

European Agency for Safety and Health at Work

Improving compliance with occupational safety and health regulations: an overarching review

European Risk Observatory

Report

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Part 1: Preliminary matters — background, scope, key concepts and methods

Injury, ill health and death are never intended consequences of work, but the available data documenting the continuing extent of work-related harm remind us that preventing these consequences remains a challenge. Despite huge advances in technology and health sciences, this challenge is still very much in evidence, even in the advanced market economies of the Member States of the European Union (EU). As is the case in all countries, workers continue to be injured, made ill or die as a consequence of their work. At the same time, it is widely accepted that such harm is largely preventable. Effective strategies to achieve such prevention remain elusive, making efforts to support compliance and achieve better practice an ongoing aim of national and EU policies. A further challenge for prevention strategies is that the circumstances in which work-related harm occurs are seldom static. In fact, a leitmotif of advanced economies nowadays is the speed of change in the structure and organisation of economic activity, and the technologies that support it. With this comes continuous change in the nature and distribution of work-related risks to safety and health. Policies, strategies and the actual measures to achieve effective prevention therefore also need to be responsive to these challenges.

This report seeks to provide an overarching review of the literature concerning institutional support for these prevention strategies and measures and their role in improving occupational safety and health (OSH) in the context of the changing structure, organisation and control of work in the EU. It examines the ways in which the various forms of institutional support (outlined in the next section), on their own and in combination, promote better OSH practice to prevent injury, illness and death at work. 'Better OSH practice' in this context includes better practice in implementing OSH arrangements, and improving the extent and quality of compliance with OSH regulatory standards. As explained further in section 1.4, the report examines the influence of the various forms of institutional support on OSH practice and compliance within the framework of regulatory studies, in which 'regulation' is broadly conceived to include not just standard setting, inspection and enforcement by the state, but also the activities of a broad range of non-state actors such as external prevention services and influential firms in supply chains. The report heralds the start of a new European Agency for Safety and Health at Work (EU-OSHA) research programme on securing compliance and better OSH practice, and its aim is to inform the European Commission of new research being carried out as part of this programme.

This final report is published in conjunction with a detailed literature review, i.e. it is explaining the aims and intentions of the research, its methods, analysis and key findings, along with their implications for policy and further research. The findings are presented as concisely possible in this final report, however, the detailed analysis and substantiated findings of the overarching review are presented separately in a literature review.

1.1 Background to the overarching review

Several recent studies commissioned by EU-OSHA have concluded that improving arrangements and practices for managing OSH across industry sectors and firm sizes — large, medium and small — is stimulated, supported and sustained by a range of institutional actors and processes both internal and external to firms. The latter include state regulators for OSH, such as OSH and labour inspectorates and the government ministries or departments of which they are a part; however, they are not limited to regulators and ministries. In some Member States, external prevention services have played a significant role among the forms of support for prevention required by law. The influence of powerful principal business actors in supply chains is increasingly seen in the conduct of work everywhere. The direct or indirect influence on OSH arrangements of insurance associations, both in incentivising prevention and providing support for compensation, rehabilitation and return to work, is evident in some Member States, although less so in others. The literature also shows that social/sector norms and business contexts can, in some situations, provide significant incentives and determine receptiveness for the adoption of improved OSH arrangements.

These EU-OSHA studies and the wider literature have increasingly examined the role of institutions and processes in supporting better OSH practices, even though traditional work structures have become fractured and new forms of work and risks are emerging in modern economies. A question arising from

this literature is whether, and how, these different forms of support for improving OSH practice are affected by, and are responsive to, the challenges posed by rapid changes in the structure, organisation and control of work (see Chapter 2 of the literature review for further details of these studies and the challenges they discuss). It is therefore important to identify what is effective in such responses and what determines this effectiveness. There are already indications in the literature, for example, of more innovative inspection and enforcement approaches taken by regulatory authorities, including the more effective use of OSH data about firms and industries to target inspection and enforcement activities (see Chapter 1 of the literature review). Other innovative approaches include wider coverage of prevention agencies, making improvements in harnessing supply chain influences to improve OSH compliance further down the chain, considering the role of social reporting initiatives and economic incentives, conducting safety awareness campaigns, and the promotion of safety culture by inspectors and other agents of change.

The literature review accompanying this final report provides an overarching critical review of these developments and current institutional means of support for the prevention of harm to workers arising from their work. It explores the emergence and role of innovative strategies to prevent death, illness and injury at work in the face of work-related risks arising from changes in the structure, organisation and control of work. It examines some of the more prominent approaches that are thought to be effective in ensuring that those who create risks, as a result of their control of work, are sufficiently motivated to build capacity to better prevent or control these risks (see Chapters 4, 5 and 7 of the literature review). It further explores how these approaches and strategies contribute to an institutional basis to help empower and support workers to engage in safe and productive activities that are without risk to their health.

Our review also focuses on the broad range of contextual factors that influence the actors and processes involved in supporting better OSH practice. A review of support for OSH prevention needs to consider elements of the wider support provided by the state through, for example, creating regulatory standards in legislation, developing guidance material and disseminating preventive strategies. It also needs to include an analysis of the ways in which important non-state actors contribute to OSH prevention — especially employers (particularly ‘high road’ or exemplary employers) and workers themselves, the organisations representing employer and worker interests, and the many national, sector-specific and local institutions through which these interests are pursued. However, for the purpose of the present review, a distinction needs to be made between the role of actors inside firms and support for their actions from outside firms. The review is concerned with the latter. Of course, the processes within firms that facilitate the influence of such external support and translate it into actions that lead to better OSH arrangements and outcomes are important, and help determine whether and how various types of support are adopted. However, this overarching review explores the nature and effectiveness of various forms of external support for improving OSH arrangements and outcomes, rather than processes *within* firms that achieve such effects.

Non-state actors that set, clarify and sometimes monitor the requirements of OSH standards, and contribute to their dissemination and operation, include voluntary standards organisations, professional associations, trade bodies and sector subgroups. Moreover, these non-state actors and the processes they use to promote their interests in OSH do not operate in isolation. There is considerable, and arguably increasing, interpenetration, interchangeability and collaboration between them, as well as with state regulators. An overarching aim of the review is to capture this integration and explore its significance. Within the EU, all this takes place in a rapidly changing world of work and in many different political, regulatory, social and economic contexts that must be borne in mind throughout.

As with any appraisal of knowledge, this review is concerned with past findings. Its focus is on how these findings might inform current and future actions concerning the types of support available for better OSH practice, and how this knowledge could be developed in future studies and used collectively to inform policy developments. Occasionally, however, major and unexpected events occur that might lead to questions about the relevance of, and assumptions underpinning, knowledge based on past experience. Something of this nature has been taking place since the present work was conceived. It seems quite likely that the devastating and continuing global pandemic wrought by COVID-19 in 2020 may have profound implications for OSH, including for institutional support for good OSH practice. The scale of the effects of the pandemic became evident while conducting this review. It is still too soon to

be clear about its consequences for future needs for such support, but there is no doubt that the pandemic has, and will continue to have, a major impact on arrangements and outcomes for safety and health at work. It is already widely acknowledged that workplaces are significant locations for disease transmission. It is also increasingly understood that the risk of transmission varies enormously between different work contexts.

Among the responses to the COVID-19 pandemic that are already widely in evidence are substantial changes to work arrangements beyond those primarily discussed in this review, including a huge increase in homeworking and teleworking, and changes in arrangements for employment-related mobilities. These changes not only have major implications for work-life balance, but may also give rise to new issues for securing compliance and better OSH practice, which will need to feature prominently among matters to be addressed by institutional support in the future. It is also highly likely that the experience of the pandemic will touch all five of the areas of support addressed in the review, and in many different ways. The scale of the devastation that COVID-19 has caused, and the disruptive effects on social and economic life brought about by the efforts of nation states and global organisations to contain its spread, will undoubtedly have profound effects on future social norms and OSH regulatory strategies, regardless of whether they are state or market driven. Equally, the pandemic will have an impact on how prevention services and regulatory agencies deliver support for securing compliance and OSH practice. It will also have consequences for regulating OSH risks in the changed business structures and work arrangements that this review shows have become increasingly prevalent in modern economies.

Very few of the implications for OSH arising from the COVID-19 pandemic are addressed by the knowledge that is the main focus of the literature review accompanying this final report. These implications are, however, no less relevant in the context of COVID-19. We have therefore also tried to capture something of the emergent literature in relation to the effects of COVID-19 on work, its lessons for supporting better OSH practices and its implications for further empirical research and policies.

1.2 Questions of scope and definition

There are some points related to scope and definition that require clarification from the outset. First, in conducting this overarching review we have understood 'current knowledge' to refer primarily to knowledge publicly available in research reports and scholarly papers, in which both theoretical and empirical understandings are discussed. The overarching review is based mainly on these sources, which are referenced in detail in the literature review. That is, the overarching review is based on analysis found in literature that is internationally available. In addition, this evidence has been augmented by grey literature, where it is available within Member States, and occasionally by unpublished documentary sources.

Second, most of the research and scholarly literature that is available internationally is written in English. This is generally so, even when it refers to experiences in countries in which English is not the primary language. Thus, for example, most of the studies on regulating OSH in EU Member States that are regarded as authoritative are written in English. The review has therefore primarily addressed published sources written in English. This does not mean, of course, that everything is published in English, and, as far as possible, the review sought to explore significant contributions in other languages. However, because of the language limitations of the review team, significant sources may have occasionally been missed, particularly in relation to reports and other grey literature available within EU Member States. It is unlikely that these sources would have seriously affected the major findings of the review, but it is acknowledged that some of these sources may have been useful in understanding national variations. It is for this reason that the recommendations on further empirical research that are made in the last chapter of this final report stress the need for new comparative research in which, in support of fieldwork, the relevant grey literature of different EU Member States is explored in greater depth, to better understand points of similarity and contrast between countries that may affect the transfer of practices.

Third, addressing the project's focus on 'improving the extent and quality of compliance' requires that the term 'compliance' be understood to represent something broader than merely complying with legal

rules.¹ Therefore, the aim was to review literature addressing how firms respond to substantive issues that arise when seeking to comply with different types of standards, especially standards that encourage firms to strive to proactively manage OSH risks and achieve better OSH practice. Some specification standards (requiring a particular safeguard to be implemented) may not require best OSH practice, and in those situations best OSH practice would require duty holders to go ‘beyond compliance’ to implement best practice controls (see the discussion in ‘Concepts and principles for understanding compliance and its relationship with best OSH practice’ in Chapter 1 of the literature review).

It further follows that, when discussing ‘regulatory standards’ and ‘regulatory practices’, the review is concerned with knowledge about best OSH practice that includes, but is not limited to, OSH requirements in legal standards. Rather, the review also considers knowledge about influences exerted by other actors and processes in the business and social environments in which work takes place, and which also act to regulate (or influence) the activities of firms. Thus, as developed in the literature review, the overarching review includes an exploration of how regulatory influences arise and how compliance might be influenced by, for example, societal norms, peer group pressure and economic incentives, and, as noted above, by non-state actors including employer associations, trade unions, professional organisations and financial advisers.

Finally, ‘better practice in implementing and operationalising OSH arrangements’ implies achieving improvements in OSH and, in so doing, achieving responses that are broader and more generally applicable than those associated with ‘OSH management’. In this review, we have often deliberately used the term ‘OSH arrangements’ in preference to ‘OSH management’. This is to acknowledge that, for many work situations that are the product of change consequent to economic globalisation and the development of new technologies, the term ‘OSH management’ is not appropriate. In recent decades, economies have been restructured and rapid shifts have taken place in the profiles of sectors, firm sizes and ownership in national economies everywhere, and in the business relationships in which work is undertaken. In addition, as we detail in Chapter 2 of the literature review, the profile of the labour force has continued to change, with the role of women, economic migrants and older workers increasing, along with non-standard and insecure forms of employment and work in micro and small enterprises (MSEs). At the same time, the proportion of workers employed in large firms and the membership of trade unions have declined, and fewer employees are now found in what, in the past, was understood to constitute ‘standard employment’ and the law and conventions regulating that arrangement. All this poses serious questions concerning the continuing capacity of the institutions and processes associated with large organisations and traditional forms of work and employment to effectively regulate the relations of work, including those affecting safety and health. For example, for MSEs engaged in contracted and subcontracted work, platform work and the gig economy, it is often meaningless to talk of ‘OSH management’, because the types of support required to implement OSH management effectively are hardly ever present. Nevertheless, the protection of well-being and the prevention of harm to people engaged in work in these situations remains important. It is therefore necessary to understand what ‘OSH arrangements’ can be made in these emergent work scenarios, and how support for regulatory compliance and better practice can be assured.

1.3 Aims and organising principles

Given the complexity of the source material on which the overarching review is based, the organising principles that underpin the final report and literature review were designed to enable a more holistic appreciation of the system of support and the relationships between its elements in contributing to promoting better OSH practice, including securing compliance with OSH regulatory standards. This is approached by utilising knowledge found in the wider understanding of regulating work-related risk in current social, economic and political contexts. In particular, the theorising and analysis found in the large body of regulatory and socio-legal literature is relevant to this task. At the same time, our analysis was further informed by techniques of realist evaluation, used to address questions of ‘what works’, ‘why’ and ‘in what circumstances’.

¹ Current regulatory literature makes this distinction with the terms ‘substantive compliance’ and ‘rule compliance’. The use of compliance in this review therefore refers to the former, unless otherwise stated.

The aim of the critical review was, therefore, to examine selected types of institutional support for better OSH practice (including OSH compliance) within a more rigorous theoretical framing of their context. This is not simply an academic exercise; doing so is critical to the assessment and understanding of practice and, therefore, to the usefulness of both policy advice and recommendations for further research that result from this review. At the same time, it is acknowledged that the types of institutional support on which the review focuses are not the only ways of supporting substantive compliance and better OSH practices in the EU. However, to make the review manageable, it has focused on five areas (listed below) that are typically affected by and responsive to changing patterns in the structure, organisation and control of work and the contexts in which it takes place in the EU. The five areas therefore represent both the challenges presented by these patterns and their contexts, and the effectiveness (or otherwise) of responses to them. The review argues that none of these support types exists in isolation; in fact, the challenges they seek to address, which themselves do not exist singly or in isolation, create a need for such connectivity. While, for the purposes of clarity, the critical review is structured to deal with this complex situation in an uncluttered way, the discussion, in this final report and the accompanying literature review, situates these elements in relation to one another and the wider contextual determinants that affect all of them.

A further issue explored in this report, and in more detail in the accompanying literature review, concerns change in what is regulated (including what is encouraged and influenced) and its effects on the means of OSH regulation. The review acknowledges that, as the economies of Member States have developed, so has the nature of the work activities that are their basis, along with the risks to workers that they entail. This is not solely a structural change in the organisation of economies, but one that also relates to the nature and quality of work activities. It is also a function of knowledge and its uses. As the nature of all these things changes, parallel changes become necessary in regulatory standards and in the means with which to achieve compliance with them. Such changes also contribute to the shifts seen in the wider meaning of regulation (that is, including non-state actors exercising regulatory functions, as discussed in section 1.1 of the literature review) and in ways of ensuring the effective engagement of both public and private actors in its delivery.

Overall, the review critically examines current knowledge on achieving best OSH practice and improving the extent and quality of compliance with OSH regulatory standards through implementing and operationalising OSH arrangements. A particular focus of the analysis is the development and delivery of innovative regulatory practices. Among these, the review examines:

- the possible role of supply chain relations in supporting compliance and better OSH practice (literature review, Chapter 5);
- variations in support from OSH prevention services (literature review, Chapter 6);
- the role of social/sector norms and social reporting strategies in promoting compliance (literature review, Chapter 3);
- the role of economic incentives in stimulating the adoption of improved OSH arrangements (literature review, Chapter 4);
- recent developments in strategies and practices adopted by OSH regulators, including novel approaches (literature review, Chapter 7).

As outlined previously, the review also explores the connections between these five areas that contribute to supporting compliance and lead to better OSH practice, and it examines all of these within the changing wider social, economic and political contexts in which they are situated in the EU.

1.4 The analytical framework of the overarching review: regulatory studies

From both ethical and political perspectives, the high level of preventable work-related deaths, injuries and ill health in the EU necessitates a response from society and each EU Member State. Conventionally, such a response has been mediated by states through the development of legal standards to regulate the economic activities and behaviours that are regarded as responsible for these unacceptable outcomes. Responses have also sometimes occurred without state intervention, as a result of incentives in the markets in which businesses operate; demands made by organised workers;

peer group pressure and the influence of social norms; professional or other non-legal expectations; effective OSH measures being seen to reduce costs associated with injuries or ill health; or even altruism on the part of those in control of businesses and undertakings. Thus, there are a variety of motives for improving OSH arrangements, and often several motives operate in combination; however, they can generally be said to be the consequence of, at least in part, regulatory influences on the behaviour of economic actors in society — where the term ‘regulatory’ is applied in its widest sense.

Pondering the substantial challenges facing such regulatory influences in current economies has led to significant development in the literature on regulation. Until the 1980s, ‘regulation’ was largely assumed to refer to state-based legal regulation, using narrow technical legal rules and enforced by a state agency. However, more recent scholarship has broadened the range of regulatory actors, the tools of regulation and the disciplines through which regulatory influence is examined. In this process, legal and social theorists have provided frameworks that help us to understand why ‘regulation’ has become necessary and why organisational behaviour is so difficult to change by simply imposing external regulatory demands. For example, some theorists point to the persistence of well-established ‘traditional’ ways of doing things despite the introduction of reforms requiring new approaches. As Chapter 1 of the literature review notes, the legal theory of autopoiesis posits that regulatory requirements emanating from the legal system will not be interpreted by firms using legal concepts and ways of thinking, but will more likely be distorted by interpretations within the ‘normative structure’ and the ways of thinking of business and economics. Other theorists provide typologies that describe firms’ responses to new regulatory requirements. These include conformity, innovation, rebellion and, very commonly in response to OSH process standards, ‘ritualism’ — where the firm appears to formally accept the framework of regulation, but does not focus on achieving the underlying substantive regulatory goals.

Of course, the wider contexts of the political economies within which such actions take place are also important in determining the nature and rigour of the actions, as well as the roles and impacts of the actors and processes involved. In many parts of the EU, as in other advanced market economies since the 1980s, the presence of market-orientated, neo-liberal political and economic policies has been pervasive. Given the hostility of such policies towards notions of state-based regulation of markets, it would be surprising if these had not also had some effect on the way in which regulatory theories have been conceived and applied. Therefore, discussion of policies and strategies to improve compliance with OSH regulatory standards and achieve better practices would be incomplete without accounting for the influence of these policy contexts.

Chapter 1 of the literature review argues that situating a review of the evidence of external influences on OSH practices within the framework of regulatory studies is useful also because it is within this framework that much of the analysis of the operation of regulatory institutions, state-based and otherwise, has already been conducted. The cross-cutting and systematic principles of analysis already present in the regulatory literature are readily applied to the knowledge and understanding of the processes involved in supporting better OSH practice, including compliance with OSH regulatory standards. The regulatory literature therefore provides a theoretical framework to guide a critical and comparative evaluation of evidence of the effectiveness of the institutions and processes of support for compliance and better OSH practice. It allows more systematic identification of cross-cutting comparative themes and enables the identification of gaps in current knowledge and understanding that would be useful to fill with further empirical study.

The framework provided by the regulatory literature is also useful for understanding the relationship between compliance and best OSH practice. Therefore, as its point of departure, Chapter 1 of the literature review develops the position outlined previously in Part 1 of this report defining important terms used in the overarching review.

To begin with, ‘regulation’ is defined functionally as setting regulatory standards, taking measures to promote compliance and better OSH, monitoring firms’ responses to those regulatory standards (including whether or not they adhere to them) and enforcing adherence to the standards. As section 1.1 of the literature review explains, regulatory scholars consider ‘regulation’ to include not only the activities of the state (and its agencies) in making and administering regulatory standards and seeking compliance with them (occasionally referred to in this report as ‘public regulation’), but also those of non-state actors

(unions, employer associations, small business organisations, influential firms in supply chains, franchisors, procurers, certification agencies, preventive services, OSH professionals, workers' health groups, migrant resource networks, community legal services, auditors, accountants, insurers and others) that might exercise regulatory functions or influence OSH practice or discourse. This is not necessarily to say that non-state actors are 'regulators', but rather that non-state actors can participate in regulatory processes and exercise regulatory functions. Regulation also includes methods and techniques beyond those of setting, monitoring and enforcing regulatory standards, and covers economic incentives, the provision of information, socially constructed forms of persuasion, and other non-legal tools and measures that influence firms' behaviour. As such, it further embraces the motives for complying, and the factors that influence them, of all the actors involved in the performance and control of work to achieve better OSH arrangements.

