despite multilingual support: Mitigated by expanding language support services based on workforce demographics and using translation technology.
Title	Germany’s Tele-OSH Approach to Ensuring Consulting: Supporting Occupational Safety and Health Compliance
Organisations Involved	<ul style="list-style-type: none"> ▪ German Social Accident Insurance Institution for the foodstuffs and catering industry (BGN) ▪ Occupational Medical and Safety Service of the BGN (ASD*BGN) ▪ BAD Health Care and Safety Technology Ltd
Description	<p>The German Tele-OSH approach is a video consultation service designed to overcome challenges in delivering OSH consulting, particularly to SMEs. Developed through a joint pilot project (2019-2021), this innovative service enables remote OSH consulting that is flexible in terms of location and time. During the pilot project, 386 telework safety consultations were conducted using certified software with end-to-end encryption. The service supported various consultation scenarios including individual company consulting, participation in OSH Committee meetings, follow-up on prevention measures, support with OSH briefings and inspections, professional exchange among OSH experts, tele-dermatology consultations and occupational integration management. One-page practical guides were developed for different consultation scenarios, making the service accessible and straightforward to implement. Following</p>

Title	Germany's Tele-OSH Approach to Ensuring Consulting: Supporting Occupational Safety and Health Compliance
	successful evaluation, BGN and ASD*BGN safety and health centres have been able to include video consultation in their service portfolio since January 2022.
Relevance	<ul style="list-style-type: none"> ▪ Tele-OSH addresses significant challenges in OSH consulting in Germany, particularly for SMEs and micro enterprises where there are deficits in quality, comprehensive service delivery, and effectiveness. The approach: ▪ Reduces time and effort for all parties involved ▪ Overcomes geographical barriers, particularly for businesses in remote areas Provides more flexible and accessible OSH support ▪ Enables timely follow-up on prevention measures ▪ Supports compliance with OSH regulations (DGUV Regulation 2) ▪ Reaches non-traditional workplaces such as mobile workplaces, home offices, and workers abroad
Success Factors	<ul style="list-style-type: none"> ▪ Integration within the existing regulatory framework (Occupational Safety Act and DGUV Regulation 2) ▪ Secure technology (certified software with end-to-end encryption) ▪ User-friendly tools (calendar function and practical guides) ▪ Strong institutional support from established OSH organisations ▪ Comprehensive evaluation approach enhancing credibility ▪ Positioning as a complement to rather than replacement for traditional services COVID-19 pandemic highlighting the value of remote consultation options
Transferability	<ul style="list-style-type: none"> ▪ The Tele-OSH approach shows high transferability potential to other EEA Member States: ▪ Can be implemented in any country with sufficient internet infrastructure ▪ Particularly valuable for countries with significant travel distances Services can be customised to specific country needs ▪ Already being explored by other German organisations (VBG - German Social Accident Insurance Institution for the administrative sector, German Federal Medical Association) ▪ Implementation requirements include adequate digital infrastructure (internet bandwidth), suitable hardware and software, and quality assurance frameworks.
Effectiveness	<ul style="list-style-type: none"> ▪ Evaluation demonstrated significant positive outcomes: ▪ Nearly 90% of occupational physicians and safety specialists rated the service as suitable for fulfilling consultation requirements ▪ Almost 90% found video consultation as effective as in-person appointments for specific requests ▪ Significant time savings from eliminated travel and waiting times ▪ Majority of member companies reported easier implementation and reduced workload

Title	Germany's Tele-OSH Approach to Ensuring Consulting: Supporting Occupational Safety and Health Compliance
	<ul style="list-style-type: none"> ▪ High comfort levels reported by participants ▪ Good quality ratings for consultation request handling ▪ 80% of participating enterprises expressed interest in future use
Strengths	<ul style="list-style-type: none"> ▪ Increases accessibility of OSH consulting for SMEs ▪ Reduces time and resource costs associated with travel ▪ Provides flexibility in terms of location and scheduling ▪ Enables timely follow-up on prevention measures ▪ Supports diverse consultation scenarios ▪ Offers comprehensive practical guides for implementation ▪ Utilises secure, certified technology
Weaknesses	<ul style="list-style-type: none"> ▪ Requires suitable hardware, software, and reliable internet connectivity ▪ May not be suitable for all types of OSH assessments requiring physical presence ▪ Occupational physicians and safety experts still generally prefer traditional on-site consulting ▪ Requires robust quality management systems to ensure effectiveness ▪ Potential difficulties handling complex OSH issues remotely
Opportunities	<ul style="list-style-type: none"> ▪ Potential for broader application including monitoring activities of labour inspectors ▪ Further integration with other digital OSH tools and systems ▪ Expansion to other sectors and industries ▪ Development of more specialised remote consultation protocols for specific OSH issues ▪ Integration with telemedicine and other digital health services ▪ Adaptation to support emerging workplace arrangements (remote work, gig economy)
Threats and mitigations	<ul style="list-style-type: none"> ▪ Digital communication issues (interruptions, malfunctions): Mitigated through development of strategies for handling technical difficulties and ensuring backup communication methods. ▪ Quality assurance challenges: Addressed through implementation of robust quality management systems and clear protocols for remote consultation. ▪ Risk of reduced physical workplace assessment: Mitigated by positioning the service as a complement to rather than replacement for on-site visits when necessary. ▪ Potential for inadequate assessment of workplace conditions: Mitigated through development of clear quality requirements and monitoring of providers as recommended by the German Medical Association. ▪ Digital exclusion of businesses with poor connectivity: Partially addressed through hybrid approaches combining remote and in-person support where necessary.

Title	
BeSMART.ie: An Online Interactive Risk Assessment Tool	
Organisations Involved	<ul style="list-style-type: none"> Health and Safety Authority (HSA), Ireland Third-party platform host (responsible for software development and maintenance) Various industry stakeholders and advisory committees (providing feedback and collaboration)
Description	<ul style="list-style-type: none"> BeSMART.ie is a free, user-friendly online interactive risk assessment tool hosted by the Health and Safety Authority (HSA) on a cloud-based platform. Aimed at small companies and the self-employed, it allows users to generate and download relevant risk assessments and safety statements for their workplaces, as required by Irish OSH legislation. The platform includes over 500 hazards and 5,000 control measures covering more than 300 business types including agriculture, construction, retail and hospitality. Users can select workplace types, hazards and control measures to generate customised risk assessments and safety statements. All content is written in plain English following National Adult Literacy Agency principles to ensure accessibility. BeSMART.ie is staffed by one senior professional, two inspectors and two administration staff, with additional inspector expertise contributed as required. The team also manages a contact centre for user support.
Relevance	<ul style="list-style-type: none"> BeSMART.ie helps users comply with national OSH legislation by enabling them to generate and download risk assessments and safety statements without requiring extensive OSH expertise. This is particularly significant for small businesses and self-employed individuals who often lack dedicated OSH resources or expertise. The tool addresses several key compliance challenges: <ul style="list-style-type: none"> Limited OSH knowledge and expertise in small businesses Resource constraints for developing formal safety documentation Difficulty interpreting and applying complex regulations Need for sector-specific guidance for high-risk industries By providing an accessible platform for compliance documentation, BeSMART.ie helps bridge the gap between regulatory requirements and practical implementation for smaller enterprises.
Success factors	<ul style="list-style-type: none"> Anonymity and confidentiality: Users cannot be identified by the HSA and their risk assessments cannot be accessed, building trust and encouraging engagement. User-friendly interface: Simple navigation and step-by-step process reduces complexity and makes OSH compliance more approachable. Comprehensive coverage: With content for over 300 business types and 500 hazards, the platform serves a wide range of industries. Continuous development: The platform evolves based on user feedback and emerging needs, with regular content additions and feature improvements. <p>Integration with enforcement: Field inspectors are trained in the platform and promote it during site visits, creating synergy between guidance and enforcement.</p>

Title	BeSMART.ie: An Online Interactive Risk Assessment Tool
	<ul style="list-style-type: none"> ▪ Collaboration with stakeholders: The BeSMART.ie team works with industry representatives and advisory committees to ensure content relevance. ▪ Plain language approach: All content follows literacy guidelines, ensuring accessibility regardless of technical expertise.
Transferability	<ul style="list-style-type: none"> ▪ The transferability of the BeSMART.ie concept to other jurisdictions is highly feasible, as evidenced by similar online risk assessment tools already listed on the EU-OSHA website. While these European examples do not currently match BeSMART.ie's range of business coverage and functionality, they could be augmented to provide similar resources. ▪ Key elements for successful transfer would include: <ul style="list-style-type: none"> ▪ Adapting content to local regulatory requirements ▪ Ensuring anonymity and data protection compliance ▪ Developing sector-specific content relevant to the national context ▪ Establishing support mechanisms for users ▪ Integration with existing enforcement strategies ▪ The relatively modest resource requirements (core team of approximately five staff) make this approach achievable for many labour inspectorates.
Effectiveness	<ul style="list-style-type: none"> ▪ Since its inception in 2011, BeSMART.ie has demonstrated remarkable engagement growth: <ul style="list-style-type: none"> ▪ Over 14,000 users from more than 10,000 companies in 2023 ▪ Over 90,000 risk assessments generated since 2011 ▪ Over 250,000 safety statements downloaded for an estimated 350,000 workers ▪ Significant increase in engagement in 2023 with 200,779 hazards assessed (far above expected numbers) ▪ The platform is particularly effective at reaching high-risk sectors, with strong engagement from construction, agriculture, and other industries with significant OSH challenges. User numbers have shown steady year-on-year increases (except during COVID-19-affected years), demonstrating sustained relevance and utility.
Strengths	<ul style="list-style-type: none"> ▪ User-friendly and accessible: Simple interface encourages engagement, especially among small companies and the self-employed ▪ Anonymity and data protection: Complete anonymisation builds trust and encourages use without privacy concerns ▪ Comprehensive coverage: Wide range of hazards, control measures and business types ensures relevance for diverse users ▪ Continuous improvement: Regular feature additions and content updates keep the platform current ▪ Professional credibility: Established reputation with target audience regarding content quality and expertise ▪ Integration with inspector activities: Promotion during site visits creates awareness and drives adoption