Chapter 1 of the literature review also discusses how the main literature on 'compliance' addresses what this term means, how it is shaped by culture and context, the different interpretations of compliance and ways of understanding how firms respond to external influences.

While acknowledging the argument among OSH practitioners that 'better practice' represents something more than mere 'compliance', the chapter finds that, in the regulatory literature, the term 'compliance' is used with several levels of meaning. These provide useful ways of critically and comparatively understanding the role and effectiveness of the institutions and procedures involved in supporting better OSH practice.

Chapter 1 of the literature review argues that understanding these different perspectives on compliance can help to illuminate the complexities of regulatory implementation to achieve policy goals and clarify the actual and potential role of different institutions and actors, the processes and mechanisms involved and the effectiveness of their contributions. It distinguishes between two concepts of 'compliance': 'substantive compliance', which requires compliance with the collective goals underpinning the regulatory scheme (better OSH practice); and 'rule compliance', which envisages compliance with the content of legal standards only. These may not be the same thing or coextensive. The chapter also points out that, nowadays, OSH standards are, for the most part, 'constitutive' in character — that is, they aim to create the architecture for managing OSH and preventing or minimising OSH risks, while also providing opportunities to pursue best practice. They seek to establish systems, routines and practices to sustain compliance as part of everyday activity in firms. If carefully designed, OSH regulatory standards construct compliance as the implementation of measures that ensure safety and health at work through self-regulatory actions to manage OSH to the highest standards of performance. In this sense, compliance means achieving particular goals, outcomes or targets, and having sound OSH arrangements in place, all of which are compatible with pursuing best OSH practice. With these kinds of legal requirements, 'substantive compliance' and 'rule compliance' are practically the same thing. In fact, distinguishing OSH practice that includes more than only meeting regulatory requirements ('beyond compliance') is only possible if those requirements prescribe specific measures and the focus is on 'rule compliance'.

Further to this, Chapter 1 reviews the literature on the different types of factors that shape compliance behaviours. It notes that there is broad agreement that a combination of such factors contribute to a firm's approach to OSH, although there are competing perspectives on the relative importance of the different types of factors and the relationships between them. It suggests that the three 'foundations' of compliance are:

- commitment to comply and, in particular, firms' or individuals' interests or motives (economic, social, normative and legal, including perceptions of the legitimacy of the regulatory regime), which drive or provide rationalisations for compliance behaviour;
- 1. learning how to comply (nurturing OSH knowledge and skills), which may entail appointing OSH personnel at senior levels in larger firms, or simply the person responsible for the undertaking in smaller firms, and ensuring that they possess sufficient knowledge of relevant OSH requirements and practice;
- 2. the ongoing institutionalisation of compliance or 'self-regulation' through the implementation of processes for managing OSH that embrace, and are consistent with, regulatory requirements,

ensuring sufficient resources for this purpose and monitoring the effectiveness of these arrangements.

The literature indicates that instituting these three foundations for compliance is often complex. Establishing commitment to comply is complicated if the firm has competing, and sometimes conflicting, motives and/or questions the legitimacy of legal regulation. Learning about OSH not only is the product of deliberate OSH training and information provision, but occurs as a result of everyday activities, social norms and peer group pressure, and is shaped by learners' capacities, agency and experience. Even though modern OSH regulatory standards provide foundations for institutionalising compliance, they largely require firms to determine for themselves how to organise their OSH arrangements in practice.

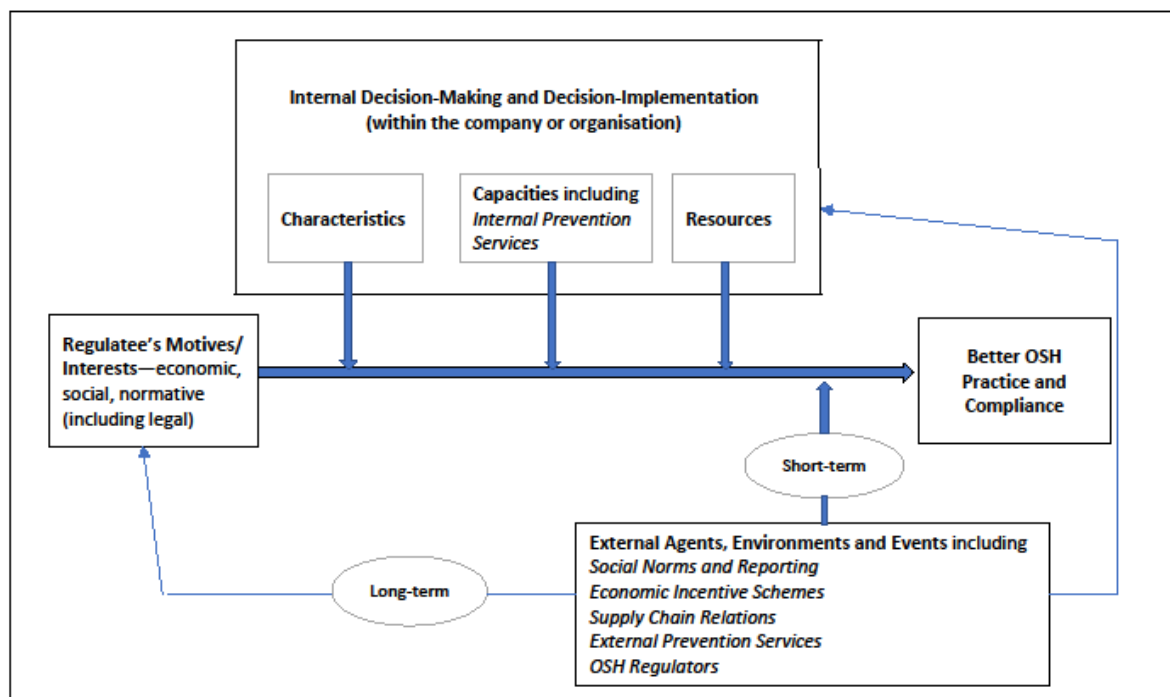
The overarching review acknowledges that each of these foundations, and hence their effects, is further influenced by the wider political, economic and social contexts of each Member State. This leads to the discussion presented in Chapter 2 of the literature review, which explores how these contexts contribute to variation in OSH regulatory policies, and requirements and interventions to advance best OSH practice, including initiatives such as OSH prevention services and incentive schemes. The wider context, including the extensive array of work arrangements discussed in Chapter 2, also influences how firms respond to and operationalise these regulatory initiatives. It shapes firms' cultures (and subcultures), motives for compliance and better OSH practice, and OSH knowledge and skills. Context may further influence labour relations and the degree of participative OSH management, among other factors that impact on OSH performance within firms. While differences in context are partly country dependent, many firms conduct their business across countries within and/or outside Europe and are economically integrated into wider markets and/or complex business structures for production and service provision — such as supply chains, franchising systems, centrally managed contractor networks and centralised purchasing arrangements. Such business relationships, and the markets to which they relate, further influence the organisation, control and conditions of work, including OSH practice, within and across national boundaries. Furthermore, firms with commercial power can constrain the resources and capacity to comply of those with less power, which are often MSEs (see Chapter 5 of the literature review). Further challenges for compliance are posed by trends in technology, especially in information and communications technology (ICT) and artificial intelligence (AI), which, as discussed in Chapter 2 of the literature review, have changed the nature of work, have enabled new ways to engage and allocate tasks to workers, and monitor workers' performance, and have added to the range of psychosocial and musculoskeletal hazards. They have also enabled access to, and the channelling of, a vast range of information through the internet — some authoritative but much of dubious quality.

Chapter 1 argues that the 'holistic compliance model' developed by Parker and Nielsen (Nielsen and Parker 2012, Parker and Nielsen 2011) provides the present review with a useful framework for exploring the multiple internal and external factors influencing best OSH practice and substantive compliance, and the interactions among these. The model is illustrated in Figure 1.

The internal factors relate to the regulated firm's (or individual's) interests or motives, and decision-making characteristics and decision-implementation capacities and resources. The latter could cover OSH knowledge and skills, resources and processes for complying, an internal prevention service (if there is one), and the literacy and education level of managers and workers, among other factors. The external factors include external agents, environments and events. A key external factor is the OSH legislation in each Member State that gives effect to the Framework Directive on OSH (Directive 89/391/EEC). Among other things, the Framework Directive (see Articles 5-14 in particular) requires employers to provide the necessary organisation and means to ensure the OSH of workers in all aspects of work; develop a prevention policy; integrate preventive measures into all activities of the organisation; appoint competent persons to carry out OSH activities; evaluate risks and implement measures to prevent or minimise risks, applying the principles of prevention; consult with workers and their representatives; cooperate with other employers in the same workplace and coordinate OSH actions; provide information and training; provide health surveillance; arrange first aid, fire-fighting and evacuation of workers; and maintain documentation, including an assessment of the OSH risks. However, employers have the discretion to determine how they organise OSH management, and various voluntary standards provide structured specifications for how to manage OSH, which may be recognised by OSH regulators. A recent development is the international standard for OSH management

systems (ISO 2018). External factors also include the five mechanisms for supporting compliance and best practice that are the focus of this project — (i) the activities of OSH regulators, (ii) external prevention services, (iii) economic incentive schemes, (iv) the role of supply chains and (v) external influences for social reporting. External actors with the potential to influence OSH compliance and better practice include employer associations, unions and worker organisations, OSH professional organisations, OSH auditing and certification bodies, and the wider political, economic and social contexts, among many others (for a detailed description of the holistic compliance model, see section 1.2 of the literature review).

Figure 1: Parker and Nielsen’s holistic compliance model, applied in this overarching review



Source: Adapted by the project team from the holistic compliance model figure in Parker and Nielsen (2011, p. 5) and Parker and Nielsen (2017, p. 220).

Figure 1 also shows how the five types of institutional support for better OSH practice and OSH compliance that are the focus of this review — social norms and reporting, economic incentive schemes, the role of supply chains, prevention services and the activities of OSH regulators — can work separately, together and with other factors to stimulate better OSH practice and promote OSH compliance. As the figure shows, the five mechanisms influence a firm’s motives to achieve better OSH practice and OSH compliance. The mechanisms also influence the characteristics, capacities and resources in firms that are the foundations for their OSH decision-making and decision implementation, and shape OSH practice and compliance. For example, a government can run an intensive publicity campaign to change social norms about OSH, so that firms develop their own beliefs about the importance of safe and healthy work or come under greater social pressure to improve OSH by building their OSH capacity and allocating more resources to OSH. Prevention services within or external to firms provide expert advice to help firms build their OSH capacities and resources. A state system to compensate and rehabilitate ill and injured workers can influence a firm’s economic motives by providing subsidies for workplace improvements and altering insurance premiums. An OSH regulator pursuing a deterrence strategy can also promote economic motives by creating the perception that the cost of non-compliance has increased and, similarly, can address decision-implementation resources through carefully targeted subsidies. Through interventions by influential actors in supply chains, OSH regulators can seek to stimulate economic, social and normative motives, and capacities for better OSH practice

and compliance among smaller firms participating in those chains, and to ensure better OSH conditions for workers in the lower tiers of those chains.

Parker and Nielsen (2017) also identified 14 questions that regulators, researchers and practitioners **can ask of (or about) particular target groups to help them understand the factors that influence their compliance behaviour**. Seven of the 14 questions address 'spontaneous compliance'. They ask about the target group's perceptions of the social and economic costs and benefits of compliance, the degree to which firms accept OSH regulation, their respect for the law in general, the existence of non-official influence over the target group's compliance, the firms' business models, their knowledge of the legal requirements and their capacity to comply. The remaining questions address 'enforced compliance' factors. These concern respect for the regulator and deterrence factors, that is, the risk that non-compliance will be reported to the regulator, the risk of inspection and detection, the selectivity of inspection and detection by the regulator, and the risk and severity of sanctions.

It is helpful to note that **the questions about 'spontaneous' and 'enforced' compliance do not align with the internal and external factors in the holistic compliance model**. Rather, the 14 questions are a way of understanding regulated firms' (or individuals') potential to comply (or not). For example, an element of spontaneous compliance, such as a firm's perceptions of the social and economic costs and benefits, could be influenced by the firm's motives, capacities or other internal factors, but could also be influenced by external factors such as economic incentives, supply chain pressures or the threat of penalties from OSH regulators.

In addition, Chapter 1 explores how the regulatory literature addresses the ways that compliance is monitored by regulators, approaches to promoting and enforcing compliance, and how different kinds of regulatory standards influence approaches to monitoring and enforcement.

Especially significant and of particular interest to the present review are new approaches to promoting, monitoring and enforcing compliance that have emerged in response to change in recent decades. Some of these approaches are a response to new kinds of standards emblematic of regulation in the late 20th century and continuing to the present time. In particular, these are general duty, process and performance standards, which themselves reflect regulatory responses to changes in business models and work arrangements. From the mid-1980s, for example, scholars and regulators have debated different ways to:

- move away from a 'one size fits all' approach to compliance promotion, monitoring and enforcement and be responsive to all kinds of technologies and all kinds of harm, and different types of firms and business arrangements;
- tailor monitoring and enforcement measures to the motives, attitudes, capabilities and structural arrangements of firms, their ability to 'self-regulate', and the social and economic circumstances within which they operate;
- shift resources from 'reactive' to more 'proactive' approaches, and target regulatory resources to the most serious regulatory problems that regulators face, according to levels of poor compliance, clusters of significant risks, most marginalised victims of non-compliance and so on;
- address the underlying determinants of non-compliance to ensure that enforcement measures result in sustainable compliance;
- address, and include, the influence of a wider range of state and non-state actors and measures in regulatory processes.

The chapter addresses the role of non-state actors in regulatory processes, and the accountability and legitimacy of regulatory institutions and actors. It demonstrates that, within the regulatory literature, there are broader, general theories of regulation, such as responsive regulation and its variants, pluralist approaches including smart regulation, and shared and networked enforcement. It also canvasses theories of inspection and enforcement more specifically, including risk-based regulation, smart inspection, responsive enforcement, strategic enforcement and co-enforcement. All of these are relevant to understanding support for achieving compliance and better OSH practice.

Two features of these generic developments in regulatory thinking, policies and strategies prompt further reflection. The first is that, while they largely reflect the state's concerns and responses to regulation, they are broader than this. They acknowledge the involvement of private actors and processes in achieving what are regarded as acceptable levels of compliance with standards of conduct deemed appropriate by society. The second is that the wider critical socio-legal literature in regulatory studies enables different interpretations of compliance (objectivist and interpretivist; substantive versus rule compliance) and the internal processes involved in complying (motivation, learning how to comply and institutionalising compliance — see section 1.2.3 'Foundations of compliance'), all of which are relevant to our review.

This critical review argues that it is important to understand and situate the regulation of OSH (by whatever means) in relation to this wider understanding and these developments in regulatory thinking, and their political and economic contexts, to best appreciate both what helps to determine prevention policy on OSH and its likely strengths and weaknesses.

This said, there are two caveats that should be made clear. First, the authors acknowledge that regulatory theory is not the only theoretical construct within which the analysis of the overarching review could have been contextualised. One of the challenges of working with a multidisciplinary and applied subject such as OSH is that relevant source material spans a variety of disciplines that have their own epistemologies and ways of understanding. Therefore, researchers are often confronted with difficult choices in relation to how to best frame their analysis. Traditional frameworks drawn from natural science and medicine obviously have clear limitations when applied to mixed material with a large social science content such as is the subject matter of this review. Equally, however, of the various epistemologies embraced in the social sciences, many have little relevance, while others only partially fit with the aims of the present research. Thus, the review conceivably could have taken approaches grounded in, for example, institutional theories, programme theories, ways of understanding industrial relations or critical management studies as its context. However, we found that an approach that considered regulatory theory worked best in this review, allowing the development of a robust and consistent critical perspective grounded in a supportive, relevant, epistemological base. We have, however, also considered some of the wider contexts evident in the material of the review, accommodating these in ways that allow for a broader or alternative understanding without compromising the rigour of a consistent critical analysis based on current regulatory theories.

A second caveat, already noted, is that the main developments in regulatory theories and approaches have emerged in the past 30 years. That is, they emerged initially as a branch of criminology, concurrently with the establishment of neo-liberal political and economic systems on a global scale. We acknowledge that, while regulatory scholarship has burgeoned over the past 30 years or so, and in doing so has embraced a broader range of disciplines, the literature it has produced largely reflects a pragmatic acceptance of the wider political and economic contexts in which it is embedded. This makes the incentivised approaches to regulatory compliance espoused seem particularly attractive. According to dissenting voices in the regulatory literature, if viewed from the perspective of political economy, to ignore the contexts in which these regulatory theories and approaches have developed is to seriously risk undermining their value and the usefulness of the strategies they recommend. These critics point out that a more fundamental reassessment of the assumptions behind the literature's rejection of deterrence-based, 'command and control' regulation is warranted because, far from being proved to have failed, they suggest that, in fact, such approaches have never existed. They argue that a historical analysis of the operation of OSH (and other labour) regulatory inspection regimes shows them to have been part of a system in which there were far more regulatory gaps than prescribed standards, and that these were never strictly enforced and penalties were derisory. Rather, they suggest that the approach relied heavily on compromise and the discretion of the agents of the state whose role it was to administer it, leading to a conventionalisation of OSH crime as something quite different from 'real crime'.

Awareness of these qualifications is obviously important for the construction of a review that adopts a paradigm derived from regulatory theory to inform its analysis. However, beyond their reinforcement of the consequences of the political and economic context, the qualifications themselves do not alter the analysis significantly. Perhaps more relevant to the overarching review are more recent contributions to the regulatory literature, which increasingly acknowledge an 'enforcement gap' in employment standards generally and in OSH particularly. This is especially evident in scenarios of 'hard to reach'

workers that are the consequences of changes in the structure, organisation and control of work under neo-liberalism, which strategies of so-called 'new governance' have failed to address.

There are many situations in the current economy that lie beyond the reach of conventional approaches to monitoring and enforcement, whether they are based on command and control strategies, or on regulated (or enforced) self-regulation as adopted in recent statutes and in EU directives. For example, the 'duty holder' in a micro enterprise is not necessarily the most effective person or group for implementing an intervention, as it is often not that person or group who has primary control of the situation that is of concern. Thus, there is a marked degree of agreement in recent regulatory literature that the following all contribute to the need to establish more innovative ways to influence compliance behaviour: fragmented managerial responsibilities for OSH on multi-employer worksites, the obscurity of the control of OSH in business undertakings where long supply chains feature and uncertainties of responsibilities relating to the employment contract in the gig economy or platform work.

Overall, therefore, if qualified by these valid critiques, we found that the concepts and principles from the regulatory literature provided a useful context within which to consider many of the findings emerging from the overarching review. These concepts and principles help in understanding the institutions and processes involved in securing compliance and better OSH practice, and in making critical and comparative evaluations of the evidence. In particular, this literature helps to explain what is meant by 'compliance' and its relationship with better OSH practice, as well as making sense of the multiple factors — including the five areas of institutional support for OSH that are the subject of this review — that influence and shape compliance and OSH practice.

1.5 Research methods

The research methods used in this review are essentially those of an informed approach to reviewing recent literature. This was supplemented by detailed consultations with a number of key informants with specialist knowledge, regarding either the subjects of the review or the effects of particular national contexts. In some cases, key informants were well placed to provide guidance on both.

The literature was reviewed according to standard procedures. Thus, research questions were established in relation to each of the five areas under review, upon which the development of a set of terms to guide the search of the international literature in each case was based. We aimed to capture a broad range of publications in the peer-reviewed and policy-focused (grey) literature, including descriptive material and theoretical sources, as well as empirical studies (qualitative, quantitative and mixed-method studies). Therefore, at the search stage we did not include terms relating to context that would have narrowed our focus and potentially caused us to miss a substantial amount of material that we considered relevant. That is, we did not use the full PICO (patient/population, intervention, comparison and outcomes) methodology used in systematic reviews. Rather, using OR/AND combinations in Boolean logic, we searched for publications containing at least one term from each of the small number of categories identified by the research questions on each area. For example, in the case of 'novel approaches by OSH regulators/labour inspectorates', our research questions were:

- What approaches can OSH regulators/labour inspectorates use to promote, monitor and enforce compliance with OSH regulatory standards?
- What approaches do OSH regulators/labour inspectorates in EU Member States use in practice?

These questions provided the context for our development of a set of terms to focus our search of the international literature, which encompassed the OSH or labour *regulatory focus*, the work *setting*, and a broad range of *policy and regulatory levers* (measures) relating to compliance promotion, monitoring and enforcement. Using OR/AND combinations in Boolean logic, we searched for publications containing at least one term from each of the three categories (regulatory focus, setting, and policy and regulatory levers).

For the overarching review, we searched six electronic databases:

- ABI/Inform Collection
- Business Source Complete

- EBSCOhost EJS
- ProQuest (One Academic and Social Science Premium Collections)
- PubMed
- ScienceDirect.

We searched for terms in the title/abstract/key words fields (as appropriate to the database), and we sought publications from January 2015 to December 2020. We also searched, via the internet, the websites of OSH authorities for each EU Member State, where these were in English or included some material in English. For publications assessed as relevant to our research questions, we followed up cited references that were informative for the research questions. Hence, quite a number of publications cited in the review predate the 2015 starting date, although this varies by subject area.

In the case of 'novel approaches by OSH regulators/labour inspectorates', for example, our combined searches generated more than 800 references. Through initial screening of the titles and abstracts, we reduced this to a subset of 146 for full review, extraction of key insights and synthesis of these insights in Chapter 7 of the accompanying literature review (or elsewhere, if they were relevant to other chapters in the review). Included publications were grouped into eight thematic domains:

1. regulatory theory and models;
2. International Association of Labour Inspection (IALI), International Labour Organisation (ILO), Organisation for Economic Co-operation and Development (OECD) and EU frameworks;
3. compliance promotion approaches and effectiveness;
4. priority setting and targeting;
5. inspection approaches and effectiveness;
6. enforcement approaches and effectiveness;
7. systematic reviews and evidence;
8. Member State information and comparisons.

In a further review of the publications, we sought any specific examples of approaches to addressing the regulatory challenges discussed in Chapter 2 of the literature review. These are the differences in national social, political and economic contexts; the scope, reliability and limitations of data and information; and the changing work dimensions — networked business structures, worker engagement, MSEs, make-up of the workforce, decline in organised labour, and trends in work organisation and risks.

The four other areas reviewed, as well as the contexts discussed in Chapter 2 of the literature review, were approached in a similar way, and the material generated was organised into appropriate domains. The only exception to the pattern thus established was for Chapter 3 of the literature review on corporate social responsibility (CSR), societal norms and social reporting. While our methods still worked effectively for this area, its breadth and the fact that very little of the literature related specifically to OSH meant that we relied more heavily on following the leads identified in citations in recent literature.

As noted, guidance from key informants also helped us to direct the overarching review in each area, and in some cases additional references were pursued at the suggestion of these informants. Interviews and group meetings were held to consult a range of informants in two slightly different ways. First, we used informants as guides to national sources that we might otherwise have missed because they did not necessarily appear in the databases searched. Second, we used informants as sources of reflection on and critique of our emergent findings. In the original research plan, it was intended to undertake face-to-face meetings with individual informants. We also intended to facilitate the critical discussion role through one or more workshops, which would have taken place in convenient locations, where participants would have been asked to discuss the research outputs in working groups and in plenary sessions. Restrictions caused by the COVID-19 pandemic meant that this plan had to be modified, and interviews and discussion groups were conducted online through the use of the communications software application Microsoft Teams. A number of follow-up consultations were undertaken with individuals as a result of the initial meetings. Despite these restrictions, the interviews and group discussions provided a surprising amount of further material and a detailed critique of preliminary findings. The latter was useful in refining the final report and specific chapters of the literature review.

1.6 The structure of the study

The overarching review and its findings are presented in two volumes: the final report and the literature review. Consultations on early drafts detailing our findings strongly suggested a need to arrange the findings in ways that would maximise their readability and relevance for different readership groups. This was the rationale for presenting the aims and intentions of the research, and its methods, analysis and key findings, along with their implications for policy and further research, as concisely as possible in Part 1 of the final report.

In addition to Part 1 of the final report, there are two further parts. Part 2 presents a summary of the review's findings. It opens with a brief outline of the evidence of important trends in work-related harm in the EU and the consequences for OSH of the way work and employment are organised, undertaken and controlled in the different economies of the EU. This discussion acknowledges the harmful consequences of these current trends and the significant challenges that they pose for conventional approaches to OSH. Part 2 then summarises the main findings that emerge from the review in each of the five areas studied: social norms, social reporting and the role of CSR in supporting improved OSH arrangements and outcomes; economic incentives and the business case for safety and health; the possible role of supply chain leverage in improving OSH; the role of prevention services; and novel approaches to promoting, monitoring and enforcing compliance by OSH regulators. For both the discussion of trends and challenges and the summaries of the five areas, the findings of the overarching review are presented at greater length in the literature review, which constitutes a second volume.

The analysis of the five areas demonstrates the existence of a substantial framework of institutional support for securing compliance and better OSH practice, and shows it to act in a variety of different ways to achieve this task. The implications of these findings are also discussed in Part 2 of this report, and a set of broad recommendations are developed on ways of building on current knowledge and its possible consequences for future policy. Significant gaps are identified, which might be usefully explored in future studies.

It will be recalled that the research on which this review is based was commissioned, in part, to identify areas for future research in the EU-OSHA research programme. These areas are the subject of Part 3 of this final report, which opens with an outline of research questions emergent from the review before narrowing its focus to concentrate on several possible areas of future study. These are drawn from the various knowledge gaps identified by the overarching review. In selecting these particular areas in which future research might be usefully commissioned, the members of the review team have been mindful of the existence of a substantial body of knowledge concerning what makes support for better OSH practice effective. They have also paid attention to the interconnections between the five areas and the importance of a clear cross-cutting understanding of them. This perspective has informed the recommendations given in Part 3 concerning the choice of future research subjects, which strongly reflect the interconnectedness of different elements of support for compliance, and the need for leadership and orchestration to promote their effectiveness.

The literature review, which is presented in a separate volume, provides the detailed analysis and findings of the overarching review. Chapter 1 of the literature review provides a functional definition of 'regulation', explaining this along the lines outlined previously. Chapter 1 also reviews the main literature on the various meanings of 'compliance', the different types of regulatory standards and the different types of factors that shape compliance behaviours in the context of the array of work organisation within EU Member States. It discusses the historical enforcement debate (also referred to previously) in some detail and reviews English language literature on compliance monitoring, promotion and enforcement, which has sought to respond to new kinds of regulatory standards, the multiple factors that influence compliance, the wider range of regulatory actors, the wide variety of work and business arrangements, and rapidly changing technologies and new and emerging risks — all of which we have argued are pertinent to the overarching review.

Chapter 2 of the literature review deals with the impact of change and national contexts. This is followed by five chapters, each providing a detailed account of the literature in each of the five areas of the review: social norms, social reporting and the role of CSR in supporting improved OSH arrangements and outcomes (Chapter 3); economic incentives and the business case for safety and health (Chapter 4);

the possible role of supply chain leverage in improving OSH (Chapter 5); the role of prevention services (Chapter 6); and novel approaches to promoting, monitoring and enforcing compliance by OSH regulators (Chapter 7). Each chapter includes some comment on the implications of the current pandemic for supporting better OSH arrangements and outcomes in the EU in the future. As outlined previously, while the literature review is essentially a review of recent literature in the fields most relevant to the external provision of different types of institutional support for securing compliance and better OSH practice, it also draws upon the advice and input of key informants who contributed commentary and ongoing discussion of the review throughout its development. The literature review concludes with a summary of the key findings of the overarching review, which are also discussed in this final report.

It is hoped that the final report will be of interest to practitioners and policy-makers in OSH, while the literature review may be of more relevance to researchers and others who require a more in-depth discussion. In the literature review, readers will find information that substantiates the findings in the final report. To avoid cluttering the text of the final report, we have eschewed citing literature sources, except when they refer to texts that are not cited in the chapters of the literature review.

Part 2: The main findings of the overarching review and their implications for policy and research

Measures of work-related harm show that the burden in the EU remains unacceptably high. Current information indicates that over three million non-fatal accidents requiring at least four days of absence from work and 3,272 fatal accidents are reported annually in EU Member States. In addition, figures from 2013, quoted in EU-OSHA reports in 2019, show that 7.9 % of the workforce suffered from occupational health problems, of which 36 % resulted in absence from work for at least four days. Estimates of the burden of work-related mortality in the EU are sobering, with 102,500 deaths from occupational cancer alone each year in the EU (EU-28, including UK) — more than 20 times the number of deaths caused by occupational accidents, and the largest single cause of the estimated more than 200,000 deaths from work-related diseases. Not only do these figures represent massive levels of suffering experienced by workers — all the more intolerable because work-related harm is largely preventable — but the combined cost to the EU economy is also considerable, with recent EU-OSHA reports estimating it to be as much as €476 billion, or 3.3 % of EU gross domestic product (GDP).

All of this suggests that improving the effectiveness of institutional support for prevention is both necessary and urgent. In the literature review, the current knowledge on what works in this respect is presented in detail, along with a detailed explanation of how the available research has provided a context for this analysis, and a discussion of the influence of change and context on promoting compliance and better OSH practice. In this part of the final report, the key points emerging from each of these accounts are summarised. As well as exploring knowledge in the literature on each of the areas of institutional support and the contexts of change in which they occur, connections are made between them that are especially relevant to achieving better OSH practice and substantive compliance. As mentioned in section 1.6, we have deliberately refrained from cluttering this account with large numbers of source citations to improve its clarity and readability. The summaries presented here are all drawn from material detailed in the literature review, in which sources are cited and full details are given in the extensive list of references at the end of the literature review.

To provide some context for the findings of our overarching review of the five areas of external support for OSH arrangements, we begin by considering the challenges in supporting good OSH practice and securing compliance presented by changing work arrangements and Member State environments. There is nothing especially new in our account of rapid change in the structure, organisation and control of work, and the changes in the political economy that have helped to drive this. Arguably, the experience of such change has been the leitmotif of economic and political activity in the EU since the last quarter of the 20th century, although observers point to an increased pace of change more recently, which they largely attribute to the development of information technology. At the same time, some elements of change affecting OSH are new and may require exceptional responses in terms of institutional support for the management of the risks they pose. The impact of the recent COVID-19 pandemic is a case in point for at least three reasons. First, workplaces are prominent and potent sites of transmission, and measures to support better OSH therefore need to account for the impact of the pandemic. Second, the changes that have been occurring in the structure, organisation and control of work may themselves have contributed to the transmission of the virus at work, and also to increasing inequality in the distribution of risks of such transmission. Third, the experience of the pandemic gives rise to major questions about the relevance and application of knowledge gleaned from the review of previous literature concerning 'what works' in the face of *new* challenges — such as those experienced as a consequence of the spread of COVID-19.

2.1 Analytical framework — regulatory concepts and theory

As we noted in the introduction, we have performed our analysis of the institutions that are supportive of better OSH arrangements and their processes of support in firms within a framework derived from the regulatory literature. The rationale for adopting this approach is outlined in section 1.4, which reviews the literature on 'compliance' and explains Parker and Nielsen's holistic compliance model and the way in which external environments, events and agents — including the five areas of institutional support for OSH that are the subject of this review — influence a firm's OSH arrangements. The rationale is also detailed in Chapter 1 of the literature review, and readers are referred to this chapter for a thorough explanation.

Chapter 1 of the literature review also examines early theories for monitoring (inspecting), promoting and enforcing compliance.

The literature on approaches to monitoring (including inspection/investigation) and enforcement used by EU OSH inspectorates prior to the 1990s describes a general pattern of small inspection bodies with little prospect of actually inspecting much more than a minority of the workplaces for which they were responsible; a philosophy of 'enlightenment', in which there was widespread focus on promoting more or less voluntary compliance rather than enforcing the letter of the law; and inspectorates seeking to achieve compliance through information and advice, with the remote possibility of criminal sanctions for non-compliance. The chapter also briefly reviews the evidence on deterrence (see section 1.3.1), and reports that there is 'moderately strong' to 'strong' evidence that specific deterrence from inspections with penalties reduces work-related injuries; and 'limited' evidence that general deterrence reduces fatalities and lost workdays. The chapter also makes three points about deterrence: (i) if deterrence is not carefully targeted, it could result in a 'culture of regulatory resistance' and undermine the regulator's legitimacy in the eyes of those subject to regulation; (ii) there is little evidence that OSH regulators have ever used a fully fledged deterrence strategy to enforce OSH regulatory standards; and (iii) deterrence is best not used on its own, but rather as a key component in a suite of measures flexible enough to address the multiple drivers of compliance.

Since the mid-1980s, further regulatory theories aiming to improve monitoring/inspection, compliance promotion and enforcement have emerged in the English language literature.

Of particular importance has been the development, from the late 1980s, of the theory of responsive regulation — and in particular the model of responsive enforcement. Regulators and academics pointed to the general limitations of both pure deterrence and pure cooperative strategies, and argued, on the basis of considerable evidence from Europe and the United States, that a judicious mix of advice and persuasion *and* deterrence was required for an optimal enforcement strategy. If firms do not self-regulate to meet required standards, responsive enforcement requires the regulator to apply a hierarchy of increasingly tougher sanctions, which has come to be known as the 'enforcement pyramid'. At the heart of the theory of responsive enforcement is a paradox: the greater the sanction (usually criminal prosecution) at the apex of the hierarchy of sanctions and the greater its capacity to escalate through a range of measures to the top of the hierarchy, the more likely it is that regulated firms will participate in cooperative activity at the lower regions of the hierarchy. Section 1.3.2 of the literature review includes a discussion of the criticisms of responsive enforcement.

The theory of smart regulation significantly advanced responsive regulation by developing a three-sided pyramid that includes non-state actors and a broad mix of regulatory techniques. The strategy involves a coordinated and graduated escalation of regulatory responses up each of the three faces of the pyramid (government, industry self-regulation and third parties) using different but complementary measures (smart regulation is examined in section 1.3.2 of the literature review).

Another important thread in the monitoring and enforcement literature is risk-based regulation (see section 1.3.2 of the literature review). Underlying risk-based regulation are a series of criticisms of traditional approaches to monitoring/inspection and enforcement, including that they create significant costs for the state and burdens for firms, but with disappointing public benefits; they have insufficient risk focus; and they frequently focus on finding violations rather than improving compliance and outcomes. The approach to risk-based regulation embedded in government regulation in many countries and sectors, especially in inspection, has four central elements: (i) the regulator identifies its objectives

and the risks that firms may pose to achieving those objectives; (ii) the regulator assesses/evaluates and scores those risks; (iii) the regulator uses the risk assessment scores to allocate resources and to decide which firms to inspect; and (iv) the regulator might use the risk assessment scores to determine the type of enforcement action to take for each firm.

Objectives and risks reflect statutory mandates such as ensuring safety and health, as well as political imperatives. The targeting of inspection can be based partly on the previous performance of a firm or industry in terms of injury incidence rate, level of compliance and so on, which are seen as predictors of compliance. Targeting can also be *ex ante*, that is, inspection could be targeted before non-compliance has been established, for example by examining the intrinsic characteristics of the type of activity (industry and processes), the firm's location and other factors. Critics of risk-based regulation suggest that it creates the illusion of objectivity, when in fact targeting might be quite arbitrary or based on underlying political choice. A further issue is that the risks may change over time — or the performance of excluded firms or sectors may deteriorate — so there is a need for periodic reviews of risk assessment. The complex politics of justifying reduced (or even lack of) attention to certain risks, industries or firms must also be considered.

A cautionary note is perhaps in order in the light of the experience of the COVID-19 pandemic. While there has been global concern about the impact of the virus on human health and the economy, governments have responded differently in their attempts to stem the devastation it has caused, instituting control measures to stop the spread of infection and prevent health services from being overwhelmed, while at the same time trying to support national economies. In so doing, they have faced considerable criticism concerning the appropriateness, consistency and effectiveness of their strategies and the balance it has been possible to achieve between efforts to contain the disease while maintaining support for ongoing economic activity. Work and workplaces have been prominent crucibles of conflict in this respect; yet, in many countries during the pandemic, the presence and profile of OSH regulatory activities, whether conventional or innovative, have been surprisingly muted.

The innovative regulatory approaches that are the focus of the literature review and the reported practices of OSH regulators during the past 12 months suggest little in the way of effective strategies for achieving better practices in relation to dealing effectively with biohazards such as those represented by the COVID-19 pandemic. This is a sobering observation. Much media coverage of the response to the virus has conveyed the impression that governments and societies were taken unawares by, and were therefore unprepared for, an unprecedented phenomenon of a pandemic, in this case caused by COVID-19. However, the notion of a pandemic and its potential for devastation in the globalised world is neither new nor unexpected; in fact, calls for regulatory action had already been heard in relation to OSH in this context. Trade unions and some experts have been pressing for an ILO convention on biohazards since the early 1990s, for example, and renewed calls were made following the SARS-CoV-1 outbreak in 2003.

Another reason for the muted engagement of OSH regulators, suggested in much of the criticism of governance over its approach to workplace exposures, is the limited and diminishing resourcing of these agencies in many countries. Critics have argued that this has meant that they are simply not sufficiently equipped to address the scale of the challenges presented by the virus for securing compliance and better OSH practices in workplaces. Such criticism reflects similar concerns over much of the theorising on approaches to standard setting, monitoring and enforcement in regulatory studies to those noted in the previous chapter. It will be recalled that critics argue that a political economy perspective is needed to understand what has been occurring in OSH regulation over the past several decades, and that this needs to be considered in the context of the wider critique of what has been occurring more generally in terms of changes in regulation that have taken place in neo-liberal economies. Thus, critics make the point that the current situation is not new, but the product of a quite deliberate facilitation of market-based forms of 'new governance' and 'new public sector management' in which the subservience of regulatory regimes to the needs of the market has been orchestrated. They suggest that the incapacity of state regulatory agencies to meet challenges of the scale presented by COVID-19 is an inevitable consequence of this, and one for which society is paying a huge price. Moreover, in these terms, the current situation was entirely predictable. They argue, therefore, that ignoring this wider scenario and attempting to do more with diminishing resources by being more 'innovative' may be a futile exercise.

Its redress requires some fundamental rethinking of the role of regulation, rather than tinkering with regulatory practice within constraints imposed by the policies of new governance.

A further feature of responses to the pandemic noted in the literature in some countries is the dominance of public health perspectives, even when workplace health issues are under consideration. This is, of course, largely because the COVID-19 pandemic *is* primarily a public health crisis, and public health constructs are therefore likely to dominate the response to it. However, in some countries it has been suggested that it may also be a consequence of the somewhat low profile of the OSH regulator. In the absence of a strong regulatory insistence on OSH principles and regulatory standards being applied to the evaluation and control of the risks of workplace transmission of biohazards, some observers have suggested that public health approaches emphasising ‘safe person’ strategies and promoting workers’ individual awareness and responsibilities for their safe behaviours have been predominant in the public guidance and discourse concerning workplace exposures during the pandemic, rather than those of ‘safe place’ strategies and the legal responsibilities of employers.

Whatever the realities of the situation, when the conflicting ideologies at the heart of these arguments are stripped away, the experience of dealing with the pandemic still suggests that research is needed to establish a viable way forward for supporting better OSH practice in relation to possible similar events in the future. It seems likely that innovative regulatory practices will be useful in the face of such events. It is also the case that the repository of knowledge developed by professional practice on OSH is a valuable source of support for securing better practice, with the potential to make a more significant contribution at the interface between occupational and public health, as we discuss in Chapter 6 of the literature review. However, in both cases we conclude that it is too soon to predict exactly what kind of innovation would be most effective in meeting such challenges, and further investigation is required in the light of the experiences of the pandemic.

2.2 Challenges for supporting compliance presented by changing work arrangements and EU Member State contexts

Chapter 2 of the literature review explores the significance of two important aspects of context. The first is the consequences of change in the nature, organisation, structure and control of work in EU Member States. The second is the national environments of Member States in which forms of support for better OSH practice and compliance operate. As both affect the nature and operation of support for securing compliance and better OSH practice, their effects need to be properly accounted for so that the limitations and opportunities they represent can be understood. Moreover, they influence the extent of harm brought about by the ways in which production and services are delivered. Furthermore, as the third part of the chapter shows, despite preventive efforts, not only does the extent of injury, ill health and untimely death resulting from work in the EU remain considerable, but its measurement (and therefore also the objective measurement of the success of prevention) is fraught with difficulties created by the complexities of current economic development and national differences in context.