Title	BeSMART.ie: An Online Interactive Risk Assessment Tool
	<ul style="list-style-type: none"> ▪ Sector-specific focus: Additional content for high-risk sectors provides tailored support for industries with greater OSH challenges
Weaknesses	<ul style="list-style-type: none"> ▪ Limited quantitative output: Risk assessments do not include risk ratings by design, which may limit depth of analysis ▪ Resource constraints: Small core team may limit capacity for expansion and development ▪ Difficulty measuring impact: While usage can be tracked, actual effect on workplace safety conditions remains difficult to assess empirically ▪ Reliance on user initiative: Requires users to take initial step to access and engage with the platform ▪ Digital access requirement: Assumes internet access and basic digital literacy
Opportunities	<ul style="list-style-type: none"> ▪ Expansion of sector-specific content: Further development of tailored resources for high-risk industries ▪ Enhanced data analytics: Planned categorisation by NACE and NUT3 categories will enable better analysis of uptake by sector ▪ Survey functionality: Developing optional feedback mechanisms could provide valuable user insights ▪ Cross-promotion with enforcement activities: Increased engagement observed following inspection campaigns suggests potential for strategic alignment ▪ International knowledge sharing: Potential to share methodology and approach with other jurisdictions
Threats and mitigations	<ul style="list-style-type: none"> ▪ Data protection compliance: Maintaining robust data protection is crucial for user trust. Mitigated through strict privacy protocols and regular compliance reviews ▪ User retention: Ensuring continued engagement presents an ongoing challenge. Addressed through annual reminder emails for users who haven't accessed the platform within a year. ▪ Competition from other tools: Other online assessment tools could potentially compete for users. Mitigated by continuous improvement of features and content based on user feedback. ▪ Resource sustainability: Maintaining adequate staffing and technical support with increasing user numbers. Partially addressed through efficient design and third-party hosting arrangements. ▪ Keeping pace with regulatory changes: Content requires regular updates to reflect evolving requirements. Mitigated through close integration with HSA's regulatory expertise.

<p>Title</p>	<p>Enhancing OSH Compliance Through New Technological Tools: ACT Digital Simulators and Chatbot</p>
<p>Organisations Involved</p>	<ul style="list-style-type: none"> ▪ Authority for Working Conditions (ACT), Portugal
<p>Description</p>	<p>The Portuguese Authority for Working Conditions (ACT) has developed digital tools to enhance OSH compliance by providing accessible information on workers' and employers' rights and obligations. These tools include:</p> <ol style="list-style-type: none"> 1. Digital Simulators: Eight interactive web-based calculators that allow users to input specific data about their work situation and receive tailored information. The simulators cover important topics such as holiday entitlements, parental leave, sick leave, and compensation calculations for contract terminations. 2. ACTia Chatbot: An interactive channel providing practical information on working conditions, workers' rights, professional education, certification, and occupational health and safety matters. Users can ask specific questions, attach documents, and receive immediate answers.
<p>Relevance</p>	<ul style="list-style-type: none"> ▪ These technological tools address several key compliance challenges: ▪ Information gap: Many workers and employers lack understanding of specific OSH rights and obligations ▪ Accessibility barriers: Traditional methods of obtaining regulatory information (e.g. phone calls, in-person visits) can be time-consuming and resource-intensive ▪ Calculation complexity: Certain entitlements (like termination payments) involve complex calculations that small businesses may struggle with without external support ▪ Resource constraints: Limited capacity of the labour inspectorate to handle all information requests through traditional channels
<p>Success Factors</p>	<ul style="list-style-type: none"> ▪ User-friendly interface: Simple navigation and straightforward presentation of information makes the tools accessible to users without specialised knowledge ▪ Immediate responses: Both simulators and the chatbot provide instant answers, eliminating waiting times associated with traditional information channels ▪ Tailored information: By allowing users to input specific details about their situation, the tools provide customised rather than generic guidance ▪ Multi-platform availability: Access through both website and mobile app increases accessibility ▪ Integration with inspection activities: Labour inspectors actively promote the tools during site visits, creating synergy between digital resources and traditional enforcement ▪ Continuous improvement: ACT regularly updates the tools to reflect legislative changes and technical improvements ▪ Pedagogical approach: The tools are designed not just to provide information but to educate users about their rights and obligations

Title Enhancing OSH Compliance Through New Technological Tools: ACT Digital Simulators and Chatbot

Transferability

The implementation of digital simulators and chatbots is considered highly transferable to other EEA Member States, though requiring adaptation to each country’s specific legal context and needs. The case study explicitly states that ‘implementing technological tools such as simulators and chatbots is recommended but requires adaptation, considering each Member State’s contextual characteristics and needs.’

- Key considerations for successful transfer would include:
- Adapting content to national legislative frameworks
- Ensuring user-friendly design appropriate for the target audience
- Developing appropriate language versions
- Integration with existing labour inspection strategies
- Ongoing maintenance and updates to reflect legislative changes

Effectiveness

- Since implementation, these digital tools have demonstrated significant user engagement:
- The chatbot had over 200,000 interactions by September 2024
- The digital simulators recorded over 11 million visits during 2023-2024
- The most popular tool was the ‘Termination of employment contract compensation simulator’
- While formal impact evaluations have not been conducted, labour inspectors report that the tools have effectively:
- Decreased usage of traditional communication channels (phone and email)
- Allowed inspectors to focus on more complex cases requiring specialised analysis
- Provided a reliable source of information for workers and employers

Strengths

- **Accessibility and reach:** Available 24/7 to anyone with internet access
- **Cost-efficiency:** Automated information delivery reduces resource needs for basic inquiries
- **Consistency:** Provides standardized information based on current regulations
- **Precision:** Tailors responses to specific situations based on user input
- **Complementary to in-person inspection:** Enhances rather than replaces traditional inspection activities
- **Technological modernisation:** Represents a forward-thinking approach to labour inspection
- **Transparency:** Makes regulatory information more openly available to all stakeholders

Weaknesses

- **Limited handling of complex cases:** May not adequately address highly specific or unusual situations
- **Digital divide concerns:** Requires internet access and basic digital literacy
- **Awareness challenges:** Some potential users may not know these tools exist

Title	Enhancing OSH Compliance Through New Technological Tools: ACT Digital Simulators and Chatbot
	<ul style="list-style-type: none"> ▪ Dependency on user input accuracy: Results are only as accurate as the information provided by users ▪ Limited evaluation data: Comprehensive assessment of impact on compliance is not yet available
Opportunities	<ul style="list-style-type: none"> ▪ Expansion of tool capabilities: Potential to develop additional simulators for other regulatory areas ▪ Enhanced data collection: Usage patterns could inform targeted inspection strategies ▪ Increased promotion: As noted in the case study, 'Promoting the tools at a national level would be welcome' to increase awareness ▪ Integration with other digital services: Potential connection with broader e-government initiatives ▪ Continuous refinement: Ongoing improvement based on user feedback and technological advances
Threats and Mitigations	<ul style="list-style-type: none"> ▪ Technological obsolescence: Regular updates and technical maintenance are required to keep tools functional and current. ACT is addressing this through continuous updating of the instruments ▪ Legislative changes: Regulatory modifications necessitate prompt updates to maintain accuracy. ACT's commitment to regular updates helps mitigate this risk. ▪ Overreliance concerns: Users might rely exclusively on digital tools rather than seeking specialized advice for complex situations. Labour inspectors note this challenge, particularly for cases requiring 'more careful analysis because you have to take some nuances into account.' ▪ Resource competition: Maintaining digital tools requires ongoing investment that might compete with other inspection priorities. The efficiency gains from reduced traditional communication needs may help offset this concern.

e. Capacity-building approaches

Title	Ibec and the Creation of a Member-Led Online Community of Good Practice in OSH, Ireland
Organisations involved	<ul style="list-style-type: none"> ▪ Regulatory bodies such as the Irish Health and Safety Authority (HSA) and the Environmental Protection Agency (EPA). ▪ Employer group of the Irish social partners. ▪ The wider Irish OSH community as well as EU OSH and business groups
Description	Ibec is Ireland's largest lobby and business representative group, or originally known as the Irish Business and Employers Confederation. Its OSH team are highly qualified and experienced, offering expert guidance, policy development, training and consultancy for its members. The organisation has created a

Title	Ibec and the Creation of a Member-Led Online Community of Good Practice in OSH, Ireland
	<p>successful online, member-led community of OSH practice, which facilitates discussions and solutions for OSH concerns raised by its members. The organisation has created a successful online, member-led community of OSH practice, which facilitates discussions and solutions for OSH concerns raised by its members. Ibec moved to be an online platform during the pandemic, transforming the communities reach, engagement and influence and the community facilitates the adoption of best practice examples and motivates its members to seek out and adopt such practices.</p>
Relevance	<p>Overall, Ibecs' purpose is <i>'to help build a better sustainable future by influencing, supporting, and delivering for business success'</i>. It does this through promoting and improving OSH compliance through its members. Ibec provides training for its members covering all aspects of OSH and the use of online meetings, polls and data analysis represents an innovative approach to exchanging and implementing OSH information. This model has shown a motivational effect, encouraging members to seek out an adopt effective OSH compliance solutions.</p>
Success factors	<ul style="list-style-type: none"> ▪ Members trust the confidential and anonymised nature of the communication and data produced during online meetings. ▪ The high level of engagement and participation from members is crucial. ▪ Collaboration with regulatory bodies like the HSA and the EPA has enhanced the credibility and influence of the community. ▪ The competitive benchmarking effect motivates companies to adopt 'best in class' practices seen by their peers.
Transferability	<p>The conduct of Ibec's OSH compliance related community of practice which uses an online meeting methodology, can be adapted and applied in other settings, including other EEA Member States and beyond. There is nothing to suggest this approach cannot be extended to other jurisdictions including other EEA Member States and an OSH CoP can greatly leverage their effectiveness by going online.</p>
Effectiveness	<p>The creation of an online CoP has demonstrated an effective way to promote and improve OSH compliance among its members. The model has been effective in building trust with its members which has contributed to its success and allows for frequent communication, the exchange of vires and new knowledge on OSH compliance. The online engagement has facilitated higher levels of communication and informal learning among its members. The format of online meetings allows companies to compare and benchmark themselves, acting as a motivational driver for improvements in OSH compliance. This approach has also contributed to members seeking out 'best in class' OSH compliance solutions.</p>
Strengths	<ul style="list-style-type: none"> ▪ Ibec has built a strong foundation of trust with its members, ensuring confidential and anonymised communication during online meetings.

Title	Ibec and the Creation of a Member-Led Online Community of Good Practice in OSH, Ireland
	<ul style="list-style-type: none"> ▪ The transition to an online platform has significantly increased member engagement, with up to 100 professionals attending monthly meetings (compared to 20-25 in previous face-to-face meetings). ▪ Ibec’s collaboration with regulatory bodies like the HSA and the EPA has enhanced the credibility and influence of the community. ▪ The competitive benchmarking effect motivates companies to adopt ‘best in class’ practices seen by their peers.
Weaknesses	<p>The success of the initiative relies heavily on the online platform, which may pose challenges if technical issues arise or if members prefer face-to-face interactions.</p> <p>Managing the online community of practice requires significant time and effort from Ibec’s OSH professionals.</p>
Opportunities	<ul style="list-style-type: none"> ▪ Ibec’s OSH team plan to extend the online community of practice approach to further Ibec member companies. ▪ There is potential for increased collaboration with other regulatory bodies and organisations, further enhancing the community’s influence and reach.
Threats and mitigations	<p>The main threat is competition from other organisations which may develop similar online CoPs, potentially reducing Ibec’s influence and membership and changes. To stay ahead of potential competitors, Ibec continuously innovates and improves its online community of practice. This includes regularly updating the content, introducing new features and actively engaging with members to ensure the community remains valuable and relevant.</p> <p>Changes in OSH regulations or policies may also require Ibec to adapt its approach which could be challenging. Ibec stays proactive in monitoring and adapting to changes in OSH regulations. This involves maintaining close collaboration with regulatory bodies like the HSA and the EPA to stay informed about regulatory changes and ensure compliance.</p>

Title	NISO; a National OSH Community of Practice with a Large Social Network, Ireland
Organisations involved	<ul style="list-style-type: none"> ▪ Health and Safety Authority (HSA) ▪ Ibec ▪ The Irish Congress of Trade Unions (an umbrella group for worker unions in Ireland) ▪ Insurance Ireland ▪ Department of Enterprise, Trade & Employment ▪ Health and Safety Executive of Northern Ireland.

Title	NISO; a National OSH Community of Practice with a Large Social Network, Ireland
Description	The National Irish Safety Organisation (NISO, pronounced neeso) is a long established, well regarded and widely recognised Irish preventative services provider that operates as an OSH compliance community of practice. It is an autonomous organisation that is funded by subscriptions from around 900 member companies and enjoys a large social network through its regional structure. NISO provides a range of services to members which includes information, advice, support, high quality training, regular newsletters, safety products, national quiz, national safety awards scheme, regional seminars and an annual conference.
Relevance	The principle mission of NISO is ‘to create the conditions where Irish workplaces are among the safest and healthiest in Europe’. The organisation plays a crucial role in promoting OSH compliance and awareness, particularly among small companies and the self-employed. It has a notable achievement in engaging with micro enterprises, which are often difficult to access and overrepresented in terms of accidents and injuries. It provides information, advisory and training services, promotes a culture of excellence in workplace health and safety, plays a leading role in advancing the national health and safety agenda and helps members develop a culture of health and safety in their workplace.
Success factors	<ul style="list-style-type: none"> ▪ Large social network and flagship events such as the annual conference, safety awards and safety quizzes. ▪ NISO collaborates extensively with various organisations. ▪ The extensive reach helps in promoting OSH compliance and awareness. ▪ NISO’s positive role and reputation in the OSH community are supported by external assessments and testimonials. This positive reputation helps in maintaining its influence and credibility in promoting OSH compliance.
Transferability	<ul style="list-style-type: none"> ▪ It is considered that the NISO Community of Practice approach is suitable for use by other EEA Member States
Effectiveness	NISO exemplifies a successful OSH Community of Practice that actively provides and encourages a very popular social network for its members. The number of applicants it receives annually for its safety awards and safety quizzes as demonstrated by the number of national recipients is a notable achievement. In terms of providing OSH good practice and educational awards it functions very well. By delivering awards, conferences quizzes and educational qualifications, NISO promotes, contributes and influences OSH compliance.
Strengths	<ul style="list-style-type: none"> ▪ NISO is a long-established and well-regarded Irish preventative services provider, with over 60 years of experience. ▪ NISO enjoys a large social network through its regional structure and flagship events such as the annual conference, safety awards and safety quizzes. ▪ NISO provides a range of services to its members including information, advice, support, high-quality training, regular newsletters, safety

Title	NISO; a National OSH Community of Practice with a Large Social Network, Ireland
	<p>products, national quizzes, safety awards, regional seminars and an annual conference.</p> <ul style="list-style-type: none"> ▪ NISO collaborates extensively with various organisations, including the HSA, Ibec, the Irish Congress of Trade Unions and Insurance Ireland.
Weaknesses	<ul style="list-style-type: none"> ▪ NISO operates with a relatively small team of seven staff members and an annual budget of approximately €750,000. ▪ NISO is funded by subscriptions from around 900 member companies, which may limit its financial stability and growth potential. ▪ NISO faces challenges in presenting evidence of OSH compliance and promotion due to the difficulty in collecting empirical data.
Opportunities	<ul style="list-style-type: none"> ▪ NISO has the opportunity to expand its online training offerings, which have become increasingly popular. ▪ NISO has a notable achievement in engaging with micro enterprises, which are often difficult to access and overrepresented in terms of accidents and injuries. ▪ There is a proposal to introduce sectoral categorisation for member companies, which could enhance the relevance and effectiveness of NISO's services.
Threats and threat mitigation	<ul style="list-style-type: none"> ▪ Changes in OSH regulations and compliance requirements could impact NISO's operations and the services it provides. NISO actively supports governmental OSH compliance initiatives and maintains strong links with regulatory bodies such as the HSA and the Department of Enterprise, Trade and Employment. This ensures that NISO stays updated with regulatory changes and can adapt its services accordingly. ▪ Economic downturns could affect the financial stability of NISO's member companies, leading to a potential decrease in membership subscriptions. Similarly, NISO may face competition from other OSH service providers and organisations, which could impact its market share and influence. ▪ To address the potential decrease in membership subscriptions due to economic downturns, NISO can diversify its funding sources and explore alternative revenue streams. This includes expanding its online training offerings, which have become increasingly popular. ▪ To mitigate the threat of competition from other OSH service providers, NISO can continue to innovate and differentiate its services. This includes maintaining its innovative approaches, such as safety quizzes in social settings and educational collaborations with Technological University Dublin. NISO's strong reputation and extensive collaboration with various organisations also help in maintaining its competitive edge.

Title	Polish initiatives to` support OSH experts: Supporting occupational safety and health compliance, Poland
Organisations involved	<ul style="list-style-type: none"> ▪ Central Institute for Labor Protection-State Research Institute ▪ State Labour Inspection ▪ Social Insurance Institution ▪ All-Poland Association of Occupational Safety and Health Service Employees ▪ Employers of Poland ▪ Confederation Lewiatan
Description	<p>Initiatives have been set up in Poland with the aim of supporting professional networking and improving the quality of OSH activities, as well as introducing and reinforcing the positive and professional image of OSH specialists. Two notable initiatives, namely 'BHP Team Championships' (Mistrzostwa Kadry BHP) and 'Network of Industry Health and Safety Consultants' (Sieć Branżowych Konsultantów ds. BHP) have emerged as dedicated approaches to address OSH challenges.</p>
Relevance	<ul style="list-style-type: none"> ▪ 'BHP Team Championships' competition aims to elevate the significance of professional knowledge and expertise in OSH among both OSH specialists and individuals interested in OSH-related issues. It also seeks to recognise professionals in the field by establishing a prestigious ranking of OSH experts and encourages updating expert knowledge about emerging risks. ▪ 'Network of Industry Health and Safety Consultants' aims to foster professional development by providing up-to-date, state-of-the-art knowledge and improving the quality of activities in the field of OSH. ▪ The initiatives presented are aimed at health and safety professionals. They support their professional development and the updating of their knowledge. Being up to date with all regulations and being aware of any modifications in the expectations of the modern employer plays a considerable role in the work of health and safety services. ▪ The initiatives encourage OSH experts to continually update their knowledge, recognising that work environments evolve and new risks emerge.
Success factors	<ul style="list-style-type: none"> ▪ Any initiative that allows an exchange of ideas on good practice and aims at consolidating the OSH community is positive. ▪ 'BHP Team Championships' and 'Network' exemplify innovative approaches to advancing OSH in Poland. Through their collaborative efforts, competition-based learning and tailored consultancy services, these initiatives have made significant strides in enhancing OSH practices and promoting a culture of safety in workplaces. ▪ The success of the 'BHP Team Championships' is influenced by several factors, including targeted and broadened promotion, engaging formats with challenging questions, networking opportunities and attractive prizes. ▪ Collaborating with industry stakeholders enhances the competition's credibility and provides essential resources. However, securing