The chapter points out that traditional methods of reporting mortality and morbidity attributable to work-related causes in EU Member States measure only some aspects of work-related harm. A gradient of health outcomes in which the more socially and economically disadvantaged parts of the population experience considerably worse health than the more affluent and advantaged parts is widely acknowledged. Many of these health outcomes are work related; for example, a cluster of measures indicate that people at the lower end of the wealth spectrum are more likely than others to experience insecure and low-paid work, with little autonomy and low job satisfaction, and also unemployment or underemployment, disability and disadvantage. Many economic migrants are also trapped in this position, as are workers in MSEs that pursue ‘low road’ survival strategies, workers that are supposedly ‘self-employed’ or engaged in undocumented work in the new economy, and workers who are on zero-hour contracts or with no form of employment contract at all. The literature is clear that the prospect of good health outcomes being associated with all these scenarios is poor.

There are a host of challenges in relation to providing support for securing compliance that are now well documented in the burgeoning literature on the consequences of the structure, organisation and control of work for the safety, health and well-being of workers. As well as those mentioned in the previous paragraph, these challenges include the development and extent of MSEs in the economies of EU

Member States. Chapter 2 views the growth in MSEs in recent decades as emblematic of wider changes in economic structure and policy during the post-industrial transition from large-scale mass production and Keynesian macro-economic regulation to more market-orientated economic and political policies in service-based economies. It shows how, nowadays, units of production and service are increasingly regarded as parts of network-style economic structures, with greater capacity to harvest externally based scale advantages without becoming rigid organisations. Such changes have been facilitated in part by the restructuring of larger organisations and in part by the organisational changes and developments in the business models they utilise, where, for example, downsizing, outsourcing, shifts from tight hierarchically controlled structures to more loosely organised arrangements of business, just-in-time production, increased porosity and more flexible labour contracting, along with a greater focus on supply relations and so on, all contribute to altering the way in which work is organised, structured and controlled.

The literature indicates that this has been further facilitated by rapid developments in information technologies, which has transformed the situations in which work is done, not only in relation to its structure, organisation and control, but also profoundly changing its wider social and political contexts and globalising the societies in which it takes place. Workforces in EU Member States have become more diverse as a result of an increase in the presence of non-nationals and in the labour market participation of women, older workers and those with disabilities, while, simultaneously, their collective voice has become less well represented in the discourse around work as a result of the decline in organised labour.

However, Chapter 2 points out that, while it is commonly agreed in the literature that these changes are largely consequences of economic globalisation and the policies promoting it that are felt everywhere in advanced market economies, they are not experienced in entirely the same ways in all national and sector settings. Thus, the chapter notes that comparative analysis indicates that there are several national ‘types’ among the Member States that constitute the EU. Whether informed by the discourse on ‘varieties of capitalism’, or by categorisations such as those drawn from comparative analysis of welfare capitalism, such typologies extend to differences in national OSH systems embedded within Member States and thus promote qualitatively different outcomes for the different areas of support for securing OSH compliance. Chapter 2 suggests, for example, that such differences between Member States may include the organisational model of labour administration, including regulatory inspection, and the structure and resourcing of its implementation. Further differences might be encountered as a result of the different forms of, and roles played by, social insurance systems and institutions in Member States, and as a result of different historical backgrounds, institutional arrangements and legal requirements relating to prevention services, with the literature again indicating the continuing existence of these differences despite the harmonising aims of EU directives such as the Framework Directive. Such differences stand alongside those relating to the power and presence of organised labour and those of corporate interests.

Chapter 2 further indicates that not only are national differences in the contexts in which compliance with OSH standards is sought likely to be those of direct influence, such as regulatory administration or the presence and form of support services, trade unions and so on, but that other wider contextual and cultural differences may also be significant determinants of compliance outcomes. The discourse in the wider literature, although often debating strongly contested views, generally distinguishes different institutional structures within developed economies such as those of the EU and provides explanations for why these economies have not converged more than they have in the context of globalisation. This is relevant when comparing determinants of social policy, as well as those of institutional change and interaction — all of which are important for building a comparative understanding of the operation of support for compliance in different Member State contexts within the EU.

More empirically, national differences are also evident in the wider changes documented in Chapter 2, including those seen between Member States in trends in the structure, organisation and control of work, and in the labour market, collective representation, the age and gender balance of the labour force, precarity of employment, public expenditure on prevention resources for OSH and its regulation, approaches to achieving compliance and so on. While there are common trends in the direction of change in all these areas, there are substantial differences in their extent and results between Member States. More subtle differences are also evident in the consequences of all this for public perceptions of

the nature and extent of work-related outcomes for safety and health, for the legitimacy of public or private forms of regulation and for support for different approaches to achieving compliance. It would be surprising if these changes had no impact on the social norms in different European societies, and unlikely that changes thus wrought would be identical across Member States.

These contextual differences between Member States pose many challenges for supporting compliance that future policies will need to consider. The literature reviewed in Chapter 2, along with testimony from key informants in Member States, suggests the need for an agenda for further research examining the relationship between the changing world of work, its national determinants and its health consequences that is relevant to understanding what influences support for securing compliance and better OSH practice. Many of the changes documented in Chapter 2 take place at the margins of labour markets and are hard to measure; but, unless underlying structural and organisational causes of safety and health problems are properly understood, preventive strategies, no matter how technically sound, are unlikely to be entirely successful. The recent example of the workplace risks presented by COVID-19 illustrates this clearly. Clusters of infection that share similar features have been repeatedly identified in workplaces in different EU Member States — such as those in meat and poultry processing plants, call centres and warehouses, as well as among workers on the front line in health and social care. This is, to an extent, not unexpected, given the common limitations of the work and employment conditions typically found in such workplaces. However, these work and employment conditions and their consequences for OSH generally remain hidden from regulatory scrutiny until such a crisis brings them to wider attention.

There is, therefore, a serious need for the better monitoring of these patterns, the clearer identification of their consequences, especially for vulnerable groups, and the more precise identification of the scenarios in which problems with compliance and better practice arise. Similarly, related areas for new research are suggested by the analysis of the role of national determinants in the second part of Chapter 2. As some of the findings in later chapters of the literature review demonstrate, traditional approaches to both research and practice on OSH are narrowly focused and rarely acknowledge the wider social, economic and political determinants that influence OSH and OSH regulatory practice; even when they are recognised, they are seldom studied seriously. Yet, without proper cognisance of these determinants, research findings identifying and exploring good OSH practice in one sector or national context risk failing to fully explore the determinants of either their sustainability or their transferability. The outline in Chapter 2 of the literature review shows, for example, that, while there is a burgeoning comparative literature on the operation of the political economies of all EU Member States, material that examines the consequences of these differences for supporting regulatory compliance specifically in relation to OSH is limited. Connections are made between these findings and those in the later chapters of the review on the support for compliance and the need to inform prevention policies at sector, Member State and EU levels, and in the interstices between them.

As is clear from the brief outline of the measurement of OSH consequences presented in the penultimate section of Chapter 2, here, too, the current picture is incomplete. As mentioned previously, and abundantly illustrated by the example of the work-related spread of infection in the current COVID-19 pandemic, this is especially true in relation to the extent of poor OSH outcomes experienced by the section of the working population in the EU that labours in the so-called ‘hard to reach’ scenarios that are arguably created or exacerbated by current structural trends in the economies and labour markets of the EU (as well as in other advanced market economies). As we have already concluded, evidence that is specifically work related in this regard is limited and further study is required, but it is clear that the challenges for securing compliance presented by the general disorganisation of work are considerable. This points to the need for a special focus on the effectiveness of strategies to improve compliance and better practice in addressing the challenges of ‘fragmented work’. Although arguments concerning the need for ‘smarter’ approaches to compliance may apply to many of the situations covered by the five areas that are the focus of this review, particular attention needs to be paid to work situations that lie beyond the reach of conventional intervention.

Finally, as it is obvious that the areas explored in Chapter 2 do not exist in isolation from one another, it is likely that solutions for improving compliance and OSH practice will be more effective if they account for the inter-relations between them. However, integration requires a proper understanding of the effects

of structural change on the economic, political and social contexts of work and their implications for the prevention of work-related harm to safety, health and well-being.

These ‘big picture’ concepts need to be borne in mind when identifying future research needs. The recent experience of the COVID-19 pandemic shows how pertinent they are. As the chapter makes clear, it is difficult to develop a complete understanding of the COVID-19 crisis without at least some consideration of the role played by the economic and political contexts in which work takes place. For example, it has long been recognised that the transformation of rapid communications, transport and travel that have been facilitated by processes of globalisation which arguably have then been regarded as necessary to sustain the economic growth that is associated with it, have implications that may support both the development and rapid spread of communicable diseases. It is also widely acknowledged that patterns identified in the spread of COVID-19 within countries and communities have elements to them that are associated with economic and social disadvantage and also — to use the regulatory jargon — ‘hard to reach’ workplaces and workers. Moreover, the diversity in these scenarios has made the task of providing institutional support for better OSH practice and regulatory compliance far more difficult than it would be in more conventional situations. Providing support has also been made difficult by the wholesale reduction in state resourcing for institutions that provide support and for public and health services more generally over recent decades. A lack of preparedness of governments in their responses to these and other challenges arising from the pandemic has as a result been almost universal, and success stories in this respect are the exception rather than the rule. The confused and confusing responses of governments in countries long associated with the vanguard of neo-liberalism, such as the United States and the United Kingdom, have been particularly apparent. As commentary in some of the later chapters of the literature review makes clear, such observations lend support to the critiques of current regulatory theories and suggest that the pandemic illustrates an urgent need to consider the consequences of the ‘enforcement gap’.

2.3 Societal norms, social reporting and support for securing compliance

Chapter 3 of the literature review explores relevant elements of the broad social science literature concerning social norms and social reporting in support of securing compliance. A primary reason for its focus emerges from the analytical framework outlined in Part 1 of this final report and is given in more detail in Chapter 1 of the literature review. In the latter, two types of support for compliance were distinguished: one based on Parker and Nielsen’s (2017) definition of ‘spontaneous compliance’ on OSH and the other on their notions of ‘enforced compliance’. As the first of these considers the perceptions of those responsible for OSH in business undertakings of the effects of OSH on the safety and health of workers, it is important to understand what shapes these perceptions. Equally, an understanding of the role of social reporting as a tool to leverage change in such perceptions and better support improved OSH practices is also important. There are close connections between this leverage and the development and delivery of innovative forms of ‘enforced compliance’. Using these connections productively further implies some understanding of the social acceptability of public regulation. In both cases, the social amplification of messages to encourage, promote and enforce compliance also requires knowledge of societal norms and the ways in which they are shaped. Just as important, of course, are social norms that influence perceptions about ‘criminality’ and ‘stigma’ associated with OSH crime.

A more pragmatic reason for reviewing the literature here, however, emerges from the findings of EU-OSHA’s 2018 study on MSEs that found social norms to be useful aids in supporting preventive strategies, acting as social amplifiers of the need for prevention (EU-OSHA 2018). The study showed social norms to be among the influences that help to determine the willingness of firm owners and managers to seek and respond to support for improving OSH arrangements, and that encourage workers in these firms to embrace changes in the way they undertake their tasks. The study concluded that an understanding of the role of social norms, as well as that of the economic and political factors that help to shape them and their influence in society, was important in informing strategies to support compliance and better OSH practices among these firms. Chapter 3 extends this finding beyond MSEs to all forms of work organisation, although it also establishes that the norms in question and the means of their influence may vary.

Unlike most of the other areas of support for securing compliance and better OSH practice considered in the review, the effects of social norms, although addressed by a substantial body of literature, are frequently difficult to disentangle within the literature and pinpoint institutionally. The highly selective review in Chapter 3 reflects this challenge. Only a very small part of the literature on social norms directly addresses OSH issues, and most of this is to be found in the behavioural sciences. Much of this literature concerns social influences on workers' safety behaviour, which Chapter 3 finds of only limited value in understanding compliance behaviours of those responsible for business undertakings. A further strand of the literature offers some insights on 'safety leadership', which are obviously more relevant (and discussed in Chapter 3), while another, smaller, strand of the literature concerned directly with OSH discusses social norms as a part of an effort to understand the social construction of perceptions of risk in OSH, thus aiding understanding of the underlying reasons for both acceptance and contestation in consultations between labour and employers concerning OSH. This has been shown to be important at sector and national levels, for example when attempting to agree to exposure standards; and also at workplace levels, such as during conflicts between worker representatives and management. Yet another theme addressed by an even smaller strand of the regulatory literature has examined the social constructions of crime and criminality in relation to OSH contraventions, blending social history with regulatory and political theory.

The review of the literature in Chapter 3 indicates that, even though limited attention has been paid to their implications for OSH, studies with a more socioeconomic perspective in relation to business conformity with social norms found in the wider literature are also relevant. Moving on from a general discussion of social norms to one more focused on the role of social reporting in supporting OSH, the chapter notes developments in interest and understanding in relation to both large and smaller firms, with substantial increases in the number of studies addressing formal types of social reporting, such as those related to expectations of CSR. However, the chapter also features a discussion of more individual and informal roles for social norms and social reporting in achieving compliance. The latter is seen in particular in the situation of many smaller firms and their workers in society, and among the communities that workers and managers inhabit, such as those defined by the firm and its location, business and sector.

The literature demonstrates how social reporting has been both stimulated and supported by the parallel development of a wide range of standards, certifications and reporting tools, which help to make reporting corporate activities and their consequences more possible. These developments have resulted in systems and tools to support reporting, while also helping to create both a business management climate and a set of social norms in which there is an enhanced expectation of such reporting. Progress has occurred in relation to OSH and, in particular, the growth of certification and OSH standards in relation to OSH management systems.

The finding that emerges most powerfully from the review concerns the role of social norms and social reporting in the social amplification of prevention strategies. The review shows that these do not act in isolation. To consider this in the context of the concepts that are the focus of Parker and Nielsen's 14 questions, while such constellations of influence may consist entirely of factors informing 'spontaneous compliance', such as business interests, the concerns of interest groups and the ethical values of corporate directing minds, social norms and reporting requirements may also represent a suitable focus for leverage in the interventions adopted by regulatory strategists to achieve improved 'enforced compliance'. In practice, it has been argued that such norms and reporting activities have been deployed most effectively through the concerted actions of interest groups representing workers, consumers, environmentalists and the like, such as seen in efforts to influence working conditions (including OSH) at the ends of the global supply chains of large corporations. Such interest groups are those whose actions primarily affect the business interests of corporations, but these actions are often conducted within regulatory frameworks or seek the transfer of regulatory standards and/or frameworks to the situations that are the focus of their attention, and this sometimes occurs with the assistance of regulators and their agencies. The effects of these interest groups cannot therefore be understood in the absence of this regulatory context and this offers regulatory strategists the opportunity to strengthen the role of regulation and 'enforced compliance'.

Such examples are not limited to global campaigns to achieve better OSH practice at the ends of the supply chains of large corporate actors. The successful use of similar mixes can be seen in the

orchestration of influence to improve OSH practice in MSEs — as demonstrated by recent EU-OSHA research on MSEs². Here compliance is sought at more local or sector levels, and evidence suggests that it is more likely to be effective when coordinated mixes of enforced compliance and factors inducing and supporting spontaneous compliance that take account of social norms are involved.

Chapter 3 also demonstrates the need for further research. Despite the burgeoning literature of the past two decades, many questions remain unanswered. Equally, while there has been considerable focus on the positive role of these influences in the literature reviewed, not all such norms or reporting requirements necessarily have positive effects on supporting OSH arrangements; some may act in the opposite direction. Two features of the recent literature are instructive here. One addresses the ways in which the ‘responsibilisation’ of workers in relation to their safety and health can be understood as part of wider trends in the blurring of responsibility seen in recent forms of regulatory engagement in the workplace. The other feature is seen on a larger societal scale and is evident in the politics of safety and health. It has been especially prominent in some European countries, such as the United Kingdom, where political governance has succeeded in portraying safety and health regulation as among the unnecessary ‘burdens on business’ and restrictions upon personal freedoms from which society should be liberated. This perspective has received considerable media support and is frequently argued to inform ‘common sense’ and be accepted as a social norm. Critical analysis of these developments is scarce, but it is clearly possible to understand their construction in much the same way as W.G. Carson’s classic studies of 19th century factory inspection explained the historical processes leading to the ‘conventionalisation’ and ‘ambiguity’ of OSH crime (Carson 1979, 1980). It would therefore seem important to gain a more complete understanding of the determinants of the direction of the effects of social norms and reporting, along with their contextual influences, to usefully inform and support compliance strategies.

More pragmatically, and as is the case with a substantial amount of empirical research on interventions in OSH, while there are situations in which social norms and social reporting may influence the application of good OSH practices, there remains a need to distinguish these from other situations in which the conditions that support these effects are absent and where it is not possible to anticipate their positive influence. Thus, for example, it is far from clear if the many MSEs among those firms pursuing ‘low-road survival strategies’ in their business and employment relations are among those susceptible to the positive influence of social norms, or if it is possible to achieve any impact on social reporting among MSEs. In addition, as we suggest in Chapter 2 of the literature review, beyond the activities of firms, there is a further group of ‘non-standard’ work activities. Until now, these have been on the periphery of conventional work practices, but the evidence suggests that their presence is growing. It is not clear if or how social norms and social reporting could be used to support compliance or better OSH practices in relation to these activities.

While such work situations may be beyond the reach of many conventional prevention strategies, it also may be that the emerging role of social media could be used to good effect in supporting social norms to achieve better OSH arrangements for workers in these situations. Social media applications are widely regarded as having the potential to address situations that are beyond the reach of conventional strategies. There is some evidence that they are employed by social interest groups to apply pressure on large organisations in relation to environmental standards. However, the literature search on which Chapter 3 is based failed to reveal convincing evaluations of examples of their role in securing compliance with OSH standards in the hard-to-reach scenarios described previously. This, therefore, may be a fruitful area for further empirical study.

The lessons of the pandemic are also relevant here. Despite the obvious role of workplaces as potential sources of infection, in some countries the prominence of OSH issues in the reportage of the spread of the virus has been less than might have been anticipated. Moreover, the recent literature suggests that OSH specialists have in some cases been disappointed by the extent to which control strategies adopted by national governments have addressed workplaces. While the reason for this may partly be related to the conflict between the need to control the spread of the disease and the economic consequences of this, as previously mentioned, the limited role played by OSH in public discourse has been noticeable.

² <https://osha.europa.eu/en/themes/safety-and-health-micro-and-small-enterprises>

This may have implications for understanding the role of social norms in influencing OSH compliance, and therefore experiences of the pandemic may provide a useful focus for further analysis.

Turning to the more institutional forms of social reporting embraced by CSR, research on the relationship between OSH and CSR points to several uncertainties that might also benefit from further empirical study. While the potential role of CSR in providing support for securing compliance is often promoted in the literature, there is little systematic research that links this finding to clear evidence of causative effects on improved OSH practice. At best, current evidence seems to suggest that the operations of the safety management practices that meet accepted standards for systematic OSH management inherently require the reporting of a range of OSH indicators. This makes it possible for companies to include material derived from these reports in their CSR disclosures relatively easily. If it is assumed that good OSH practices are synonymous with these OSH management systems, then it follows that companies reporting such indicators might be assumed to be complying with good practice in managing OSH. However, such connections are fairly tenuous, and there is little in the way of systematic empirical data to support them. It also needs to be said that there is a large and very critical body of literature on the role of CSR in supporting compliance with good employment standards — including those on OSH. In relation to future research, therefore, it remains just as important to understand reservations concerning the role of CSR in regulating OSH as it is to build on the findings of the literature that show its more positive effects.

The review of the literature concerning social norms and social reporting in relation to OSH serves to lay the foundation for what follows in this summary of the findings of the overarching review, as they are involved in one way or another in each of the other four areas of the review. For example, the involvement of social reporting initiatives in coordinated approaches to leverage within supply chains to improve OSH experiences among suppliers situated at the ends of these chains indicates a possible role for more innovative regulatory strategy. However, it is not only innovative regulatory practices and supply chain responsibilities and relations that are affected by social norms and social reporting. They are also relevant to both determining the business case for safety and health and stimulating the development of economic incentives to achieve better practice. Of course, they are, to an extent, also determinants of the uptake and use of prevention services in supporting compliance and better OSH practice. In each of these cases, there are areas in which further evaluation could be undertaken; perhaps the most important of these emerges from the connections between their role and that of other areas of support in more strategically coordinated ways of securing compliance and better OSH practice.

2.4 Economic incentives and the business case

While social norms may help underpin spontaneous compliance, economic incentivisation is often regarded as a powerful means to achieve it. Therefore, it seems logical that Chapter 4 of the literature review should explore the evidence of these means and their effectiveness in supporting compliance and better OSH practice. This literature is quite substantial and addresses a wide range of different forms of economic incentivisation that have been used to promote actions on OSH by undertakings, as well as the role of such strategies in national policies on OSH in EU Member States. However, Chapter 4 finds that the extent of the literature's analysis, and its measurement of the effectiveness of the measures on which it is focused, vary considerably.

One of the widely accepted tenets of policy and practice in OSH is that there is a 'business case' for the dedication of a firm's resources to OSH, and a key theme of prevention strategies involves raising awareness among firms of the benefits of such preventive actions. A point of departure for the review in Chapter 4, therefore, is to regard economic incentivisation as an external factor influencing approaches to compliance, and to understand it in terms of its effectiveness as a strategy to achieve better OSH practice.

Overall, the literature argues that the virtues of economic incentivisation and the business case for OSH offer positive reasons for businesses to do more than merely meet statutory requirements on OSH. With similar rationales, policies at EU and Member State levels have also promoted economic incentives and the business case for good OSH practice, and a body of research has sought to explore the evidence to support such policies. Such support is to be found in the many studies that have considered the effects of a variety of economic incentives on improving OSH within firms. Broadly speaking, research

on the costs of injuries and ill health, while showing that the burden of such costs falls on society, also generally indicates that these costs can be considerable for individual businesses too, and points to substantial economic savings that may result from better OSH measures within workplaces. There is a large body of literature describing specific OSH interventions that claim to do this. There is also a substantial body of literature that argues the presence of a connection between employee well-being and strong business performance, including some analysis that suggests that OSH is among the 'intangible assets' of an enterprise, that is, something that may not appear in any balance sheet, but has business value nevertheless. At the same time, further analysis shows that investment in OSH is not necessarily always beneficial to achieving better business outcomes, and nor are these outcomes necessarily the principal reason why such investment is undertaken. These analyses indicate that, while economic incentivisation may play a role in improving OSH, determining how and when this occurs is not always straightforward.

Therefore, while there is a case for further research on ways to make incentives more effective, such as has already been identified in previous studies and continues to be among the recommendations of more recent ones, there is a pressing need to consider how economic incentives could be more effectively combined with other elements of support for securing compliance. There is a further need for more rigorous examination of how society might be more motivated to achieve benefits from the economic incentivisation of improved OSH performance.

Economic incentives may be external, in the sense that they take the form of direct financial inducements provided by a third party to encourage the ownership and management of a firm to adopt a desired approach to OSH. The present review indicates that most of the literature, as well as the policies promoting economic incentives, deals with this approach. It seems unlikely that further research to discover possible additional economic incentives or their effects will reveal much that is not already known or could not be predicted from the findings of the existing literature. Nonetheless, areas in which further research would be useful are identified in previous studies and include the need for more detailed and specific investigations of the influences that can go beyond pure experience rating (e.g. bonus-malus systems) to determine their useful effects more precisely; more standardised and comparable studies using cost-benefit analysis in relation to economic measures and work-related injuries and ill health, and more comparable investigations of other forms of economic incentivisation; and a greater focus on the effects of differences in national and sector contexts in which the investigation of economic incentives occurs. Such future research would create a better understanding of 'what works and for whom' in relation to economic incentives and the business cases they help to support.

However, economic incentives may also arise as the result of the ownership and/or management of firms 'internalising' the business benefits of taking particular actions in relation to their OSH arrangements to reduce losses or enhance their market position. While there may appear to be a difference between the external inducements discussed previously and internal forms of incentivisation — one arising from a directed external effort by a third party to encourage particular actions and the other from awareness within a firm of the business benefits of actions to improve their OSH arrangements — nowadays, in practice, they are not so easily distinguished. In the latter case, for example, internal recognition of the business advantages of making changes to improve OSH arrangements may be a response to external influences, albeit sometimes of a more diffuse or removed nature, such as those that relate to a firm's reputation and its relationship with clients and customers. Awareness of such influences may also be prompted by strategic actions of third-party interests. Thus, for example, recognition of reputational risks may arise indirectly and as the result of the actions of external interest groups such as consumers, labour organisations or the media, leading to acknowledgement within a powerful business organisation that damage to its reputation could arise from poor OSH arrangements or from OSH failures in the supply chains it controls. Maintaining its market position and the profitability of its business therefore require it to intervene to prevent or remedy OSH defects among supplier organisations (to which others have drawn attention) in the chain it controls. Further examples can be found in some of the literature addressing certification and OSH standards, which demonstrates, for example, how buyers may influence their suppliers to meet adequate OSH standards more systematically through the use of certification schemes, which in turn may be more widely influential in achieving desired standards for OSH arrangements among suppliers more generally. Meeting such certified standards can become a condition for business — a kind of 'licence to

operate' — and thereby an important form of an economically driven incentive for buyers and suppliers to give greater attention to OSH considerations (see also Chapters 3 and 5 of the literature review).

The review suggests that 'business case' approaches to support for compliance are often based on several common assumptions about the power of economic incentives and disincentives to change the behaviour of management in relation to OSH, as well as on assumptions concerning the will and capacity of management to make rational calculations about these matters in relation to the economics of their business. While such analyses no doubt occur in some situations, for example among some larger organisations with sophisticated approaches to managing their accounting in relation to OSH, it is clear from research findings that they do not always occur. Several studies in the wider OSH literature report that it is not uncommon, even in larger organisations, for positive decisions on OSH to be made for reasons other than their financial benefits, and, while it may be good accounting practice to factor in the cost of OSH, this does not always occur in practice, particularly in smaller organisations.

There is a strand in the literature that suggests that societal and company expectations in relation to the potential costs of failing to support OSH are also influential. A possible area of future research would therefore be to explore potential connections between these expectations and economic incentives, which might serve to enhance OSH support. A key problem that remains to be explored, however, concerns the role that these kinds of incentives could play in reaching firms that are not normally proactive on matters of spontaneous compliance, and that are increasingly present in the changing economies of EU Member States (for example those MSEs referred to as 'reactors and avoiders' in EU-OSHA 2018).

A future research programme on support for securing compliance would also provide the opportunity to explore the role of economic incentives in combination with other fields of intervention to achieve more sustainable cross-cutting strategies to support regulatory compliance and better OSH practice. Such research would need to take account of context, because, as the literature review suggests, such incentives are often context specific and unlikely to be effective when applied in situations where supportive contexts are underdeveloped or absent. Economic incentives are, for example, relevant to supply chain leverage initiatives (as already indicated) and research that incorporates exploration of the role of social reporting. This could be in relation to CSR and OSH, but might also form part of an integrated study of the possible links between economic incentives, social norms, social reporting and isomorphism in influencing compliance behaviours among hard-to-reach MSEs and other forms of work at the periphery of the conventionally regulated economies of Member States. The same research might further explore the role of regulatory agencies and other strategic players in orchestrated regulatory interventions by analysing possible synergies between their strategies and economic incentivisation when targeting hard-to-reach groups.

The implications of the COVID-19 pandemic may be relevant to all these scenarios. At the very least, these implications suggest that good practice in relation to future OSH management will need to take more account of the possibility of having to organise employment and work practices, as well as workplaces, to offer better protection for workers against the possible future transmission of infectious diseases. The pandemic has clearly demonstrated the need for contingency strategies that can be deployed to reduce risks in the face of future pandemics and that take heed of the lessons learned from the failure to do so sufficiently, as in the case of COVID-19. While many such lessons need to be learned by governments and the state services involved in the regulation and administration of public and occupational health, their messages must go wider than this. Some messages relate to arrangements made by firms; for example, having adequate OSH arrangements in place to help prevent human transmission of microbial infection may include not only the supply of adequate personal protective equipment, but also the rearrangement of work and workstations, in many cases requiring additional space or a reduction in the number of workers present at any one time. Both may have financial implications for employers and, as the COVID-19 pandemic has illustrated, often also for workers. If adequate resources are not available to incentivise employers to adopt appropriate measures, it is clear from the experience of the pandemic that some employers, particularly those who fear that their business will not survive, will require workers to continue to work in unsafe conditions. Institutional support such as that provided by statutory insurance organisations, as well as statutory sick pay arrangements, tax exemptions and the like, may need to be modified to help incentivise safe arrangements. Research is required to identify the most suitable economic models and the most

practicable ways in which incentivising safe arrangements could be achieved. In addition, prevention services and OSH professionals may be used more effectively in contributing to incentivised support. There are, therefore, many questions to be addressed by future research on how such incentivisation might work most effectively.

2.5 Supporting compliance and better OSH practice through leverage in supply chain relations

An important feature of change noted in the review is the increased significance of the role of supply chain relations in the organisation of work and business. This has been driven by trends towards outsourcing, by both private and public sector organisations, of both 'peripheral' and 'core' activities. As a result, the significance of vertical supply relationships between buyers and sellers has increased, with labour conditions, including OSH, being shaped by financial and other business dynamics operating within interorganisational relations. This has radically altered the economic contexts in which compliance with regulatory and other standards on OSH takes place, and has thereby created a more challenging scenario for conventional means of improving OSH arrangements in firms.

While the literature on supply chains and OSH generally suggests that these changes lead to worsening conditions for workers at the ends of such chains, it also demonstrates that, in certain cases, supply chains can be used to leverage compliance with OSH standards and better OSH practice. What determines whether such relations constrain or support sound OSH practice is therefore an important question for how compliance is interpreted and implemented within such business configurations.

This question is addressed by the overarching review and is presented in Chapter 5 of the literature review. It focuses on the evidence for ways in which leverage to support compliance with OSH standards and better OSH practice have been operationalised in supply chain relations, and what determines and supports this. This focus gives rise to doubts about the appropriateness of using the direct relationship between employer and employee as the sole basis for legal regulation to protect workers. The review notes progressive efforts within the EU and elsewhere to address this by changing the focus of regulatory duties and taking new approaches to achieving compliance. However, it also indicates that, despite evidence of these changes helping to create some leverage in the relations of supply chains to influence support for compliance and better OSH practice in some countries, sectors and business contexts, overall progress in adopting these processes in EU Member States has been limited. Consequently, for the most part, the effects of supply chain relations on OSH remain rather negative. The quite extensive body of literature on OSH outcomes associated with supply chain relations strongly indicates that the influence of these structures leads to poor OSH outcomes, especially among lower tier suppliers whose businesses are financially vulnerable and whose OSH arrangements are constrained by this. The literature suggests that, in these situations, increased porosity of the boundaries of the employment relationship allow third-party actors, such as the powerful buyers controlling supply chains, to determine working conditions (including OSH) in the undertakings that supply products or services at the end of supply chains. Generally, this means that the effects of price and delivery demands imposed upon suppliers by their more powerful buyers create downward pressures on the quality of OSH arrangements, and may even encourage managers and workers to cut corners on OSH to meet such demands.

Examples in the literature suggest that measures to remedy this situation are most likely to be effective where regulatory and compliance promotion strategies combine to stimulate and support both vertical and horizontal pressures on firms in supply chains, thus ensuring OSH considerations are prominent in the demands placed on suppliers, and that suppliers themselves are sufficiently resourced and motivated to deliver them. These examples suggest that coordinated actions of many actors and processes are likely to be most effective. Another major finding evident in the literature is that only rarely do market and business considerations alone appear sufficient to motivate supply chain actors to prioritise the safeguarding of workers in their dealings with one another. Therefore, to provide the necessary incentives and capacities to do so, the research literature suggests the need for:

- legally binding vertical obligations on buyers at the head of supply chains;
- legal obligations on suppliers in the chain to inform buyers of the location of workers carrying out the work and the conditions under which they are working;

- arrangements for monitoring compliance with these obligations that involve competent third-party auditors/inspectors who are financially and organisationally independent of buyers;
- requirements for buyers regarding matters such as the prices to be paid to suppliers and the length and security of supply contracts to ameliorate the competitive market dynamics that undermine the maintenance of decent labour standards within supply chains;
- the independent involvement of the representatives of affected workers in the drafting and horizontal oversight of initiatives.

These requirements are, however, quite difficult to achieve, and arguably go against the grain of currently preferred business strategies and economic policy orthodoxies. Chapter 5 of the literature review identifies only a limited number of cases in which some or all of these approaches have been adopted and are effective. This begs a number of questions for further research.

In addition, and related to this, two further significant findings emerge from the findings presented in Chapter 5. The first concerns the interaction between different types of support for securing compliance. As with other areas of support addressed in this review, findings on leveraging better OSH in supply chain relations demonstrate that this type of support seldom acts in isolation. For the most part, all types of support act in concert with other forms of support, and their success lies in the effectiveness of leadership and their coordination. Thus, for example, in successfully effecting leverage for better OSH in supply chains, social reporting and economic and business incentives, along with the representation of worker and consumer interests, can be seen to operate in conjunction with innovative regulatory approaches in a regulatory mix that is enhanced by a framework of legal duties imposed on a range of parties broader than just employer and employee. This approach ensures that responsibility for the protection of workers in supply chains rests with the actors who have the power to control and benefit from these supply chains. As before, what stimulates and sustains the concerted actions of the various forms of support for compliance remains a key question for further research and analysis.

The second significant element to emerge from this mix concerns leadership and coordination. Again, the evidence would suggest that neither public regulation nor the market alone can serve to ensure compliance among the business actors involved in these scenarios. The most successful schemes, illustrated by the examples in the text boxes in Chapter 5, have been driven by key actors who are often external to the businesses and supply chains in question. Thus, the success of sector-based initiatives such as those in the construction and clothing industries, as well as in the food industry, is often linked to the innovative monitoring, compliance promotion and enforcement strategies used by state regulators, and to innovation in the collective bargaining approaches of trade unions. Success is further linked to collaboration between private and public regulatory actors to achieve more coordinated influence. For example, such concerted actions have had an impact on the business strategies of global corporations, leading to support for the adoption of fair labour standards by suppliers in the poor countries that produce the goods sold by global corporations in rich countries. In all such initiatives, inspired leadership and coordinated actions have played a significant role in their success. Who provides this leadership, and under what circumstances it succeeds in coordinating the engagement of a multiplicity of other actors and processes, remains a subject for further more detailed investigation. Evidence often points to the critical role of regulatory agencies as leaders and coordinators of boundary-spanning activities, leveraging a greater focus on the OSH consequences of supply chain relations. At the same time, however, it is far from clear that such a potentially pivotal role is 'mainstreamed' in the enforcement approaches used by OSH regulators across the EU, or that OSH regulators in all Member States have realised the potential of their role in this respect. Here, too, there is a need for more detailed and comparative empirical study of enforcement practices. It is often unclear, for example, what the key factors are in these regulatory mixes that promote success, what factors provide capacities for coordinated actions, and what might determine their transferability and sustainability.

Related to this are further questions concerning the effects of national contexts. A feature of the literature reviewed in Chapter 5 is the span of its domestic and global focus. Some research studies address 'what works' in relation to leveraging OSH in domestic supply chains, while a largely separate body of literature addresses leveraging labour standards in global supply chains. As already indicated, both deal with the vertical and horizontal determinants of the effectiveness of intervention to improve conditions across, and at the end of, supply chains. The studies implicitly acknowledge the role of sector and

national contexts in promoting or limiting the effectiveness of these determinants, but seldom compare 'what works' in one scenario with 'what works' in another. It is very clear that there are huge differences between countries when it comes to administering and resourcing OSH regulation and support, as well as differences in the wider social, economic, regulatory and political contexts in which this takes place; however, there has been very little comparative study of such influences within the EU.

The experience of the COVID-19 pandemic is also relevant here. Given that the evidence on workplace exposure suggests that many of the poorest conditions are often experienced in work and workplaces at the end of supply chains, it is no surprise that a similar situation has been seen with regard to work-related exposure to COVID-19. This is not a special feature of the pandemic, but, rather, the experience of the pandemic has drawn attention to the presence of the already existing poor arrangements for OSH and the vulnerabilities of disadvantaged groups of workers, who are often situated at the end of supply chains.

More significantly, the disruption to the economy caused by the effects of the COVID-19 pandemic has revealed the fragility of supply chains, exposing in particular the vulnerability of complex global chains that have been based on lean manufacturing principles. This has led to calls for the development of stronger, smarter and more diverse supply chains to ensure a lasting economic recovery. It is predicted that single-sourcing models of supply, driven by cost control, may give way to more diverse and locally focused supply chains. Theoretically, such trends may offer further opportunities to use supply chain relations to improve support for OSH arrangements, but the details of how this might happen will undoubtedly require contributions from research on 'what works' in enabling such improvement. At the same time, one of the major issues for public health highlighted by the experience of the pandemic is that of the further disadvantage it imposes on already disadvantaged groups for whom inequality in exposure to risk is a common experience. For example, recent literature has reported that massive numbers of workers at the end of global supply chains in sectors such as the garment industry are without work as a result of cancelled orders due to the pandemic. For many such workers, there is no adequate compensation for loss of income, and they and their families face the prospect of serious hardship as a result. The wider health effects of such hardship are immense; while not 'occupational' in the sense of resulting from work, these effects are nevertheless the result of the absence of 'occupation' and every bit as serious. It has already been pointed out that in the advanced market economies of the EU many precariously employed workers in vulnerable positions at the end of supply chains face similar problems with poor health consequences. Either they are obliged to continue to work in increasingly unsafe situations to keep their jobs, as their employers scramble for competitive advantage in price-driven markets made even more so by the effects of the pandemic, or they face loss of income and ineligibility for forms of support available to workers employed under more conventional contracts of employment. Both situations are associated with poor health outcomes.

2.6 Prevention services and support for compliance and better OSH practice

The position and role of prevention services in securing compliance and better OSH practice are somewhat different from those of the other four areas of institutional support considered in this review, and, at first sight, also more remote from many of the connections shared among the institutional actors and processes involved in these other areas. For many OSH practitioners and policy-makers, OSH prevention services are central to supporting the achievement of better practice — as is made plain by their prominent position among the requirements of the Framework Directive. However, workers' engagement with OSH prevention services is often quite limited, particularly in current times. While Article 7 of the Framework Directive identifies the central role of OSH prevention services in supporting better OSH practice and defines the responsibilities of employers to designate or enlist 'competent services or persons', it leaves it to Member States to 'define the necessary capabilities and aptitudes' of these services or persons (Article 7.8). This has allowed diversity between Member States over what constitutes such services.

Moreover, as such capabilities and aptitudes are likely to change apace with changing needs, it might be anticipated that the shift that has occurred in most EU Member States from a predominantly production-based economy to one that is more based on services is likely to have had some impact.

The 'preferred model' of prevention services, which still receives legislative support in many Member States, is one that assumes that professions allied to medicine and engineering continue to play a major role, while also acknowledging the need for occupational psychology and related skills. The available evidence suggests that, in practice, prevention services based on this model have a relatively limited presence in Europe overall, however. At the same time, there has been considerable growth in the profession of more generalist OSH practice. This profession aspires to have a set of competencies orientated towards supporting the OSH management needs found in current work activities and focused more on knowledge of regulatory standards, human behaviour and OSH management, learning and change, human factors and organisation and so on, rather than on competencies in science, medicine or engineering, which are considered more relevant to industrial production. It is also clear from the recent literature that these practitioners are an increasing presence among the support services deployed in larger organisations in both the public and private sectors, and that their professional bodies are increasingly prominent in policy discourse in some countries. However, it remains unclear to what extent they are sufficiently versatile to address the needs of workers and employers in relation to the emergent features of the current economy described in Chapter 2.

Whatever the nature of the competencies of prevention services and whether they function from within or outside firms, ideally they will have a broadly similar function in supporting undertakings with competent specialist OSH expertise, thus helping to ensure that they manage OSH in accordance with appropriate standards. Since the adoption of the Framework Directive and its transposition into the laws of EU Member States, this requirement to manage OSH with competent support has been mandatory. However, the findings presented in Chapter 6 of the literature review demonstrate that services providing such competencies have developed in different ways because of their particular national and sector contexts and professional orientations and power, and their relations with other institutional sources of OSH knowledge. It is partly because of this that there are currently little in the way of systematic data on the extent of prevention service coverage and effectiveness that are comparable between EU Member States. The data that do exist suggest both coverage and effectiveness may be quite limited and strongly biased towards the needs of larger firms that have sufficient resources for the activities of prevention services.