Title	Polish initiatives to` support OSH experts: Supporting occupational safety and health compliance, Poland
	<p>adequate partnerships remains a potential challenge for the competition's future success.</p> <ul style="list-style-type: none"> ▪ For the 'Network of Industry Health and Safety Consultants', success hinges on providing tailored benefits, facilitating collaboration and knowledge-sharing, and maintaining industry relevance. ▪ The network's ability to address the specific needs of diverse industries is a success factor, but ensuring relevance and effectiveness across all participating industries poses a potential challenge.
Transferability	<p>The framework and methodologies employed by 'BHP Team Championships' and 'Network of Industry Health and Safety Consultants' can be adapted and replicated in other countries with similar OSH challenges and regulatory environments.</p> <p>Establishing partnerships between government agencies, industry stakeholders, and educational institutions is critical to replicating the success of these initiatives in different contexts.</p> <p>It is essential to tailor the programmes and services to suit the target countries' specific cultural, economic and regulatory contexts.</p>
Effectiveness	<p>The 'BHP Team Championships' have proven highly popular since their inception, with consistently high participation rates in each edition. This widespread participation underscores the enthusiasm for OSH in Poland, even among individuals not directly involved in the OSH experts sector. The competition serves as a platform for popularising OSH issues among diverse audiences, ultimately improving Polish companies' safety standards.</p> <p>While specific participation numbers for the 'Network of Industry Health and Safety Consultants' are unavailable, its establishment was driven by a recognised need for a sector-specific industry network with tailored participant benefits. This indicates that the Network's scope and coverage are aligned with the needs of professionals in the OSH sector.</p>
Strengths	<ul style="list-style-type: none"> ▪ The 'BHP Team Championships' and 'Network of Industry Health and Safety Consultants' initiatives are well structured and have clear objectives aimed at enhancing OSH practices in Poland. ▪ The 'BHP Team Championships' has a high participation rate, indicating strong interest and engagement from OSH professionals and individuals interested in OSH-related issues. ▪ The 'Network of Industry Health and Safety Consultants' provides tailored benefits, including specialised training and support services, which enhance its appeal to participants. ▪ Both initiatives foster collaboration, knowledge-sharing, and networking opportunities among OSH professionals, which can lead to improved safety standards and practices.

Title	Polish initiatives to` support OSH experts: Supporting occupational safety and health compliance, Poland
Weaknesses	<p>The success of the 'BHP Team Championships' heavily relies on establishing and maintaining strong partnerships with industry stakeholders. Any difficulties in securing adequate partnerships could significantly impact the competition's viability and reach.</p> <p>Ensuring relevance and effectiveness across all participating industries in the 'Network of Industry Health and Safety Consultants' poses a potential challenge. The broad spectrum of industries involved raises questions about how to provide universally helpful resources across sectors.</p>
Opportunities	<p>The 'Network of Industry Health and Safety Consultants' can expand its scope to include more industries and provide more specialised resources and support services.</p>
Threats	<p>The 'BHP Team Championships' competition was suspended for two years during the pandemic, highlighting the vulnerability of such initiatives to external disruptions.</p> <p>To address the challenge of securing adequate partnerships, the competition organisers should focus on building long-term relationships with industry stakeholders. This can be achieved by demonstrating the value and benefits of the competition to potential partners, such as increased visibility, networking opportunities, and positive brand association. Additionally, diversifying the pool of partners and seeking support from various sectors can help mitigate the risk of relying on a few key partners.</p> <p>To ensure relevance and effectiveness across all participating industries, the network should adopt a flexible and adaptive approach. This includes regularly assessing the needs and challenges of different industries and tailoring the resources and support services accordingly. Engaging with industry representatives and gathering feedback can help identify specific requirements and areas for improvement. Furthermore, offering industry-specific training and resources can enhance the network's appeal and effectiveness.</p>

Title	Interface between external and internal occupational safety and health services, Portugal
Organisations involved	Integration between internal and external prevention services
Description	<p>While external services have advantages in Portugal due to the country's predominance of micro, small, and medium enterprises, with often more limited economic resources, they do not always indicate an integrated safety and health approach. The predominance of MSEs and SMEs in Portugal significantly impacts the OSH prevention strategy adopted by most companies, with a significant prevalence of external services. OSH technicians have initiated a series of activities designed to facilitate interaction between key stakeholders in</p>

Title	Interface between external and internal occupational safety and health services, Portugal
	OSH prevention, including safety technicians, occupational doctors, nurses, occupational therapists and other relevant professionals.
Relevance	While companies may establish their own OSH services, it has been common for them to seek health and safety services separately. Service companies often also specialise in either safety or health services. There are difficulties in articulating those two areas of intervention, resulting in a fragmented conception of the impacts of work on safety and health.
Success factors	The availability of multidisciplinary teams with OSH actors from varying backgrounds allows for the exchange of information and the development of tailored action.
Transferability	Practices endorsing the interface between different OHS actors and services are transferable and recommended for other EEA Member States.
Effectiveness	In most cases, the health and safety interface has enabled some OSH professionals to develop healthier and safer work practices through a preventive approach, while also reducing occupational injury and illness sub-notification.
Strengths	<ul style="list-style-type: none"> ▪ The integration of internal and external OSH services allows for a more comprehensive approach to workplace safety. ▪ The involvement of multidisciplinary teams, including occupational doctors, nurses and other professionals, enhances the effectiveness of OSH practices. ▪ The focus on preventive measures, such as regular meetings, workplace visits and the use of digital platforms, helps in early identification and mitigation of risks.
Weaknesses	<ul style="list-style-type: none"> ▪ There is a lack of concrete practice guidelines for regulating OSH compliance and providing these services. ▪ Limited availability of OSH professionals and the precarious employment conditions of service providers can hinder the effectiveness of OSH practices. ▪ The underreporting of occupational diseases and accidents due to companies not activating insurance for non-life-threatening incidents.
Opportunities	The use of digital platforms to integrate and link health and safety data can improve the efficiency and effectiveness of OSH practices.
Threats and mitigations	<p>Companies with limited economic resources may not be able or willing to pay for extended and more complete OSH prevention plans. Flexible payment plans can be offered for companies to spread the cost of OSH services over time, making it more manageable for those with limited economic resources.</p> <p>The lack of concrete practice guidelines and the variability in the implementation of OSH practices can pose challenges to achieving consistent compliance.</p>

<p>Title</p>	<p>The national association of workers with work-related disabilities and injuries (ANDST), Portugal</p>
<p>Organisations involved</p>	<ul style="list-style-type: none"> ▪ National Institute for Rehabilitation ▪ Social Security Institute
<p>Description</p>	<p>ANDST guarantees the provision of legal, social and psychological support, as well as support for the social and professional reintegration of workers who are victims of accidents or occupational diseases, seeking to serve as a guardian entity for workers' rights. It has periodic information sessions with union leaders and worker representatives. The association has been recognised as pivotal in the fight against underreporting of occupational accidents and occupational diseases after the occurrence of these critical events, in the support provided in intermediating the contact of workers with different institutions that intervene in the recognition and reassessment of professional incapacity, and in their professional reintegration.</p>
<p>Relevance</p>	<p>ANDST provides legal, social and psychological support and promotes the reintegration of workers who are victims of occupational accidents or diseases in their social and professional contexts. The association's intervention aims to respond to workers' concrete needs when interacting with different institutions (e.g. Labour Court, Social Security Institute), often associated with the lack of information, as well as from the economic and educational resources of workers. It also addresses the unequal relationship that often exists between the workers and the institutions with which they can claim the safeguarding of their rights regarding safety and health at work.</p>
<p>Success factors</p>	<p>Focus on providing workers and their representation with the institutions that have the power to act on the matters at hand.</p>
<p>Effectiveness</p>	<p>The ANDST, at the time of writing, has 20,000 members, of whom 4,000 receive direct support. In 2023, they held 2673 individual sessions regarding occupational accidents and 426 individual sessions regarding professional diseases at a national level. Of those sessions, 2377 were held with male workers and 722 with female workers. 1001 of the total number of workers were aged between 45 and 55.</p> <p>The support of the ANDST resulted in a total of 642 legal queries, 242 social service consultations, 69 psychology appointments, and 385 medical and physical damage assessments (ANDST, 2023).</p>
<p>Transferability</p>	<p>There is limited opportunity for transferability with other EEA Member States. There are significant differences between Portugal and the other EEA Member State's associations, mainly because, in other countries, social security is responsible for the process. In other EEA Member States, the concern is mainly the professional reintegration and rehabilitation of workers. In Portugal, the requests are concentrated on recognising the occupational accident as such.</p>
<p>Strengths</p>	<ul style="list-style-type: none"> ▪ ANDST provides legal, social and psychological support, as well as professional reintegration for workers who are victims of occupational accidents or diseases.