Chapter 6 further shows that the presence and practice of prevention services are subject to many challenges resulting from changing national contexts, including change in the structure and organisation of work and labour markets, as well as political changes that determine what constitutes the support they provide and how it is resourced. The current structural and organisational contexts of these services do little to encourage notions of their centrality in either the economies or health policies of EU Member States. While it is possible to find traces of wider political and economic trends that may have influenced their development in this way, the relevance of these trends to the present-day situation of prevention services is limited.

Considering the review of the literature in Chapter 6, it is difficult to argue that significant progress has been made in efforts to increase the access of workers to prevention services since the measures of the Framework Directive were adopted. In fact, circumstantial evidence reviewed in the chapter suggests that it is likely that such access may in fact have diminished in the intervening years. Thus, there are a number of questions that might be asked concerning how or in which direction the role of these services might be usefully developed in the future and what will drive such development.

From a historical perspective, the review confirms that prevention services largely originated as elements of health systems organised by the state or social insurance institutions to support production. They were also set up and supported within large organisations by corporate interests to enable them to deliver their responsibilities for the health of their workers, especially in high-risk industries. They also proliferated in sectors with strong legal responsibilities to safeguard the public, such as food production and transport. In recent decades, however, changes in the economic profiles of post-industrial European countries, and in the political and economic policies of governance, have resulted in Member States reducing resources for prevention services, along with a decline in the presence of large industrial concerns whose activities necessitated substantial investment in the provision of these services. Nowadays, external prevention services are increasingly required to take responsibility for their own economic survival and to provide their own resources in a competitive market for their business.

Several consequences have arisen from this. First, it seems clear that a better structured market mechanism is needed to ensure that the business of prevention is sustainable and able to serve a wide range of firms. In Germany and other countries with strong social insurance systems, there is evidence to suggest that these systems have provided prevention services with sufficient support to enable them to adapt to changes required as a result of marketisation, while maintaining the quality and diversity of their provision. There are indications that these services have, as a result, been able to contribute to the economic incentivisation of prevention and even, to an extent, play a role in innovative approaches to supporting compliance among MSEs and other hard-to-reach organisations in the 'new economy'.

The critical literature suggests that the highly developed integrated services of some other countries, such as the Netherlands and Sweden, may have been less successful in maintaining a strong prevention focus and contributing to supporting MSEs and other such organisations. Commentary in these and other countries gives rise to further concerns. There is some evidence, for example, of the presence of poorly qualified or unqualified consultants offering inadequate services, especially to owner-managers in MSEs. Other studies suggest that the cost of prevention services means that some firms (again, especially smaller firms) use them only minimally, and choosing the cheapest options available that are sufficient to meet statutory or insurance requirements. The recent literature also suggests an absence of attention to prevention, again especially among the services available to MSEs, where services are largely used to support employers' absence management and return-to-work strategies. There is also some evidence of limited interest among practitioners in many prevention services in engaging with the needs of MSEs and related work structures, either for financial reasons or because of a perception that they are of insufficient professional interest. In all these situations, it is clear that if, for whatever reason, a service intended to support the competency of employers to deliver their statutory duties to manage OSH risks effectively is failing to do so, it cannot be said to be offering support for securing compliance and better OSH practice.

The message here is clear. It remains the case that, despite these challenges, some OSH prevention services have succeeded in finding the means to ensure their sustainability and deliver advice and guidance on good practice to support compliance and better practice in different sectors across EU Member States. It follows that there is a strong need for better and more comparative research on how they have been able to achieve this and, in particular, what lessons these successful cases can offer to policy-makers interested in drivers and support for sustainability and the transfer of effectiveness in delivering preventive services.

Although Chapter 6 indicates that prevention services often function at some distance from the other areas of support for compliance and better practice considered in this review, this is not the case across the EU, and there is a need to explore the synergies between such services and other forms of support for securing compliance where they are found to exist. One consequence of the COVID-19 pandemic concerns the role of expertise in prevention services and in repositories of knowledge, and the professional expertise they and the professional organisations representing their interests share. In several of the publications examining the ways in which workplace exposure to COVID-19 has been managed (cited in Chapter 6), attention is drawn to the need to engage with this knowledge and experience. In fact, it seems that many of the early mistakes made by some public authorities in their efforts to control exposure during the pandemic could have been avoided if they had been more receptive to such advice.

Chapter 6 addresses two obvious further areas of synergy. One concerns the role of internal prevention services operated by powerful buyers at the apexes of supply chains in supporting the OSH needs of suppliers at various levels in the same supply chains; another is the role of prevention services in the economic incentivisation of better OSH practices, such as that seen in some of the activities undertaken by the *Berufsgenossenschaften* (BGs) in Germany. Further examples of the relations between prevention services and other forms of support for securing compliance can be found in the ways in which their interventions have sometimes been part of more orchestrated support for compliance in relation to MSEs. All these (and other examples) could be explored further to better understand how such synergies have come about, what has driven their acceptance, how transferable and sustainable they are, and what role social norms, economic pressures or innovative compliance strategies might have played in achieving their effects.

Another important area for further research concerns the evolving role of OSH competencies in support for compliance and better OSH practice. As we have seen, consequent to change in the structure and organisation of work and labour markets are changes in the nature of risk, and in strategies used to manage risk and protect workers from harm. It would be surprising, under such circumstances, if there were not also concomitant changes in the nature of knowledge and professional expertise needed to support managing such protection. We have commented in Chapter 6 on the increase in the presence and significance of the 'generalist' OSH practitioner within professional support for OSH in recent decades. There has, however, been very little serious study of the consequences for the balance of professionalism generally in OSH; of the nature of support it may bring to improving compliance and better practice; or of the results of such support. Further research is therefore recommended.

It is clear that traditional models of prevention services, which were developed in relation to an industrialised past, can provide valuable contributions to supporting preventive practices; however, for a host of organisational, structural, economic and political reasons, they are ill suited to directly addressing the large-scale OSH prevention needs in present-day economies in most EU Member States. As Chapter 6 points out, the indirect historical contribution of these services to supporting compliance and better practice through generating knowledge on prevention is probably substantially greater than that exemplified solely by their direct interventions. It may be, therefore, that in increasingly de-structured and market-orientated economies, where work is organised and controlled in a host of ways that limit the effectiveness of direct forms of intervention, the future effectiveness of these services lies in them developing in other directions to support compliance.

Chapter 6 draws attention to the similarities between this situation and that of regulatory monitoring. Recognition of the lack of effectiveness of monitoring in being able to investigate increasingly hard-to-reach forms of work in current economies, and an acknowledgement that resources to do so are limited, has led regulators to consider that there may be more effective ways of monitoring and securing compliance, that is, different compliance monitoring and promotion strategies may be useful additions to the traditional approaches of face-to-face contact with an inspector. There are many innovative ways of doing this that are currently in the process of being adopted by regulatory agencies in some EU Member States. The same kind of approach may also be relevant to the future of prevention services. Ways of delivering prevention services to support compliance and better practice in the disaggregated, fractured, fissured and remote forms of work organisation that are characteristic of the current economic structure need to be identified, along with a means of ensuring their relevance to, and use by, persons responsible for these undertakings. There seems, however, to have been little exploration of these possibilities in the literature.

The priorities for further research, therefore, include addressing questions related to the delivery of new ways for prevention services to contribute to securing compliance that are both sustainable and transferable. The experience of COVID-19 in workplaces is of further relevance here. In some countries, it has served to demonstrate the need for much better liaison between expertise in public health — where the overall responsibility for strategies to combat such a pandemic often lies — and that in OSH. The latter type of expertise is highly relevant to prevention and control during a pandemic because, as the COVID-19 pandemic demonstrated, in the absence of effective vaccines, efforts to control the spread of disease will flounder amid the conflict between protection through social isolation and containment and the need to maintain a productive economy. Finding ways to ensure safe and healthy workplaces under such circumstances is therefore important for supporting effective and practicable strategies to address the potential challenges posed by future pandemics. Better engagement between public health strategies and knowledge and experience in occupational health are therefore required at all levels, from global to local. Future research must consider ways to evaluate how this might be achieved most effectively, and thereby support better OSH and public health practices to meet these challenges. A further issue for research concerns the role of expertise in setting regulatory standards concerning biohazards, to address the prevention of harm arising from work during future pandemics. For example, trade unions have been campaigning for such measures at a global level for a considerable time, with little progress being made towards a positive outcome. It is not entirely clear what the role of OSH knowledge and expertise has been during this time, or what its role could be in future efforts to put in place regulatory measures that would protect both workers and the public more effectively in future pandemics.

2.7 Encouraging novel approaches by OSH regulators

Building on the discussion of innovation in regulatory strategies outlined in Chapter 1 of the literature review, Chapter 7 reviews the literature in English on approaches taken by OSH regulators in EU Member States to monitor (inspect and investigate), promote and enforce compliance. To set the scene, Chapter 7 outlines the relevant policies, strategies and principles developed at international and EU levels. It then examines current policy and practice in EU Member States, and presents some novel approaches, including one relating to OSH monitoring during the COVID-19 pandemic. The chapter finishes with a discussion of some novel approaches developed for monitoring, promoting and enforcing compliance in the context of new ways of structuring, organising and controlling work, which were developed outside the EU and might be suitable for adaptation by EU Member States.

Section 7.1 of the literature review observes that the policies and practices of OSH regulators in EU Member States are considered in the context of and steered by a series of international and EU-level instruments developed by the IALI, ILO, OECD and Senior Labour Inspectors Committee (SLIC),³ among others. These instruments take the form of policies, strategies, principles, codes, standards, handbooks and toolkits. They seek to:

- promote the competence, professionalism and good governance of OSH/labour regulators, and increased staffing levels and resources;
- ensure effective and efficient methods for promoting, monitoring and enforcing compliance, and harmonised approaches to these, and may offer model policies, standards or manuals for regulator operations and training;
- encourage the use of penalties that are proportionate and have a sufficiently deterring and dissuasive effect, and promote a role for market forces, and private sector and civil society actions, including the involvement of social partners and other stakeholders, especially in compliance promotion;
- ensure sound performance measurement and evaluation across the range of OSH regulatory activities.

Some of these instruments are influenced by risk-based regulation (and, to a lesser extent, responsive regulation) and, in the ILO's approach to strategic compliance planning, by strategic enforcement (each of these regulatory approaches are introduced in Chapter 1 of the literature review). Although the various instruments provide building blocks for 'how to be an OSH regulator', each Member State and regulator responds to them differently, as they determine and implement arrangements according to their respective national political, social and economic contexts and imperatives (see also Member States' contexts in Chapter 2 of the literature review).

Section 7.2 of the literature review examines OSH regulators' core activities in compliance promotion, monitoring and enforcement in EU Member States. It reveals significant variation in priority setting and resource allocation, in programmes and interventions, and in how inspection and enforcement are conducted. The mandates of OSH regulators enable them to address a narrower or broader range of problems, with the former focusing on OSH matters and the latter extending to labour relations and employment issues, which, in some circumstances, can be closely intertwined with OSH matters. These differences in the scope of OSH regulators' mandates are reflected in differences in their priorities, which are typically set out in strategies and plans that steer their allocation of resources. Many OSH regulators apply a form of risk-based targeting that focuses some of their resources proactively, whereas some apply a strategy of periodically screening a wide range of firms. Investigating incidents and responding to complaints are also routine activities, but may be prioritised according to risk-based criteria. It appears that risk-based regulation is the only regulatory model applied by some OSH regulators, although it is principally applied for targeting resources, and to some extent for choosing what action to take in the course of inspections, rather than for choosing between inspection and other types of interventions (as

³ IALI, International Association of Labour Inspection; ILO, International Labour Organisation; OECD, Organisation for Economic Co-operation and Development; and SLIC, Senior Labour Inspectors Committee.

proposed in smart inspection). There are concerns about the adequacy of data and information for risk-based decision-making, and the potential to overlook new and emerging risks and vulnerable workers.

As a result of the separation of the agencies implementing compliance promotion, monitoring and enforcement functions in some national systems, some countries have potentially greater challenges in coordinating the contributions of these agencies to securing compliance. This would particularly be the case if they were to contemplate a nuanced strategy of responsive regulation that requires the coordinated and sequential use of compliance promotion mechanisms and different types of sanctions and, in the case of smart regulation, involving additional stakeholders. The latter practice, especially the involvement of social partner organisations (employer and union representatives), is common among OSH regulators, as encouraged by the EU strategic framework (EU Strategic Framework on Health and Safety at Work 2014-2020) and SLIC's developmental principles. Most examples of social partner involvement are routine. They are not tailored interventions enlisting a range of stakeholders in addressing the underlying determinants of non-compliance, and using a range of mechanisms and tools, as envisaged by the regulatory approach of strategic enforcement or its close relation, co-enforcement (as discussed in section 7.4 of the literature review).

Although OSH inspectors have broadly consistent powers across EU Member States, there are differences in fines and non-pecuniary sanctions for non-compliance, and in the conduct of inspections across a range of variables. There are differences in the type, mix and focus of inspections and investigations, and whether they are unannounced or scheduled and arrangements for these. There are also differences in (i) the types and mix of advice, information and sanctions employed by inspectors; (ii) whether inspectors require authorisation to issue more punitive measures; (iii) whether inspectors' responses are proportionate to firms' non-compliance or OSH performance; and (iv) whether other criteria are used by inspectors for issuing notices and assessing infringements. There are further differences in the ways in which the administrative procedures of regulatory agencies address sanctions and the roles of the inspector in these, for example in the balance between the autonomous actions of an inspector and those of the legal departments of inspectorates. There are also further differences in inspectors' style, which may be more facilitative, accommodative or coercive, and in whether there is a follow-up inspection or some other means of checking the response to notices or fines issued. Other differences relate to how inspection and enforcement outcomes are made available to the public, and firms' OSH management. A further key finding is that OSH regulators and the courts in EU Member States have a limited set of administrative and criminal sanctions to employ. This may constrain their ability to respond to differences in firms' capacities and motives, and section 7.2 argues that there may be merit in establishing comprehensive hierarchies (pyramids) of support and sanctions that regulators can employ in securing compliance.

As well as discussing the literature relating to OSH inspection and enforcement in EU Member States generally, section 7.2 reviews empirical studies on OSH regulators' efforts to support compliance and improve OSH outcomes in smaller firms, and to improve the management of psychosocial risks. Both sets of studies provide mixed evidence of inspections and other types of interventions for these types of firms and risks, and multiple factors influencing their effectiveness.

Overall, it appears that there is inconsistency in approaches to monitoring, promoting and enforcing compliance in EU Member States, rather than the consistency called for in SLIC's common principles. In view of this multifaceted variation, there is considerable scope to research the effectiveness of different approaches. Existing studies in EU countries reinforce the findings of systematic reviews that inspection and enforcement can have a positive impact on OSH compliance and outcomes, but shed little light on the effect of fundamental differences in approaches. Such insights are needed for OSH regulatory interventions in neglected firms (for example micro enterprises) and in firms generally, and in the case of neglected workers (for example the precarious and vulnerable) and specific risks.

Section 7.3 of the literature review examines some examples of novel approaches in compliance promotion, monitoring and enforcement found in OSH policies and practices in EU Member States. It is noted that novel approaches are always evolving. A current driver of this is digitalisation, which is rapidly extending the potential for digital interfaces to feature in OSH regulators' communication, information and training, reporting, data collection and analysis, and inspection methods. Examples of such innovations are digital platforms that enable workers and others to anonymously report OSH concerns

to the regulator, the use of virtual reality in developing OSH competence, and the application of drone- and video-based real-time technologies in inspections. Digital developments are at an early stage, but, in some respects, have accelerated during the COVID-19 pandemic. Section 7.3 includes an example of a novel approach relating to COVID-19, as well as several longer standing examples, some of which are listed below.

- ‘Virtual inspections’ involving video conferencing, in which inspectors discuss and view OSH conditions in workplaces through the digital interface. Such virtual inspections may include the inspector conducting a ‘virtual walk-through’ of the workplace, asking questions and reviewing electronic documentation, digital photos or videos uploaded from the workplace. The workplace participants may include managers and workers or worker representatives.
- The Netherlands’ working conditions ‘catalogues’ (arbocatalogi), which are developed by employer representatives and unions to provide practical guidance on complying with legal obligations for particular industry sectors/branches, and are assessed and made available by the OSH regulator (Inspectorate SZW). There is scope to further investigate the efficacy of these catalogues as a compliance promotion measure, including the quality of their guidance and their use by firms, and workers and their representatives in different types of firms.
- The Danish strategy of ‘orchestration’, which involves the explicit and transparent integration of a variety of policy instruments, utilised by various actors, with the aim of securing improvements in OSH compliance and practice (a strategy akin to smart regulation, discussed in Chapter 1 and again in section 7.3). Case study analyses have identified important elements for success, including regulation as a prerequisite for full participation, careful design of activities to build shared understanding and acceptance of policy goals, balancing different types of policy instruments, attention to business desire to ensure legitimacy as a basic driving force for action, and consideration of policy goals and programmes from the standpoint of those targeted, not just those orchestrating them.
- National initiatives to harvest data beyond the European Statistics on Accidents at Work (ESAW) and European Occupational Diseases Statistics (EODS) collections to inform preventive interventions. These include periodic population surveys about OSH; sample surveys on OSH at firm level; the structured reporting of potential cases of work-related disease by medical practitioners to OSH agencies; and the structured collection of inspector knowledge of types of work hazards/risks and trends. While not exhaustive, these initiatives suggest the potential to extend surveillance and monitoring of work-related deaths, injuries, diseases/illnesses, OSH performance and hazardous exposures, and detect workers at risk.

Chapter 7 also recognises that it is immeasurably more difficult for OSH regulators to locate and interact with firms and workers in the context of the contemporary and changing world of work. Particular challenges include: the proliferation of supply chains and contractual networks, and MSEs; the indirect engagement of workers in non-standard arrangements, including those of the gig economy and platform work; the decline of organised labour; and the difficulties in obtaining evidence of harm and risk exacerbated by these challenges — challenges that signal the need for a fundamental shift in how OSH regulators and individual inspectors work.

Section 7.4 of the literature review therefore reviews innovative approaches to compliance promotion, monitoring and enforcement that are potentially better able to extend the reach of regulatory interventions in the context of these challenges. The approaches it focuses on are strategic enforcement, co-enforcement and the ‘closing the enforcement gap’ model. Although they have different emphases, central elements of these approaches are targeting the powerful actors in business structures, addressing systemic determinants of non-compliance and protecting vulnerable workers. These approaches also focus regulators’ resources on industry structures and sectors where non-compliance is prevalent and severe, and workers are less able to exercise their rights, and they enlist worker, community and advocacy organisations, and exemplary firms, in identifying and addressing these issues.

Strategic enforcement uses the limited resources available to state regulatory agencies to protect workers by changing employer behaviour in a sustainable way. The principles of strategic enforcement are grounded in empirical research into labour regulation, and were developed in response to the fissuring of business structures with the sourcing of goods or services in competitive supply chains, branded organisations or franchising, central management of large contractor networks, and common or centralised purchasing. Strategic enforcement aims to improve compliance at lower levels in business structures through interventions with the business entities that control work conditions and arrangements in those structures, based on rigorous analysis of related business entities and using a mix of regulatory measures. Essential underpinnings are complaint-handling procedures that help build an understanding of patterns of non-compliance for system-wide interventions, including increased protection against retaliation for workers who make complaints, and engaging advocate communities to broaden relationships with workers and communities. Other key features are strong interactions and joint initiatives between the regulator and other government actors, and systematic evaluation of the programme's impact to determine which initiatives are successful and which are not. This approach is explained in more detail in section 7.4 of the literature review and in Part 3 of this final report.

The co-enforcement approach is based on empirical research into collaborative regulatory processes, particularly those in the United States and Argentina, in which worker organisations contribute their unique resources to make 'non-substitutable' contributions to the OSH regulator's investigation and enforcement activities. Just how co-enforcement is operationalised in particular countries will depend on the types of worker organisations that have emerged, the resources that they can draw upon, the willingness of OSH regulators to enter into partnerships with them and the possibility of political support for such partnerships. The co-enforcement approach is explained further in section 7.4 of the literature review and in Part 3 of this final report.

We note that strategic enforcement, in particular, has its roots in labour regulation protecting wages and hours, rather than OSH. This different labour law context, as well as the different political and economic contexts, will need to be taken into account if approaches based on the principles of strategic enforcement (and co-enforcement) are to be adopted by individual EU Member States.