Title	The national association of workers with work-related disabilities and injuries (ANDST), Portugal
	<ul style="list-style-type: none"> ▪ ANDST has received public support from the National Institute for Rehabilitation and the Social Security Institute since 2004. ▪ ANDST has a high success rate in getting occupational accidents recognised and ensuring workers are compensated.
Weaknesses	<p>Portugal's private responsibility system for handling occupational accidents can lead to challenges in recognising and managing incidents.</p> <p>Workers' economic and educational resources can influence their ability to seek clarification about their rights and access support.</p>
Opportunities	<ul style="list-style-type: none"> ▪ ANDST's dual action (preventive and reactive) and periodic information sessions with union leaders and worker representatives are innovative practices in the country. ▪ Increasing requests for support from workers in the services and commerce sectors provide an opportunity for ANDST to expand its services.
Threats and mitigations	<p>Insurance companies hiring specialised companies to investigate accidents can lead to mischaracterisation of accidents and denial of responsibility.</p> <p>Financial difficulties can prevent workers from accessing justice and claiming their rights in the Labour Court. ANDST assists workers in filing petitions to the Labour Court without requiring them to pay legal fees. This helps workers with financial difficulties to claim their rights without the burden of legal costs.</p>

Title	Designated employer / employee training, Portugal
Organisations involved	<ul style="list-style-type: none"> ▪ Ministry of Labour, Solidarity and Social Security ▪ The Institute of Employment and Professional Training (IEPF)
Description	<p>ACT has made a strong investment to promote training for 'Designated Employers and Employees' and the Case Study highlights specific preventative training aimed at micro-enterprises. The training aims to create conditions so that micro-sized companies can meet the requirements to request authorisation from the ACT to assume responsibility for OSH internally and to increase the knowledge within these companies regarding such matters.</p>
Relevance	<ul style="list-style-type: none"> ▪ The training aims to increase awareness and know-how within micro-enterprises so that employers and employees can demand more from the company as they become more knowledgeable on OSH. ▪ It promotes the importance of OSH and fostering a safety culture in micro-sized companies. ▪ The training specifically targets companies with up to nine employees whose activity is not considered high-risk.

Title	Designated employer / employee training, Portugal
Success factors	<ul style="list-style-type: none"> ▪ The awareness-raising actions carried out by the ACT contributed to the dissemination of the training activities and information about how it works. ▪ The training programme is free while being of high quality. ▪ There is a challenge with regards to the evaluation of the impact of the actions carried out.
Transferability	<ul style="list-style-type: none"> ▪ This is a transferable practice, already used in other countries.
Effectiveness	<p>The training program was implemented in 2023 and will continue in 2024, with the development of informational actions regarding this modality of organising OSH services. In 2023, 65 information/awareness-raising actions were conducted, and by the end of August 2024, 61 actions had been carried out in 2024, some in collaboration with the IEFP. In 2023, more than 2,500 employers and workers participated in the awareness-raising actions, and the actions carried out in 2024 have already covered approximately 2,000 employers and workers.</p>
Strengths	<ul style="list-style-type: none"> ▪ The initiative targets micro-enterprises, which constitute a significant portion of Portugal’s business fabric, ensuring a broad impact. ▪ The training program is free and accessible, with sessions available both in-person and online, during the day and after work hours. ▪ Collaboration between the ACT and IEFP ensures that the training is comprehensive and meets the necessary requirements. ▪ The programme has already shown positive results, with an increase in authorisation requests and participation in awareness-raising actions.
Weaknesses	<ul style="list-style-type: none"> ▪ The initiative faces challenges in evaluating the impact of the actions carried out and determining the extent to which they have improved OSH practices in micro-enterprises. ▪ There is a need to increase the number of employers participating in the training, as it has primarily been attended by employees so far. ▪ The programme’s success relies heavily on the willingness of micro-enterprises to adopt the Designated Employer/Employee modality, which has been scarce in Portugal.
Threats and mitigation	<p>The authorisation for the Designated Employer/Employee modality can be revoked if there are serious violations of OSH rules, which could discourage participation. To mitigate the risk of authorisation revocation due to serious violations of OSH rules, importance is placed on continuous training and awareness-raising actions. This ensures that both employers and employees are well-informed about OSH regulations and the consequences of non-compliance.</p> <p>There is a risk that the initiative may be used by companies as a way to reduce investment in hiring external OSH services without effectively improving OSH practices.</p>

Title	<ul style="list-style-type: none"> Polish response to the challenges related to Ukrainian refugees and migrants: supporting occupational safety and health compliance, Poland
Organisations involved	<ul style="list-style-type: none"> World Health Organisation Polish Ministry of Health
Description	<p>In response to the influx of Ukrainian refugees in Poland following the Russian invasion (and the earlier COVID-19 pandemic), the Nofer Institute of Occupational Medicine (NIOM) launched an initiative to support their integration into the Polish labour market and safeguard their OSH rights. With financial support from the World Health Organisation WHO, NIOM developed information materials in Ukrainian on the principles of preventive occupational health checks, prevention of common work-related diseases, and recommended vaccinations. Resources included short films, brochures, questionnaires for doctors and patients to facilitate communication, and common medical recommendations. The initiative aimed to enhance Ukrainian workers' understanding of and access to occupational health services in Poland.</p>
Relevance	<ul style="list-style-type: none"> The initiative responds to the urgent need to protect the OSH of Ukrainian workers, who face additional vulnerabilities as refugees in a new labour market. Language barriers, unfamiliarity with the Polish OSH system, and limited access to healthcare in their home country pose significant challenges for their effective coverage by preventive occupational health services. Provides linguistically and culturally adapted information and tools, empowering Ukrainian workers to understand their rights and entitlements, and access appropriate preventive care. Supports Polish occupational doctors to communicate effectively with Ukrainian patients and provide relevant advice, contributing to more equitable and inclusive OSH practices.
Success factors	<ul style="list-style-type: none"> The initiative benefited from NIOM's recognised expertise in occupational medicine and its ability to rapidly mobilise this knowledge to produce targeted, practical resources in response to an emerging OSH challenge. The collaboration with the WHO lends additional credibility and resources to the effort. The focus on providing materials in Ukrainian and facilitated two-way doctor-patient communication is crucial for overcoming language and cultural barriers. The use of diverse formats, from short films to brochures and questionnaires, enabled the information to be accessed and applied in different contexts. The materials were made freely available through NIOM's website and occupational health networks, rather than being limited to specific workplaces or regions, enhancing their reach and impact.
Transferability	<ul style="list-style-type: none"> The approach holds significant potential for transferability to other EEA Member States facing similar challenges.

Title	<ul style="list-style-type: none"> ▪ Polish response to the challenges related to Ukrainian refugees and migrants: supporting occupational safety and health compliance, Poland ▪ While the specific content and format of the materials would need to be tailored to each national context and the profile of migrant workers, the core principles of the initiative are widely applicable. ▪ Such principles include: identifying key OSH knowledge gaps and vulnerabilities among migrant workers; engaging occupational health experts to develop scientifically accurate and culturally appropriate resources; collaborating with trusted international and local partners to enhance legitimacy and dissemination; and using multiple channels and formats to maximise accessibility and impact. ▪ One potential limitation to the transferability is in translating the initiative to other systems due to varying regulations and standards.
Effectiveness	<p>The target audience has had easy access to the provided content and the specialisation of NIOM in occupational health ensures continuous dissemination of information on the subject, positioning both institutions as key knowledge hubs for stakeholders. Although the reliance on technology-based media raised concerns about digital accessibility, NIOM ensures outreach beyond dedicated websites through avenues such as telephone consultations and stationary locations during specific timeframes. The initiative consistently delivers information and updates through websites, social media platforms, newsletters and industry meetings. Furthermore, in the field of occupational medicine, practitioners play a central role in imparting knowledge during medical visits and distributing paper-based materials to enhance accessibility and dissemination efforts.</p>
Strengths	<ul style="list-style-type: none"> ▪ Addresses an urgent and underserved OSH need among a vulnerable worker population, leveraging NIOM's expertise and networks. ▪ Uses diverse formats and dissemination channels to maximise accessibility and impact, including online platforms, occupational health services and employer networks. ▪ Builds on existing research insights into the OSH challenges faced by migrant workers and the importance of tailored prevention approaches. ▪ Benefits from collaboration with and financial support from a respected international partner, the WHO.
Weaknesses	<ul style="list-style-type: none"> ▪ Limited integration with broader OSH policies and programmes targeting migrant workers, such as labour inspection, social security and employer training initiatives. ▪ Potential gaps in reaching Ukrainian workers in informal, temporary, or isolated employment situations, who may have limited contact with occupational health services. ▪ Lack of systematic evaluation data on the uptake, understanding and impact of the materials on Ukrainian workers' OSH knowledge, attitudes and behaviours. ▪ Dependence on continued funding by NIOM (and partners) to sustain and update the initiative over time, as the situation of Ukrainian workers evolves.

Title	<ul style="list-style-type: none"> ▪ Polish response to the challenges related to Ukrainian refugees and migrants: supporting occupational safety and health compliance, Poland
	<ul style="list-style-type: none"> ▪ Focus on individual worker empowerment and doctor-patient communication, with less emphasis on addressing structural OSH barriers and working conditions.
Opportunities	<ul style="list-style-type: none"> ▪ Expand collaboration with labour inspectorates, social partners and migrant worker organisations to integrate the materials into their OSH training, outreach, and support activities. ▪ Develop additional tools and guidance for employers on creating safe, healthy and inclusive workplaces for Ukrainian (and other) migrant workers. ▪ Conduct more systematic evaluation research on the effectiveness and impact of the initiative, to inform continuous improvement and build an evidence base for policy advocacy. ▪ Leverage the initiative's success and lessons learned to advocate for more comprehensive, prevention-oriented OSH policies and programmes for migrant workers at the national and EEA level. ▪ Share experience and resources with occupational health institutes and partners in other countries to promote good practices and mutual learning.
Threats and mitigations	<ul style="list-style-type: none"> ▪ Changes in the political and social climate that reduce support and funding for targeted OSH initiatives for migrant workers. ▪ Emergence of new OSH risks and challenges for Ukrainian workers that are not adequately addressed by the current materials and tools. Continuously monitoring of the evolving OSH needs and experiences of Ukrainian workers to identify gaps and opportunities for improvement, through direct feedback, research and stakeholder consultations can mitigate this risk. ▪ Resistance or lack of capacity among some employers and occupational health services to fully implement the good practices and recommendations promoted by the initiative. Proactively engaging labour inspectorates, social partners and migrant worker organisations as collaborators and multipliers to extend the initiative's reach and impact. ▪ Competition for attention and resources with other urgent public health and social issues affecting migrant populations. ▪ Deterioration of the overall labour market and working conditions that exacerbate OSH vulnerabilities and limit the impact of individual-focused interventions.
Title	<p>Norway's occupational health service: supporting occupational safety and health compliance, Norway</p>
Organisations involved	<ul style="list-style-type: none"> ▪ Norwegian Labour Inspection Authority including: ▪ Ministry of Labour and Social Inclusion, ▪ Norwegian Confederation of Trade Unions,