Another development canvassed under this umbrella of innovative approaches, but unrelated in its development to strategic enforcement and co-enforcement, is the use of non-pecuniary sanctions when matters are brought to court. The literature suggests that a wider range of sanctions has greater potential to achieve deterrence and rehabilitation objectives, and thereby improve OSH protection. As enabled in Australian OSH laws, examples of such sanctions include orders for adverse publicity, restoration, OSH projects and training, as well as court-ordered undertakings and injunctions to cease contraventions.

The review of the approaches to compliance promotion, monitoring and enforcement in Chapter 7 highlights some important areas where more research is needed. We outline five potential areas for future research in the following paragraphs. We will elaborate on some of these in one of the research projects outlined in the recommendations concerning the future development of the EU-OSHA research programme, addressed in Part 3 of this final report.

One obvious knowledge gap is that the review of the academic and grey literature for this chapter has focused on literature in English. We suspect, in fact expect, that there are important recent developments documented in languages other than English. Some of our key informants were confident that there were novel approaches to OSH compliance promotion, inspection and enforcement being developed and adopted within the EU that have not yet been documented, at least in English. One key informant suggested that the reason for this might be that OSH regulators rarely build evaluation into their initiatives. We anticipate that much would be gained from a skilled and multilingual research team searching for, and documenting, examples in EU Member States of regulatory interventions seeking to address compliance promotion, monitoring and enforcement challenges arising from new forms of work arrangements and new and emerging hazards. We also put forward the suggestion of a key informant that an EU-wide collaborative approach be developed, involving SLIC, to evaluate, document and publish successful novel approaches to OSH compliance promotion, inspection and enforcement.

A second knowledge gap relates to whether Member States' OSH regulators have developed and utilised comprehensive hierarchies (pyramids) of support and sanctions to assist them in securing compliance, which a multilingual research team could examine as part of its brief. If the finding is that

the regulators have not employed such hierarchies, consideration could be given to examining the benefits of developing and using hierarchies to enable responsive enforcement (discussed in Chapter 1 of the literature review), and whether they might be developed to suit the specific social, political and economic contexts of individual EU countries.

A third area of research could examine the feasibility of developing a combined strategic enforcement/co-enforcement model among EU Member States.

A fourth area could involve a collaborative effort between relevant agencies and academic centres in EU Member States to develop a methodology and coordinated system for surveillance of fatal and non-fatal occupational injuries, diseases and illnesses, hazard and risk exposures, and workers at risk. This project would draw on existing data sources and processes, and develop new ones as needed to fill data gaps; enhance the scope and compatibility of collections through recording common sets of key demographic variables; establish state-of-the-art data standards, software, and computational and analytical tools; and develop competencies in key disciplines (for example epidemiology, biomedical informatics, biostatistics, data analytics).

A fifth research focus could include one or more of the specific innovative approaches identified in this chapter and address questions such as:

- Can the Danish 'orchestration' model be developed further in EU Member States, exploring the potential of a 'smart regulation' approach that combines complementary mixes of compliance promotion, monitoring and enforcement initiatives by state regulators and non-state actors? Can this approach address the criticisms of 'regulatory new governance', which are outlined in section 1.3 of the literature review and summarised in Part 3 of this final report?
- Can the model of compliance suggested by the Dutch 'catalogues' be applied in other EU Member States? What factors support and constrain the efficacy of such instruments?
- Is there literature in languages other than English that examines the use of non-pecuniary court sanctions for OSH offences? Can, and should, the Australian suite of court-ordered non-pecuniary sanctions be adapted and adopted by EU Member States?
- How did compliance promotion, monitoring and enforcement by OSH regulators change during the COVID-19 pandemic? What lessons can be learned about new techniques and factors affecting their efficacy? Such a study should comprehensively identify new developments and insights for their future application, with examples including how to monitor OSH in teleworking, the conduct and efficacy of 'virtual inspections' and whether/how enforcement can be done in these contexts.

In summary, despite EU-level frameworks encouraging consistency in compliance promotion, monitoring and enforcement by OSH regulators, there is considerable variation in policy and practice between EU Member States, which is likely to be substantially attributable to differences in social, economic and political systems (see above and Chapter 2 of the literature review). Beyond variation in policy and practice, key issues identified by this review are as follows: the limited empirical evidence of what works in practice; the limited range of measures and sanctions that OSH regulators and the courts can employ to secure compliance; and the limited application of relevant regulatory theories or models across EU Member States. There are some interesting examples of novel approaches in EU countries, but the scale of the regulatory challenges facing OSH regulators (see above and Chapter 2 of the literature review) calls for a fundamental shift in how these regulators promote, monitor and enforce compliance. It requires interventions informed by comprehensive data, tailored to address systemic determinants of non-compliance, enlisting a range of worker and advocacy organisations, as well as exemplary firms, and employing comprehensive support and sanctions in securing compliance and better OSH practice. It also calls for careful consideration of the lessons learned from the COVID-19 pandemic in relation to the role of OSH regulators into the future.

2.8 Conclusions from the overarching review and some reflections

The overarching review demonstrates the existence of a substantial framework of institutional support for securing compliance and better OSH practice, which acts in a variety of ways to achieve this aim. It

shows that this framework, which is long-standing and can be traced to the industrialised past of most EU Member States, has been especially responsive to changes in recent decades. This is seen in relation to the wider economic contexts in which it operates, as well as in relation to policies guided by political and economic orthodoxies of governance in these Member States and among advanced market economies globally.

During the last half-century, there has been a significant and well documented move away from prescriptive regulatory standards and efforts by national regulatory agencies to enforce them towards more principle-, performance- and process-based regulatory requirements (these are defined in section 1.2.2 of the literature review — some readers may group these standards under the label ‘outcome-based’ standards). This shift was originally informed by notions that traditional command and control strategies, however compromised by resource or governance, had achieved as much as they were likely to, and that different approaches were necessary to bring about the further improvements in OSH that were desired. The regulatory changes have been matched in more recent times by an increasingly diverse set of compliance promotion strategies. Not only has public regulation sought to engage and encourage duty holders in the pursuit of forms of regulated self-regulation, but, as we point out in Chapter 1 of the literature review and in Part 1 of this report, the discourse on regulation itself has sought a far broader understanding of its meaning and the role of the private and public regulatory actors and processes potentially involved in both defining and securing compliance.

The whole process of securing compliance with standards of good OSH practice (however such standards are determined) has therefore, not surprisingly, also taken on much broader functions in the course of the same period, and, in parallel with this, the institutions and processes involved in supporting it have become more diverse. This has not of course occurred in a political or economic vacuum and, as this review has made abundantly clear, trends in the political economies of EU Member States in recent decades have also strongly influenced the nature and extent of strategies to promote compliance in OSH. In fact, a more radical perspective would suggest that, while one function of regulation is undoubtedly to control harms and protect people, as we have already suggested, a political economy perspective might perceive regulation to have more of a role in the hierarchical organisation of societies. Thus, regulation may be used not only to control harm, but also to give permission to cause harm, within limits acceptable to the regulator (see, for example, David Whyte’s argument on ‘ecocide’ (2020, pp. 109-110)).

In current discourse, therefore, it makes sense to identify the institutions and processes that promote compliance as including all those associated with national systems of governance for OSH, in which, ideally, national policies and plans serve to coordinate and direct a spectrum of institutions and processes that regulate risks of potentially harmful outcomes arising from work. Some of these are embedded in public regulation, some are market focused and others arise from social norms and notions of acceptable social behaviour. Thus, OSH compliance is achieved by the application of a range of support for processes that span a spectrum of voluntary and coercive influences aimed at achieving better practices in the prevention of injuries and ill health arising from work. The literature review accompanying this final report has, in discussing these different forms of support, chosen to group them into five areas that represent a mix of the more prominent types, but it acknowledges that this is not the only way in which the task could have been undertaken. A major conclusion that emerges is that, while the five areas that are the focus of the review cover much of the support for compliance that is found in the OSH systems of EU Member States and convey some sense of how it is structured and delivered, nowhere is this support found in isolation from the many other processes that are at work alongside it and are important in determining its outcomes.

For example, the roles and effectiveness of workers’ and employers’ organisations, and the institutional and procedural products of relations between them (such as joint bodies or agreements), in contributing to securing compliance may not be obvious from the titles of the five areas of the review. The literature recognises these roles as significant in every case, however, and increasingly recognises the influence of other groups and processes in the social and economic relations of business. Nor is it obvious from the titles of Chapters 3 to 7 of the literature review that the institutions of governance and consultation that are found from sector to international levels in the EU are also important structures in the systems for promoting compliance. As products of post-war consensus politics, most of these institutions in EU Member States have been tripartite bodies for some considerable time, although nowadays they

increasingly involve not only social and economic actors and the state, but also individuals and the representatives of other bodies. In the construction of each of these chapters, therefore, the review has sought to ensure that the literature offering commentary on the contributions of all these institutions and the processes they are involved in (as well as the effects of their national contexts) has been included.

Related to this, another major finding of the review concerns the multiplicity of actors and processes that are engaged in effective support for compliance and better practice. A great deal of the specialist literature on OSH interventions tends to focus on single interventions undertaken by one main actor, whether it be a prevention service, a state OSH regulator, a trade union representative, an employers' organisation or joint body, a social insurance agency, or any other body or organisation. However, a more accurate account of the reality of such interventions is that they are seldom quite so unilateral; they depend for their implementation and operation, and especially for their transfer and sustainability, upon the coordinated actions of a multiplicity of actors and processes. This is a conclusion drawn repeatedly throughout Chapters 3 to 7 of the literature review. Whether addressing the role of social reporting, economic incentivisation, supply chain interventions, preventive services or approaches by OSH regulators, a fuller account of the determinants of the success or otherwise of such interventions has required the inclusion of some analysis of their wider contexts, taking proper account of the supportive or damaging effects of other processes and institutional actors involved.

This finding is not so unusual. A similar conclusion is drawn from the findings of EU-OSHA's extensive review of successful interventions on OSH in MSEs⁴. It is also in keeping with current thinking on compliance more widely, as illustrated by the analytical framework presented in Chapter 1 of the literature review, and it needs to be acknowledged, in terms of both the design of interventions and the research measuring their effectiveness. We will have reason to return to these points in our recommendations for future research in Part 3 of this final report, but for present purposes we note that a further implication of this concerns the leadership of intervention.

Political and economic orthodoxies that have influenced prevention policies in most EU Member States in recent decades have tended to promote market forces as determinants of effective prevention; that is, to a large extent, the ideal role of the state has been seen as facilitating market-based solutions rather than itself directly intervening in the regulation of the market. Interventions are deemed desirable because they serve to improve the market position of actors involved with them. Hence, the following all point towards the role of the market in determining OSH outcomes: economic incentivisation and the promotion of the business case for OSH; the response of heads of supply chains to consumer concerns about conditions associated with production within them; the marketing strategies of services offered by external prevention services; and the prominence of OSH certification in quality assurance or OSH reporting in CSR. However, as is clear from the preceding sections, this alone presents a somewhat unsatisfactory explanation for 'what works' in state policies to achieve better OSH outcomes. It also does not address the problem of 'reactors and avoiders' that research shows constitute a major proportion of MSEs, or offer very convincing solutions for the hard-to-reach work scenarios that are acknowledged to be a growing portion of the economy that lies beyond the influence of markets to improve working conditions.

Commentary in some of the literature reviewed presents a strong argument that the achievement of the governance of prevention in OSH requires greater engagement from the agencies and policies of the state in providing leadership. It suggests that OSH is not fundamentally different in this respect from other aspects of financial and market regulation. It argues that neo-liberal economic orthodoxies that have encouraged deregulation and liberalisation in these affairs have contributed to some disastrous consequences. While these orthodoxies suggest that, in an ideal free market, all businesses would follow an economic rationality that would lead to improved OSH throughout the economy, the literature reviewed demonstrates that this is not the case in EU Member States at the present time, and, in large sections of their economies, the experience of work would seem to indicate that the opposite is taking place. Current literature indicates that coordinated innovative approaches to promoting compliance, using a variety of processes and institutional actors according to circumstance, are most likely to be effective in meeting the challenges of current and emergent economic and work scenarios than more

⁴ <https://osha.europa.eu/en/themes/safety-and-health-micro-and-small-enterprises>

unilateral ones. The task of achieving such coordination is not a small one, however. The limited evidence of successful initiatives to date suggests that such coordinated innovation is more likely to be effective if there is strong leadership to support the regulatory mixes involved. The review concludes that agencies of the state remain better placed to undertake this role than most other institutional actors involved.

Part 3: Implications for further research on supporting compliance and better OSH practice

An important objective of the overarching review was to identify the need for further empirical research in each of the five areas on which the review focused, to inform decisions taken by EU-OSHA on how it might best prioritise these needs in relation to the development of its new research programme on the theme of 'supporting compliance', scheduled to commence with the commissioning of new empirical research in early 2021. The research programme is intended to contribute to an OSH overview 'to foster an organisational environment or context that incentivises and assists firms — particularly small and micro — to fulfil their obligations under OSH regulations'.⁵ Therefore, the overarching review of the relevant literature summarised in this final report was concerned in particular with identifying gaps in current knowledge and questions for future research to address these gaps.

Part 3 of this final report draws together the key research questions emerging from the five areas included in the overarching review, as well as some important questions relating to the contexts and changes that the review has identified as affecting support for OSH compliance and better practice. It also includes questions that have emerged in relation to the analytical frameworks for future research. From this, it recommends several possible areas of research for EU-OSHA's new research programme. The call for tenders that led to the present research specified that the research findings should allow the Agency to commission further in-depth studies. Two such proposals were required as part of the interim research report that was delivered to EU-OSHA at the end of August 2020. These and other proposals were discussed and further prioritised at an expert group meeting in September 2020. Together, the proposals were intended to help EU-OSHA decide which research questions to tackle first and what approach to take to achieve the greatest impact. These activities have contributed to informing the reasoning behind the conclusions and recommendations concerning further research that are presented in this part of the final report.

In further fulfilment of EU-OSHA's specifications in its call for tenders, Part 3 also discusses what will be required from the new research on supporting compliance more generally, in particular its capacity to add European value to existing knowledge. Based on the findings of the overarching review, Part 3 makes recommendations on future research that take account of current knowledge and, at the same time, lead to research that contributes a European-level, critical, comparative assessment of 'what works' in cases of support for compliance and better OSH practice, and an analysis of the underlying concepts and determinants that influence this. This will provide a rigorous conceptual underpinning for better evidence-based decision-making.

To achieve these objectives in future research will require going beyond detailing success factors and examples from different EU Member States. It will involve explaining what makes case studies of good practices or policy interventions successful and providing robust evidence of this. While this is obviously important from a Europe-wide perspective and in relation to the transfer of such policies and practices, it is arguably even more important to provide this explanation in a comparative way and address the contextual determinants of success and its transferability. As pointed out in Part 3, achieving this balance requires a special mix of research skills and knowledge that is not shared widely among the OSH research community. It is therefore particularly important that EU-OSHA pays close attention to the selection criteria it uses in commissioning future research, to ensure that organisations, consortia and individuals have the necessary capacities to deliver appropriate outcomes for the research programme. Commissioning this work to appropriately qualified researchers may also provide EU-OSHA with opportunities to encourage a new generation of OSH researchers to become involved.

Part 3 of this final report opens with a summary of the key research questions emerging from the overarching review. This is followed by some discussion of the nature of appropriate research in the context of EU-OSHA's research programme. Part 3 ends with some broad recommendations

⁵ EU-OSHA tender specifications: EU-OSHA/2019/OP/D/SE/0092 Overarching review on improving the extent and quality of compliance with OSH regulations. Bilbao: EU-OSHA.

concerning future research projects that the research team considers practicable, taking into account EU-OSHA's aims, time frame and budget for the research programme on supporting OSH compliance.

A final reminder of the implications of COVID-19 is also in order here. When this research was planned and commissioned, the events of the 2020 global pandemic were largely unforeseen, as the pre-2020 literature was the main focus of this review. Even as the scale of the pandemic began to unfold in the course of 2020, there was little published research or reflections concerning its implications for supporting compliance and better OSH practice in the future. However, as we have argued in Parts 1 and 2 of this final report, the events of the pandemic clearly have important and far-reaching implications, not only for future regulatory strategies concerning the management of workplace risks in relation to biohazards, but also because they call into question many assumptions concerning the governance and regulation of OSH and of public health more widely. Therefore, we have taken the view that any credible research agenda must take into account the implications of this global catastrophe. The increasingly acknowledged significance of the risk of occupational exposure and transmission of disease, the seeming failure of current arrangements to support compliance and better OSH practice to work effectively to prevent this, and the scale of the resulting harm all indicate that account needs to be taken of the challenges of COVID-19 for future support for securing compliance and better OSH practice. It is therefore important that this is explicitly reflected in questions addressed in a future research programme.

3.1 Some key research questions emerging from the overarching review

Table 1 summarises research needs in the form of research questions arising from each of the chapters of the review. This should be read in conjunction with the implications for research discussed in each of the subsections of Part 2 that summarise the findings of the accompanying literature review.

The research questions listed in Table 1 are all considered to be relevant to the wider aims of EU-OSHA; that is, they identify gaps in current knowledge that would be useful to fill to support the European Commission and contribute to the development of EU-wide approaches to improving external institutional support for securing compliance and better OSH arrangements. Furthermore, they are intended to support such approaches that are relevant across the range of work and workplaces in EU Member States and that take some account of their changing contexts.

Clearly, EU-OSHA will not be able to address all the research questions identified in Table 1, certainly not in a single research programme. For this reason, the remaining sections of Part 3 will offer some guidance intended to support EU-OSHA in prioritising the focus of its future research in relation to the questions in Table 1, and some recommendations on future projects that it may wish to consider.

Table 1: Potential research questions drawn from the overarching review

| Research area (chapter numbers refer to the literature review; their summaries are found in Part 1 of this final report) | Questions for further research |
|--|---|
| Analytical framework based on the regulatory literature (Chapter 1) | (i) Analyse the literature in languages other than English on critical perspectives on, or new approaches to, supporting OSH compliance and best practice using standard setting, compliance promotion, inspection and enforcement as developed by regulatory practitioners and/or academics in Europe or other parts of the world. How does this literature develop the concepts examined in Chapter 1 of the literature review? |
| Discussion of COVID-19 (all parts of this final report and chapters of the literature review) | (ii) How does the emerging literature that critically evaluates the responses of governments to COVID-19 address the implications of the pandemic (and therefore of future pandemics) for support for compliance and best OSH practice? What are the lessons of this literature for the experiences explored in (i)? |
| Challenges and contexts (Chapter 2) | <p>(i) Is there a relationship between different ‘types’ of national OSH systems and the economies in which they are embedded in EU Member States, and are there qualitatively different outcomes for the support for securing OSH compliance among them that can be explored empirically?</p> <p>(ii) Is there an agenda for further research around the relationship between the changing world of work, its national determinants and its health consequences that is relevant to understanding influences on support for securing compliance and better OSH practice?</p> <p>(iii) How can measures of OSH outcomes be more effectively related to wider measures of the health consequences of social inequality in different EU Member States?</p> <p>(iv) How effective are strategies to improve compliance and better practice in addressing the challenges of ‘fragmented work’ and work situations that lie beyond the reach of conventional intervention?</p> <p>(v) What are the implications of COVID-19 for these strategies? What are the lessons for governance and regulation in support of better OSH practice that have been provided by changes in OSH as a result of the pandemic?</p> <p>(vi) How could the key elements of issues studied in (i)-(v) be combined in a single, cross-cutting empirical research study?</p> |
| Social norms and reporting (Chapter 3) | <p>(i) How can social norms and social reporting best be used to contribute more to the social amplification of OSH prevention strategies?</p> <p>(ii) Why are some firms more responsive than others to the pressures that can be created by the concerted application of social norms and demands for social reporting?</p> <p>(iii) How can these factors be used more effectively in the case of ‘hard-to-reach’ firms and ‘reactors and avoiders’?</p> |

Research area (chapter numbers refer to the literature review; their summaries are found in Part 1 of this final report)

Questions for further research

- (iv) How can sustainability and transferability of the effects of social norms and social reporting initiatives be improved?
- (v) How can social media applications be harnessed more effectively in these scenarios?
- (vi) What systematic research could be conducted to explore links between CSR reporting requirements (both voluntary and mandated) and clear evidence of causative effects on improved compliance or better OSH practice?
- (vii) What are the most effective ways to explore the role of social norms and social reporting as elements of the further research required in the other four areas reviewed in this report? What are the useful connections that could be better identified between their role and those of other areas of support in more strategically coordinated ways of securing compliance and better OSH practice?
- (viii) What are the implications of the COVID-19 pandemic for the role of social norms, social reporting and CSR for support for securing OSH compliance?
- (ix) How could the key elements of issues studied in (i)-(viii) be combined in a single, cross-cutting empirical research study?