<p>Title</p>	<p>Norway's occupational health service: supporting occupational safety and health compliance, Norway</p>
	<ul style="list-style-type: none"> ▪ Confederation of Norwegian Enterprise
<p>Key points</p>	<p>The occupational health service (OHS) scheme is an internal prevention service (IPS) regulated by the Working Environment Act, aimed at assisting employers and employees to monitor OSH in their business. Businesses in certain industries must have an OHS based on their risk situation, with the cost covered by employers. The OHS provides advice on occupational medicine, occupational hygiene, ergonomics, psychosocial/organisational issues and systematic OSH management through an interdisciplinary team.</p>
<p>Relevance</p>	<p>The OHS scheme aims to improve compliance with OSH regulations by providing expert preventive services tailored to a company's risks and needs.</p> <p>Recent regulatory changes have clarified that the OHS should give priority to preventive OSH over individual healthcare.</p> <p>The scheme is highly relevant in high-risk industries but faces challenges engaging small enterprises.</p>
<p>Success factors</p>	<p>Key success factors include the legislative requirement for high-risk businesses to have an OHS, the interdisciplinary expertise of OHS teams, their in-depth company knowledge when closely involved, and their collaboration with the labour inspectorates.</p> <p>OHS effectiveness depends on management seeing it as an investment rather than a cost.</p>
<p>Transferability</p>	<ul style="list-style-type: none"> ▪ While the informants were uncertain about direct transferability, elements like the legislative mandate, risk-based requirements, interdisciplinary model and close company integration could provide learnings for other contexts. ▪ Effective state funding or incentive schemes may enhance transferability compared to the employer pays model. ▪ Comparing implementation of the EU OSH Framework Directive's IPS provisions across Member States could yield further insights.
<p>Effectiveness</p>	<p>There is great variance in how enterprises and OHS cooperate in OSH-related matters. Some occupational health services provide good, adequate, relevant assistance and others do not. It was pointed out that some of the larger occupational health services are a bit distant in their assistance. For an occupational health service to provide good assistance, the service must be regularly present in the businesses with which it works to understand the OSH challenges in each company. There are also major differences between businesses, even within the industries that are obliged to have an occupational health service.</p>
<p>Strengths</p>	<ul style="list-style-type: none"> ▪ Legally mandated for high-risk industries, providing a strong driver for employer uptake and compliance with OSH requirements.

Title	Norway's occupational health service: supporting occupational safety and health compliance, Norway
	<ul style="list-style-type: none"> ▪ Multidisciplinary teams with specialised expertise across occupational health, safety, hygiene, ergonomics and wellbeing, enabling holistic prevention approaches. ▪ Emphasis on tailoring services to individual company needs and risk profiles, facilitating contextually relevant guidance and support. ▪ Cost coverage by employers creates a sense of ownership and incentive to maximise value from the OHS investment.
Weaknesses	<ul style="list-style-type: none"> ▪ Variation in OHS quality and expertise between providers, particularly in highly competitive market segments, with limited regulatory oversight or professional standards. ▪ Challenges engaging and providing cost-effective services to SMEs, who often lack resources and OSH management systems to integrate the OHS effectively. ▪ Tensions between the OHS's preventive purpose and employers' expectations for individual health checks and reactive medical services to manage sickness absence. ▪ Narrow compliance orientation in some OHS models, focused on meeting minimum legal requirements rather than driving continuous improvement in OSH.
Opportunities	<ul style="list-style-type: none"> • Develop sector-specific OHS models and prevention guidance, building on industry best practices and collaboration with unions and employer associations. • Pilot alternative funding and service delivery models to extend access to hard-to-reach SMEs, e.g. through pooled regional services, subsidies or tax incentives. • Integrate OHS into vocational and management education to build OSH competencies and normalise collaboration with prevention services.
Threats and mitigations	<p>Policy or economic pressures to weaken employer obligations or state funding for OHS, undermining the legal and financial basis of the system. Realising the full potential of OHS as drivers of OSH compliance and performance will require sustained policy and industry leadership to strengthen the legal, professional and market frameworks that shape their activities. At the same time, OHS providers need to continually update their competencies and service models to stay relevant to evolving enterprise needs and risk profiles.</p> <p>Failure to update OHS knowledge and skills to keep pace with changing OSH regulations and evidence, as well as emerging risks and technologies. Robust evaluation and experience sharing, both within and between countries, can help identify 'what works' in delivering effective, efficient and responsive prevention services across diverse contexts.</p> <p>Erosion of employer commitment to investing in OHS in the face of economic crisis or changing business models and structures. Positioning OHS as strategic partners for sustainable business, worker wellbeing and regulatory compliance</p>

Title	Norway's occupational health service: supporting occupational safety and health compliance, Norway
	will be key to securing the necessary investment and collaboration from employers and policymakers alike.

Title	Norway's regional safety representatives: supporting occupational safety and health compliance, Norway
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- Organisations involved**
- Norwegian United Federation of Trade Unions
 - Norwegian Workers' Union
 - Labour Inspection Authority

Description

The scheme of regional safety representatives (RVOs) was established in 1981 by Norwegian authorities in collaboration with social partners to improve the working environment in high-risk industries like construction, cleaning, hotels and restaurants. RVOs are appointed and employed by trade unions to make announced and unannounced visits to workplaces, point out OSH deficiencies, inform about regulations and propose solutions in consultation with businesses and employees. They operate across companies within a region and largely carry out preventive work. The RVOs are not part of the Labour Inspection Authority's supervision or sanction system, but they have the authority to stop work processes that pose an imminent danger to life or health. This authority allows them to intervene directly to avert accidents and ill health.

Relevance

The RVO scheme aims to increase safety and improve working standards in particularly exposed industries characterised by many small firms lacking their own elected safety representatives. RVOs help establish functioning safety services and coordination agreements within businesses, provide guidance to motivate systematic OSH work, contribute to OSH research in their industries, and cooperate with the Labour Inspection Authority, social partners and other stakeholders. The scheme addresses the challenge of limited worker representation and OSH competence in high-risk sectors dominated by small, dispersed workplaces and vulnerable workers.

Success factors

Key success factors include the legislative mandate and sustainable funding of the RVO scheme through collective agreements, which secure its foundation and legitimacy in the Norwegian labour relations context.

The unique focus on providing safety representation to workers in SMEs and high-risk sectors that lack their own elected representatives extends the reach of worker voice on OSH.

The RVOs' strong preventive orientation and authority to stop dangerous work enables direct intervention to avert accidents and ill health.

- Transferability**
- The RVO scheme could potentially be transferable to other EEA Member States, provided there is legislation requiring safety

<p>Title</p>	<p>Norway's regional safety representatives: supporting occupational safety and health compliance, Norway</p>
	<p>representatives, a funding mechanism through company contributions and a focus on high-risk sectors like construction as a starting point.</p> <ul style="list-style-type: none"> ▪ The securing of sustainable financing is a key challenge for successful transfer. ▪ The dependence on union membership and collective bargaining coverage for funding and access, which may become increasingly difficult with declining unionisation and could limit transferability to contexts with weaker social dialogue traditions. ▪ Overall, the RVO scheme offers a promising model for enhancing worker representation and preventive OSH support in sectors with pronounced representation gaps and risk profiles.
<p>Effectiveness</p>	<p>The RVO scheme dictates that RVOs can stop work, work operations or the use of unsafe equipment in the event of an imminent danger to life or health. This also applies to the RVO when acting as a safety representative in a company. Stopping work is most common in the building sector and less so in the other areas.</p>
<p>Strengths</p>	<ul style="list-style-type: none"> ▪ Legislative mandate and financing through collective agreements secures the foundation and legitimacy of the scheme in the context of the Norwegian labour relations system. ▪ Unique focus on providing safety representation to workers in SMEs and high-risk sectors that lack their own elected representatives, extending the reach of worker voice on OSH. ▪ Strong preventive orientation and authority to stop dangerous work, enabling RVOs to intervene directly to avert accidents and ill health. ▪ Deep industry expertise and ability to engage workers in their own languages and contexts, fostering credibility and trust. ▪ Collaborative approach with the Labour Inspection Authority and social partners, while maintaining an independent stance, positions RVOs as a valued complement to regulatory enforcement.
<p>Weaknesses</p>	<p>Limited formal powers beyond the right to halt dangerous work, which may constrain RVOs' ability to drive systemic improvements in OSH management.</p> <p>Difficulties maintaining a consistent presence and support to transient, dispersed and subcontracted workforces, particularly in sectors like construction and hospitality.</p> <p>Narrow focus on a few high-risk sectors, potentially leaving workers in other industries without access to RVO support.</p>
<p>Opportunities</p>	<ul style="list-style-type: none"> ▪ Expand the RVO model to other sectors with a high prevalence of SMEs, vulnerable workers and subcontracting, e.g. agriculture, retail, logistics and personal services.

Title Norway's regional safety representatives: supporting occupational safety and health compliance, Norway

- Strengthen RVOs' ability to reach and represent migrant workers by recruiting representatives with diverse language skills and cultural competencies.
- Develop sector-specific training and guidance materials to enhance RVOs' technical capabilities and preventive impact, in collaboration with industry bodies and OSH professionals.
- Systematically evaluate the effectiveness and impact of RVO interventions using both quantitative OSH indicators and qualitative feedback from workers and employers.

Threats and mitigations

- Tensions with site management or principal contractors who may view RVO interventions as an unwelcome intrusion or cost.
- Dependence on union membership and collective bargaining coverage for funding and access, which may become increasingly challenging in the face of declining unionisation.
- Failure to attract new generations of workers to train and serve as RVOs, especially in the context of overall union membership decline.
- Inadequate resources and support from unions to maintain a sufficiently dense and active RVO network across regions and worksites.
- Downgrading of OSH as a policy priority in the face of competing economic and social pressures, undermining the perceived legitimacy and influence of RVOs.

To mitigate these threats, the following actions could be considered:

- Continuously demonstrate the value of RVOs to workers, employers and regulators through tangible improvements in OSH outcomes and workplace relations.
- Build the evidence base on RVO effectiveness through rigorous evaluation and research, in collaboration with academic and union research institutes.
- Adapt RVO training and interventions to the changing risk profiles and workforce demographics of target sectors, in consultation with industry stakeholders.
- Explore innovative organising and recruitment strategies to engage younger and more diverse workers as RVOs and union members.
- Strengthen RVOs' strategic influence by linking them to broader union campaigns and policy initiatives on quality work and sustainable business practices.
- Advocate for the maintenance and expansion of the scheme in social dialogue and regulatory reform processes, positioning it as a flexible, efficient and socially legitimate OSH support model.

Title	Germany's alternative demand-based supervision project AB+: supporting occupational safety and health compliance, Germany
Organisations involved	<ul style="list-style-type: none"> ▪ German Social Accident Insurance (DGUV); ▪ German Social Accident Insurance Institution for the raw materials and chemical industry (BG RCI); ▪ German Social Accident Insurance Institution for the woodworking and metalworking industries (BGHM); ▪ German Social Accident Insurance Institution for the administrative and management sector (VBG); ▪ Public Sector Accident Insurance of the federal state Hesse (UKH); ▪ Public Sector Accident Insurance North (UK Nord); ▪ FSU Jena; ▪ Systemkonzept GmbH.
Description	<p>AB+ (Alternative Betreuung Plus) is a pilot project set up with the aim of making the approaches of alternative, demand-based supervision in accordance with DGUV Regulation 2 Annex 3 also available for medium-sized companies with 30-70 workers. This project focuses on the involvement of key actors at company level like employers and managers; the inclusion of provision of demand-based support from professionals like safety experts and occupational physicians and other OSH players; and the efficient and effective use of the sometimes-limited resources (especially the occupational physicians) as well as an OSH support management including other professions.</p>
Relevance	<p>Employers are obliged to involve in-house or external experts (persons or services) to support and implement OSH prevention. This can be a challenge in terms of quality and the effects achieved, especially for SMEs. AB+ aims to expand the demand-based supervision. Targeted, needs-based support from occupational safety specialists and occupational physicians, as well as other OSH experts, is promoted and facilitated by the accident insurance institutions through an OSH support management.</p>
Success factors	<ul style="list-style-type: none"> ▪ A feasibility study, especially on the target group and its accessibility, should be available (UVTs without a feasibility study started unprepared, which in one case led to withdrawal from the project). ▪ Labour inspectors must be fully involved and convinced of the model approach; the qualification of the labour inspectors helps to reach that goal. A clear declaration of intent by the UVT management is required. ▪ The proper qualification of OSH support managers and provision of the required resources to them are necessary and of crucial importance. ▪ A hotline at the UVTs provides guidance and support on the implementation or development of all the elements included in the model. ▪ A focus on the identification and definition of the operational needs and targets (and reaching targets agreement) is crucial for the efficiency of the model. ▪ The combination of the different elements included in the model builds on each other efficiently and contributes to achieving the greatest impact.

Title	Germany's alternative demand-based supervision project AB+: supporting occupational safety and health compliance, Germany
Transferability	The AB+ model (as a whole) or individual elements of it (used in different constellations) can be adapted and used by labour inspectorates and prevention services in other EEA Member States for a sustainable achievement of safe and healthy working conditions in SMEs.
Effectiveness	<p>The model was met with a positive response from the actively participating companies. The participating managers found the training courses very helpful as participating companies want to have more managers qualified. The evaluation results show a clear impact on management action integrated into OSH.</p> <p>The external support management was universally welcomed by the companies as helpful and necessary; they were interested in its long-term continuation. The evaluation results show concrete effects on improving safe and healthy working conditions as well as approaches to stabilising the processes.</p>
Strengths	<ul style="list-style-type: none"> ▪ AB+ project is a well-rounded initiative that involves multiple institutions and sectors, ensuring a broad and inclusive approach to OSH compliance. ▪ The project focuses on SMEs, which often struggle with OSH compliance due to limited resources. By providing targeted, needs-based support, the project addresses a critical gap. ▪ The direct involvement and training of employers and managers enhance the quality of OSH management and ensure that the necessary measures are implemented effectively. ▪ The AB+ model has significant innovation potential, offering opportunities to improve OSH support and activities in SMEs to a previously unattained level of effectiveness. ▪ The evaluation of the project showed positive responses from participating companies and managers, indicating the model's effectiveness and acceptance.
Weaknesses	<ul style="list-style-type: none"> ▪ The implementation of the AB+ model requires significant resources, including time and financial investments from both the companies and the accident insurance institutions. ▪ The success of the model relies heavily on the availability and quality of external OSH experts, which can be a challenge, especially in resource-scarce environments. ▪ The model's implementation involves multiple steps and elements, which can be complex and time-consuming, potentially leading to delays or incomplete adoption.
Opportunities	<ul style="list-style-type: none"> ▪ The model promotes a continuous improvement process in OSH management, which can lead to sustained enhancements in workplace safety and health. ▪ The project fosters improved cooperation between UVTs and companies, which can lead to better prevention activities and quality assurance in OSH support.

Title	Germany's alternative demand-based supervision project AB+: supporting occupational safety and health compliance, Germany
Threats	<p>There may be resistance from companies or labour inspectors who are not fully convinced of the model's approach, which can hinder its successful implementation. Engaging with companies and labour inspectors early in the process to explain the benefits and importance of the AB+ model. Clear and consistent communication can help in building trust and reducing resistance.</p> <p>Financial limitations, especially in SMEs, can pose a threat to the adoption and sustainability of the model. Providing comprehensive training sessions for both companies and labour inspectors to ensure they understand the model and its advantages. Highlighting successful case studies and positive outcomes can also help in gaining their support.</p> <p>Changes in regulations or policies related to OSH could impact the effectiveness and relevance of the AB+ model. Establishing a system for continuous monitoring of regulatory changes and adapt the AB+ model accordingly. This ensures that the model remains compliant with current regulations</p>
Title	Occupational safety and health (OSH) for non-OSH professionals in Germany: supporting occupational safety and health compliance, Germany
Organisations involved	<ul style="list-style-type: none"> ▪ The Federal Chamber of Tax Advisors ▪ The German Association of Tax Advisors
Description	<p>The 'Offensive Mittelstand', or OM, is an independent platform of intermediary organisations active at the federal level. Existing advisory contacts can build a bridge between companies and OSH. For example, tax consultants are trustworthy contacts for SMEs and have access to internal information such as absenteeism, accidents, damage to work equipment and so on. This enables them to recognise problems in the area of OSH. The OM offers consultants an online qualification in 'OSH for non-OSH professionals' so that they can connect companies or employees in need of OSH advice with OSH professionals.</p>
Relevance	<p>Increase OSH awareness among SMEs and make them more active in managing OSH. Facilitate the involvement of OSH experts in supporting SMEs by involving advisors who are not OSH professionals but have access to the companies and enjoy their trust. Having advisors that companies already trust has assisted in reaching SMEs and MSEs which are notoriously difficult to reach.</p>
Success factors	<p>The qualification and awareness of advisors on OSH is of great importance in order to be able to credibly develop the field of OSH for SMEs. The advisors can only lay the entry path and must know the limits of their expertise in the field of OSH.</p> <p>The companies make use of the OSH advice provided by the OM advisors in addition to the usual services. The time required for the consultation is less because the advisors are already familiar with the company's internal information.</p>

Title	Occupational safety and health (OSH) for non-OSH professionals in Germany: supporting occupational safety and health compliance, Germany
	Another success factor is the existing relationship of trust between SMEs and tax advisors. They have access to internal information such as absenteeism, accidents, damage to work equipment and so on and can therefore identify OSH-related problems.
Transferability	<ul style="list-style-type: none"> ▪ This can be implemented by any tax advisor working in the EEA. ▪ Interest has already been shown by the Hanseatic Parliament.
Effectiveness	This initiative was launched in 2023 with four workshops. There is no validated data on the extent and effectiveness of the OSH consulting. Advisors recognise the importance of OSH through the workshops and the number of clicks to the OM homepage on OSH increase. Except for the increasing number of participants (especially tax advisors) in the workshops, no effect can be confirmed.
Strengths	<p>The OM initiative involves a wide range of intermediary organisations, including social partners, social insurances, chambers of industry and commerce, central research institutes, federal ministries, and professional associations.</p> <p>The OM offers an online qualification in ‘OSH for non-OSH professionals’, which equips advisors with the necessary knowledge to support SMEs in OSH compliance. This training is accessible and practical, making it easier for advisors to integrate OSH into their existing services.</p> <p>Advisors, particularly tax advisors, have established trust with SMEs and access to internal company information, which allows them to identify OSH-related problems and facilitate contact with OSH experts.</p> <p>The OM provides various tools such as the One-Pager, Fact-Sheet, and GDA-ORGCheck, which are designed to help SMEs improve their OSH practices in a straightforward manner.</p>
Weaknesses	<p>There is no validated data on the extent and effectiveness of the OSH consulting provided by the OM advisors. This lack of data makes it challenging to measure the impact of the initiative.</p> <p>The initiative relies on non-OSH professionals to raise awareness and support OSH compliance, which may limit the depth of expertise available to SMEs.</p> <p>The implementation of the OM tools and training requires significant resources, including time and financial investments from both the advisors and the SMEs.</p>
Opportunities	<p>The digital nature of the OM tools and the ability to offer online consulting make the initiative adaptable to changing business environments and accessible to a wider audience.</p> <p>For tax advisors and other freelance advisors, the OM initiative opens up new fields of business, allowing them to expand their services and provide more comprehensive support to SMEs.</p>

Title	Occupational safety and health (OSH) for non-OSH professionals in Germany: supporting occupational safety and health compliance, Germany
Threats and mitigations	<p>SMEs and advisors may resist adopting new practices and tools, especially if they perceive them as complex or unnecessary. Engaging with SMEs and advisors early in the process to explain the benefits and importance of the OM tools and training and the use of clear and consistent communication can build trust and reduce resistance.</p> <p>Financial limitations, particularly for SMEs, can hinder the adoption and sustainability of the OM tools and training.</p> <p>Changes in OSH regulations or policies could impact the relevance and effectiveness of the OM tools and training. Establishing a system for continuous monitoring of regulatory changes and adapting the OM tools and training accordingly can ensure compliance with current regulations.</p>
Title	Polish initiatives to support OSH experts: Supporting occupational safety and health compliance, Poland
Organisations involved	<ul style="list-style-type: none"> ▪ Central Institute for Labor Protection-State Research Institute ▪ State Labour Inspection ▪ Social Insurance Institution ▪ All-Poland Association of Occupational Safety and Health Service Employees ▪ Employers of Poland ▪ Confederation Lewiatan ▪ Safety at Work Coalition (for BHP Team Championships) ▪ SEKA S.A. (patron of the competition)
Description	<p>Initiatives have been set up in Poland with the aim of supporting professional networking and improving the quality of OSH activities, as well as introducing and reinforcing the positive and professional image of OSH specialists. Two notable initiatives, namely 'BHP Team Championships' (Mistrzostwa Kadry BHP) and 'Network of Industry Health and Safety Consultants' (Sieć Branżowych Konsultantów ds. BHP) have emerged as dedicated approaches to address OSH challenges.</p>
Relevance	<p>'BHP Team Championships' competition aims to elevate the significance of professional knowledge and expertise in OSH among both OSH specialists and individuals interested in OSH-related issues. It also seeks to recognise professionals in the field by establishing a prestigious ranking of OSH experts and encourages updating expert knowledge about emerging risks.</p> <p>'Network of Industry Health and Safety Consultants' aims to foster professional development by providing up-to-date, state-of-the-art knowledge and improving the quality of activities in the field of OSH.</p> <p>The initiatives presented are aimed at health and safety professionals. They support their professional development and the updating of their knowledge. Being up to date with all regulations and being aware of any modifications in the expectations of the modern employer plays a considerable role in the work of health and safety services.</p>

Title	Occupational safety and health (OSH) for non-OSH professionals in Germany: supporting occupational safety and health compliance, Germany
	The initiatives encourage OSH experts to continually update their knowledge, recognising that work environments evolve and new risks emerge.
Success factors	<p>The success of the 'BHP Team Championships' is influenced by several factors, including targeted and broadened promotion, engaging formats with challenging questions, networking opportunities and attractive prizes. Besides, collaborating with industry stakeholders enhances the competition's credibility and provides essential resources.</p> <p>For the 'Network of Industry Health and Safety Consultants', success hinges on providing tailored benefits, facilitating collaboration and knowledge sharing, and maintaining industry relevance. The network's ability to address the specific needs of diverse industries is a success factor.</p>
Transferability	<p>Establishing partnerships between government agencies, industry stakeholders, and educational institutions is critical to replicating the success of these initiatives in different contexts.</p> <p>It is essential to tailor the programmes and services to suit the target countries' specific cultural, economic and regulatory contexts.</p>
Effectiveness	<p>The 'BHP Team Championships' have proven highly popular since their inception, with consistently high participation rates in each edition. This widespread participation underscores the enthusiasm for OSH in Poland. The competition serves as a platform for popularising OSH issues among diverse audiences, with the ultimate aim of improving Polish companies' safety standards.</p> <p>Specific participation numbers for the 'Network of Industry Health and Safety Consultants' are unavailable.</p>
Strengths	<p>The 'BHP Team Championships' and 'Network of Industry Health and Safety Consultants' initiatives are well-structured and have clear objectives aimed at enhancing OSH practices in Poland.</p> <p>The 'BHP Team Championships' has a high participation rate, indicating strong interest and engagement from OSH professionals and individuals interested in OSH-related issues.</p> <p>The 'Network of Industry Health and Safety Consultants' provides tailored benefits, including specialised training and support services, which is considered to enhance its appeal to participants.</p> <p>Both initiatives foster collaboration, knowledge-sharing, and networking opportunities among OSH professionals, which can lead to improved safety standards and practices.</p>
Weaknesses	<p>The success of the 'BHP Team Championships' heavily relies on establishing and maintaining strong partnerships with industry stakeholders. Any difficulties in securing adequate partnerships could significantly impact the competition's viability and reach.</p>

Title	Occupational safety and health (OSH) for non-OSH professionals in Germany: supporting occupational safety and health compliance, Germany
	Ensuring relevance and effectiveness across all participating industries in the 'Network of Industry Health and Safety Consultants' poses a potential challenge. The broad spectrum of industries involved raises questions about how to provide universally helpful resources across sectors.
Opportunities	<p>The 'Network of Industry Health and Safety Consultants' can expand its scope to include more industries and provide more specialised resources and support services.</p> <p>Development of additional competition formats could address specific OSH challenges or industry sectors.</p> <p>Integration of digital technologies could enhance reach and accessibility of both initiatives.</p> <p>Creation of international partnerships could facilitate exchange of best practices.</p>
Threats and Mitigations	<p>The initiatives face several challenges that may benefit from strategic responses. The 'BHP Team Championships' competition was suspended during the pandemic, revealing potential vulnerability to external disruptions. Contingency plans for virtual formats and flexible scheduling might help address similar situations. The competition's sustainability appears connected to securing adequate partnerships, which could potentially be strengthened through better stakeholder relationships and partner diversification.</p> <p>For the Network, providing relevant resources across diverse industries presents a challenge that might be addressed through regular needs assessment and tailored offerings. As regulations evolve, periodic updates and industry engagement could help prevent knowledge gaps. Both initiatives might face diminishing engagement over time, suggesting that participant feedback and occasional renewal could be valuable for maintaining relevance.</p>
Title	Norway's Experience and Lessons Learned from the COVID-19 Pandemic: Supporting Occupational Safety and Health Compliance
Organisations involved	<ul style="list-style-type: none"> ▪ Norwegian Labour Inspection Authority ▪ Directorate of Health ▪ Institute of Public Health ▪ Regional safety representatives (from construction and cleaning industries)
Description	<p>During the COVID-19 pandemic, the Norwegian Labour Inspection Authority conducted over 7,200 inspections related to infection control, with violations found in 26% of inspections. The Authority focused on three key areas: 1) implemented measures to reduce virus spread; 2) risk assessment of coronavirus exposure; and 3) routines to detect and correct violations of the Working Environment Act. The Authority established an approval scheme for employer-provided accommodation during quarantine, receiving over 7,000 applications with 77% approved and 11% rejected. The Authority developed</p>

Title	Norway's Experience and Lessons Learned from the COVID-19 Pandemic: Supporting Occupational Safety and Health Compliance
	digital inspection methods and dedicated web resources to complement traditional supervision.
Relevance	The case shows how the Authority responded to the pandemic while continuing to fulfil its workplace safety mandate. Their approach combined enforcement activities with extensive guidance to employers and workers during an unprecedented crisis.
Success factors	<ul style="list-style-type: none"> ▪ Coordination between different authorities to provide consistent information ▪ Development of digital solutions for inspection and guidance ▪ Dedicated information resources on their website (nearly 103,000 visitors in 2021) ▪ Dual approach combining supervisory and preventive roles ▪ Adaptation of inspection methods to maintain supervision during the pandemic
Transferability	The digital inspection methods developed during the pandemic have continued as part of the Authority's toolkit, as noted by a department leader who stated: 'Digital inspections are here to stay.' The coordination structures established between authorities have improved crisis preparedness for future situations affecting working life.
Effectiveness	The reaction rate in infection control inspections (50% in 2021) was lower than in normal risk-based supervisory activity (67% in 2019), which the Authority suggests indicates that most employers took infection control seriously. Despite pandemic challenges, the Authority maintained supervision levels, conducting nearly 12,000 inspections in 2021 compared to over 12,000 in 2019.
Strengths	<ul style="list-style-type: none"> ▪ Effective coordination with health authorities ▪ Implementation of virtual inspection methods ▪ Maintenance of high inspection numbers despite pandemic conditions ▪ Combined approach of supervision and prevention/guidance ▪ Development of specific online resources for pandemic-related workplace issues
Weaknesses	<ul style="list-style-type: none"> ▪ Other supervisory themes became reduced priorities during the pandemic ▪ Need to quickly translate health advice into workplace regulations
Opportunities	<ul style="list-style-type: none"> ▪ Continued use of digital inspection methods post-pandemic ▪ Established structures for inter-authority coordination ▪ Improved crisis preparedness based on pandemic experience
Threats and Mitigations	<ul style="list-style-type: none"> ▪ Infection risk during in-person inspections; mitigated through virtual inspections ▪ Challenges in providing consistent information; addressed through coordination with health authorities ▪ Resource constraints due to pandemic demands; managed through adaptation of inspection methods and priorities

The European Agency for Safety and Health at Work (EU-OSHA) contributes to making Europe a safer, healthier and more productive place to work. The Agency researches, develops, and distributes reliable, balanced, and impartial safety and health information and organises pan-European awareness raising campaigns. Set up by the European Union in 1994 and based in Bilbao, Spain, the Agency brings together representatives from the European Commission, Member State governments, employers' and workers' organisations, as well as leading experts in each of the EU Member States and

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