Economic incentives and the business case (Chapter 4)

- (i) What, more precisely, are the useful effects of insurance-based economic incentive strategies and systems for OSH arrangements, and under which conditions and contexts are they most effective?
- (ii) How can more standardised and comparable studies using cost-benefit analysis in relation to economic measures and work-related injuries and ill health be developed and applied?
- (iii) How can investigations of other forms of economic incentivisation be made more comparable and take better account of the effects of differences in national and sectoral contexts?
- (iv) What is the significance of the role of societal and company expectations in relation to potential costs of failure to support OSH? Is it possible to explore connections between these expectations and economic incentives, which might serve to enhance OSH support?
- (v) What role might these kinds of incentives play in reaching firms that are not normally proactive on matters of spontaneous compliance (for example those among MSEs that EU-OSHA's 2018 report refers to as the 'reactors and avoiders')?
- (vi) What lessons can be learned from the COVID-19 pandemic in relation to external economic incentives and the business case for OSH?
- (vii) How can the future research programme best provide opportunities to explore the role of economic incentives in combination with other fields of intervention to achieve more

| Research area (chapter numbers refer to the literature review; their summaries are found in Part 1 of this final report) | Questions for further research |
|--|---|
| Supply chains (Chapter 5) | <p>sustainable cross-cutting strategies to support regulatory compliance and better OSH practice?</p> <ul style="list-style-type: none"> (i) What are the key factors among the social, economic and regulatory mixes that promote the success of supply chain initiatives to support compliance and better OSH practice? (ii) What factors provide capacities for coordinated actions? (iii) What might determine the transfer and sustainability of these factors? (iv) What further empirical data are required to inform analyses described in (i)-(iii)? (v) How do national contexts support or constrain using supply chain relations to promote OSH among suppliers? (vi) What are the innovative enforcement approaches among regulatory agencies in relation to supply chains and how effectively are they delivered in EU Member States? (vii) What is the role of regulatory inspection in addressing supply chain influences in their actions to enforce compliance in EU Member States? (viii) What additional empirical knowledge is required to better inform (vi) and (vii)? (ix) What has been the impact of COVID-19 on OSH arrangements in supply chains (both global and national)? What are the implications of this for using supply chain relations to leverage improved OSH among suppliers? (x) How could the key elements of issues studied in (i)-(ix) be combined in a single, cross-cutting empirical research study? (xi) What motivates enterprises to outsource work instead of doing it themselves? Where negative OSH outcomes of forms of outsourcing such as subcontracting may be anticipated, how could enterprises be motivated to avoid this? |
| Prevention services (Chapter 6) | <ul style="list-style-type: none"> (i) What methods and strategies can be applied to gather more systematic data that are comparable between EU Member States on the type, extent of coverage and effectiveness of prevention services at the present time? (ii) What are the main models of prevention services that are operational within EU Member States and what are the drivers behind their development? (iii) Does the social/employment insurance model for the delivery of prevention services offer solutions that are transferable and sustainable in all EU Member States? (iv) What needs to be done to ensure that the role of prevention services is more relevant and useful in the emergent post-industrial economies of EU Member States? (v) What competencies, structural frameworks and resourcing models are necessary to ensure more widespread effectiveness? |

| Research area (chapter numbers refer to the literature review; their summaries are found in Part 1 of this final report) | Questions for further research |
|--|--|
| | <ul style="list-style-type: none"> (vi) What is the role of changing professionalisation in the support of OSH in the EU? What are its implications for the education and training of practitioners? (vii) How could this changing role best adapt to the changed scenarios for knowledge and practice presented by occupational and public health post COVID-19? How would this role best provide support for securing compliance on OSH in the face of new risks? (viii) How could the key elements of issues studied in (i)-(vii) be combined in a single, cross-cutting empirical research study? |
| Innovative approaches by OSH regulators (Chapter 7) | <ul style="list-style-type: none"> (i) Are there important recent developments in EU Member States in OSH monitoring/inspection, compliance promotion and enforcement — particularly developments that seek to address challenges arising from new forms of work arrangements and new and emerging hazards — that have not yet been documented in English? (ii) Should EU Member States rethink their enforcement methods and develop a responsive strategy to utilise them? Have Member States' OSH regulators developed and utilised comprehensive hierarchies (pyramids) of support and sanctions to assist them in securing compliance? If they have not, what are the benefits and drawbacks of developing and using hierarchies of sanctions and supports to enable a responsive approach to enforcement; and how might these hierarchies be developed to suit the social, political and economic contexts of specific Member States? (iii) What is the feasibility of developing a combined strategic enforcement/co-enforcement inspection and enforcement model within EU Member States? (iv) Using existing data sources and processes, and developing new ones, how can EU-OSHA and/or EU Member States establish a coordinated system and methodology for surveillance of fatal and non-fatal occupational injuries, diseases and illnesses, hazard and risk exposures, and workers at risk to fill data gaps; enhance the scope and compatibility of collections through recording common sets of key demographic variables; establish state-of-the-art data standards, software, and computational and analytical tools; and develop competencies in key disciplines (for example epidemiology, biomedical informatics, biostatistics, data analytics)? (v) How can innovative approaches to EU Member States' compliance promotion, monitoring and enforcement be combined with other strategies involving the use of economic incentives, social norms and other tools in a coordinated approach to optimise support for OSH compliance and better practice? Can the Danish 'orchestration' model be developed further in Member States, exploring the potential of a 'smart regulation' approach that combines complementary |

Research area (chapter numbers refer to the literature review; their summaries are found in Part 1 of this final report)

Questions for further research

- compliance promotion, monitoring and enforcement initiatives by state regulators and non-state actors? Can this new coordinated approach address the criticisms of 'regulatory new governance', which are outlined in Chapter 1 of the literature review?
- (vi) Can the model of compliance promotion suggested by the Dutch 'catalogues' be applied in other EU Member States? What factors support and constrain the efficacy of such instruments?
 - (vii) Does literature exist in languages other than English that examines the use of non-pecuniary court sanctions for OSH offences? Can, and should, the Australian suite of court-ordered non-pecuniary sanctions be adapted and adopted by EU Member States?
 - (viii) How could the key elements of issues studied in (i)-(vii) be combined in a single, cross-cutting empirical research study?
 - (ix) How did compliance promotion, monitoring and enforcement by OSH regulators change during the COVID-19 pandemic? What lessons can be learned about new techniques and factors affecting their efficacy?

3.2 What kind of research should be carried out and how?

The research questions in Table 1 indicate that there is much still to be learned about the different forms of support for securing compliance and promoting better OSH practice, and the influences of the contexts in which they operate. Moreover, as the overarching review has made clear, there are further questions for research in a range of related areas on which the review did not explicitly focus, but that may nevertheless be relevant to support for securing compliance (for example the roles played by trade unions and employers' organisations at global, national and sectoral levels in this respect). From a pragmatic perspective, however, while having regard to objective priorities evident in knowledge gaps (such as those identified by the overarching review), it is important for the successful commission and completion of future research that the strategic choice of future research projects effectively meets the needs of the organisation commissioning the work. In the case of EU-OSHA, this means ensuring European added value, addressing issues arising from the body of knowledge that has emerged from research previously commissioned by EU-OSHA (such as ensuring relevance for MSEs), while undertaking research that has both applied and instrumental value for EU-OSHA's stakeholders, and that, of course, fits within constraints imposed by the budget and timeframe for the research programme.

The overarching review has demonstrated that key questions remain to be answered about the role of institutional support for securing compliance to make it more:

- effective
- sustainable
- transferable to other situations, sectors and states.

Such questions also need to address the influence of context, including that of EU Member States, sectors, business relations, markets and firm sizes, while at the same time bearing in mind the effects of change. It has been pointed out more than once in this overarching review that traditional approaches to researching OSH seldom address this satisfactorily. This is demonstrated in the often limited usefulness of the findings of such research when they are applied outside the specific contexts in which they were studied.

There are several ways that empirical research on what is effective and what supports effectiveness can take better account of context. One obvious way is through comparative research where a sufficient number of cases are chosen from the range of economies represented in EU Member States to allow the effects of contextual determinants associated with sectors, firm sizes, Member States and so on to be identified, measured and compared. Previous studies commissioned by EU-OSHA have been designed with such aims in mind and lessons from these can be applied to commissioning future work.

Most prominently, the questions in Table 1 suggest that better and more theoretically informed empirical studies are required. These studies are especially needed to test the application, extent and results of the use and effectiveness of the current conceptions and understanding found in regulatory studies concerning securing compliance and achieving better OSH practice. In conventional qualitative research in the social sciences, case study approaches are usually regarded as being among the most effective ways to do this. Consultations with key informants on the research proposals strongly endorsed this, with recommendations that future research should take such a comparative and case study approach.

Previously in this report, we suggested that the nature of applied research on securing compliance and better practice lends itself to realist review, and that programme theory may provide a useful starting point in this respect. This is, of course, not an exclusive approach, and other ways of systematising the study of the mechanisms of delivery of best practice may be just as appropriate. In the literature-based research conducted for the review, it was the theoretical constructs of regulatory studies that we found offered the most useful unifying frameworks in which to consider our overarching analysis of otherwise quite disparate areas. We tentatively suggest that this may also work effectively for future empirical studies; however, depending on the focus of these studies, other frameworks may be more relevant. In the course of consultation with key informants as part of the overarching review, for example, several other theoretical frameworks could be useful for exploring future areas of inquiry, including those provided by institutional theory, critical management and accounting theories, and theories adopted to help explain industrial relations, among other things. Whatever theoretical framework is chosen for empirical research, what is most important, of course, is that new research proposals are carefully scrutinised to ensure that their theoretical underpinnings and methods are appropriate and sufficiently robust to deliver an analysis of underlying operative mechanisms behind the situations, strategies, processes and outcomes that the research seeks to examine.

Following from this, a major challenge in making decisions about new research is related to the extent to which it is possible to achieve robust and reliable analysis that will at the same time provide a useful evidence base for the development of policies and strategies aimed at achieving better OSH outcomes. As the literature on research that informs social and economic policy makes abundantly clear, the applied nature of this work, and the complexities of the social and economic scenarios encountered, often make traditional approaches to scientific inquiry redundant or inappropriate when investigating these phenomena. This does not mean, however, that research in these areas should be any less methodologically robust or theoretically informed. As with most research with similar aims, in-depth studies of the processes in question are required. We therefore think it is worth reiterating that the principles of realist review remain applicable to studies of social and economic interventions such as those that Table 1 indicates warrant research.

Finally, new research seeks to inform policy, and the interests of EU-OSHA and the limitations of its budget means that some research needs must be prioritised to a certain degree. Future empirical research commissioned by EU-OSHA will need to not only generate new knowledge, but also support the wider policy agenda of which EU-OSHA's activities are part. It therefore needs to target topic areas in which future empirical study stands to make a significant contribution to the evidence base, both to guide future European Commission policies on support for securing compliance and to support improved OSH practices among firms and in work situations where they are most needed in the economies of EU Member States.

These requirements are challenging. As noted at the beginning of Part 3, an appropriate mix of skills and capacities will be required from researchers to deliver them effectively. The overarching review presented in this report and the accompanying literature review has ranged quite widely over several disciplines and has included a number of very different kinds of research output in its critical cross-cutting analysis. This is not unusual in researching the social science background behind a better

understanding of OSH. Like other highly applied disciplines, OSH draws on material from many sources of knowledge that often use different epistemologies in their discourse and analysis. Such applied disciplines often select and mix elements of these different approaches together in their efforts to make sense of the phenomena with which they are concerned. This is a useful practice in creating a new understanding and a means of integrating and applying elements of different bodies of knowledge to help solve a practical or policy-related problem, such as commonly found in OSH. Its achievement does, however, require considerable knowledge, understanding and analytical skills. The European OSH research community is quite small, and much of its research does not address the issues or the ways of seeing the issues that have largely informed the findings of this overarching review; nor does it universally display capacities for the kind of integration of knowledge discussed here. There are therefore some significant challenges to be addressed in matching the selection of appropriate individuals, organisations or consortia to the needs of future research projects. It is recommended that EU-OSHA pays careful attention to these issues in its prioritisation of future research projects to ensure their successful delivery.

In doing so, it may be worthwhile exploring the extent to which other organisations are already working on some of these issues, and whether there may be possibilities for cooperation with them in helping to deliver EU-OSHA priorities. For example, many of the more descriptive cases of good practice touched on in different areas of the overarching review are those implemented by stakeholder organisations, including employers' and trade bodies, insurance and standards organisations, and others at sector, national or European level, and this continues to be the case. Similarly, OSH regulators, along with some trade unions, consumer and activist groups and agencies, are also active in such work in different EU Member States, and sometimes at EU level. They are therefore a rich source of material that can play an important role in informing practical and instrumental ways of delivering some of the messages emerging from the overarching review. Greater involvement of EU-OSHA in the coordination of these efforts could achieve important economies of scale and make an important contribution to the outcomes of the research programme. It might also help EU-OSHA to ensure that it has conserved adequate support to meet the challenges of the more research-intensive projects it may wish to commission, such as those described above and included in the following sections.

3.3 New research projects

Based on questions identified in Table 1, a future research narrative can be identified that ranges across all areas addressed in this review and their contextualisation in changing economic, regulatory and political scenarios. The researchers were charged with making a start on specifying research proposals that might emerge from this narrative. They were required to make recommendations for two such projects as part of an interim report some four months after the research began. In that report, the researchers chose to focus on two of the areas reviewed: the role of supply chains and innovative regulatory approaches. These two areas were chosen, as they not only represent major areas in which research is required, but also link and interrelate with all the other areas reviewed. Undertaking effective research in both of these areas therefore involves consideration of a range of connections to the other areas under review. These connections are especially significant. As is made clear at the end of Part 2 of this final report, the conclusions of the overarching review emphasise the importance of cross-cutting work to explore the different types of support for securing compliance across a range of interventions and contexts. These, it argues, have the greatest implications for supporting the sustainability, transfer, orchestration and leadership of future successful interventions.

The two proposals for future research recommended in the interim report are largely reproduced in this section. In addition, we have outlined the further studies suggested in each of the areas covered by the overarching review, which may also be of interest and fit within the parameters of the research programme. It is emphasised once again that, while each of these studies can be understood as a self-contained entity, the full extent of their significance is better appreciated if they are regarded as constituent elements of a larger programme of cross-cutting research, which provides EU added value to what is currently known about support for securing compliance in OSH.

3.3.1 Innovative approaches of regulatory agencies

A review of ILO, IALI and EU-level OSH policy documents suggests that, apart from risk-based regulation and, to a limited extent, responsive regulation and strategic enforcement, there is little evidence of the uptake of regulatory theories and models more broadly in shaping international and EU-level policy and practice of labour inspectorates.

Our review of the English language literature on OSH monitoring/inspection and enforcement in the EU (for Chapter 7 of the literature review) suggests that there is considerable variation in policy and practice between Member States, most likely attributable to historical and contemporary differences in social, economic and political systems. The review also suggests that most of the current approaches focus on the relationship between employers and their direct employees, and rely principally on advice and persuasion to improve compliance. Apart from some use of risk-based methods to target inspections, there is little published evidence that these approaches draw upon any other regulatory theory or model. The literature also suggests that OSH inspectorates and the courts use a limited range of administrative and financial sanctions, and that some Member States provide courts with a small range of non-pecuniary sanctions. There is, however, little empirical evidence on what kinds of compliance promotion, monitoring and enforcement are effective in practice in the context of EU Member States.

The various chapters of the literature review make it clear that OSH authorities are facing increasingly complex challenges in their efforts to find measures to improve OSH compliance and encourage OSH best practice. In particular, the significant changes in the nature, organisation, structure and control of work (Chapter 2), the challenges posed by hard-to-reach firms, and the increasingly sophisticated literature on the multiple factors that influence and shape compliance (Chapter 1) call for a fundamental shift in how OSH regulators promote, inspect and enforce compliance. The recent academic literature has produced important models that have sought to better equip labour inspectorates for the new challenges they face. ‘Responsive enforcement’ (Chapter 1) and, more particularly, ‘strategic enforcement’ and ‘co-enforcement’ (Chapter 7) models have been developed to enable inspectorates to tailor regulatory interventions to the particular motives, capabilities and structural arrangements of firms and the industry context within which they operate.

▪ **Project 1: Innovative approaches of regulatory inspectorates to support compliance and OSH best practice**

What follows in the description of Project 1 was proposed in the interim report of the overarching review and was included in consultations with key informants. It is reproduced here with only minor modifications that reflect the outcomes of these consultations.

Responsive enforcement proposes a hierarchy of escalating tools and sanctions for compliance promotion and enforcement, with enough options to enable OSH inspectorates to be responsive to various compliance factors (ignorance, lack of competence, lack of cooperation and so on) and different levels of non-compliance. It is important to have very high financial penalties at the top of the hierarchy. Some countries have already equipped courts with a wide range of non-financial sanctions that can be used not only to deter and punish firms not complying with OSH standards, but also to bring about positive changes in their approach to compliance.

The other two models (‘strategic enforcement’ and ‘co-enforcement’) propose interventions informed by comprehensive data, are tailored to address systemic determinants of non-compliance, enlist a range of worker and advocacy organisations, as well as exemplary firms, and employ comprehensive support and sanctions for securing compliance and better OSH practice. **Strategic enforcement**, for example, aims to tailor regulatory interventions to the different types of business structures discussed in Chapter 2 of the literature review. In particular, it proposes that inspectorates:

- target industries with high levels of violations and vulnerable workers who are inhibited from making complaints to the regulator;
- focus on systemic effects by addressing the drivers, incentives and root causes of non-compliance;
- concentrate regulatory activities on the most influential firms that control the business structures and affect markets and incentives;

- increase outreach with those conducting business and with workers (through groups representing their interests) to ensure that these parties have full awareness and understanding of legal requirements and the regulator's aims and approach for particular industries;
- use all enforcement tools available to the regulator and enhance deterrence and strategic communications to increase the symbolic and expressive value of sanctions and achieve 'ripple' and 'local' effects at organisational, industry and geographical levels;
- aim to achieve sustainable and ongoing proactive compliance, and prevent recidivism, by institutionalising positive compliance behaviours across the target industry and using regulatory agreements and private monitoring by third parties, which may include exemplary firms;
- have robust processes to evaluate their monitoring and enforcement strategies, and whether they are achieving continuing improvement.

'Co-enforcement' extends strategic enforcement in proposing that OSH regulators develop partnerships with worker organisations (for example unions, migrant workers' centres, young workers' centres, workers' defence centres, legal centres for workers), which can contribute their unique resources — that is, workers' detailed knowledge of work practices within firms — to make 'unsubstitutable' contributions to the inspectorate's monitoring and enforcement activities. Workers are present at their worksites every day, and their first-hand workplace experiences are vital to identifying areas of non-compliance, and worker organisations can draw on workers' unique knowledge and understanding of their working environment ('worker voice') to complement, contribute to and strengthen state enforcement. Most approaches to co-enforcement seek to develop partnerships with worker organisations and, sometimes, exemplary firms. These firms can establish best practice labour conditions in their industries, work with other high-road firms to establish high-road corridors in their sectors, and work together to patrol their labour markets for labour contraventions leading to unfair competition. In supply chains, such firms can also make a 'non-substitutable' contribution with their commercial, or market, power to control the supply chain.

These models offer OSH inspectorates rich possibilities that can be harnessed to develop effective inspection and enforcement strategies. It may be that some EU Member States are already making progress, not documented in the literature, in developing such strategies. Further research within the EU therefore needs to ask the following questions.

- Are there important recent developments in EU Member States in OSH monitoring/inspection, compliance promotion and enforcement, including court-ordered non-pecuniary sanctions, that have not yet been documented in English?
- Should EU Member States rethink their enforcement methods and develop a responsive strategy to utilise them? Have Member States' OSH inspectorates developed and utilised comprehensive hierarchies (pyramids) of support and sanctions to assist them in securing compliance? If they have not, what are the benefits and drawbacks of developing and using hierarchies of sanctions and support to enable a responsive approach to enforcement? In addition to large financial penalties, should there be a wide range of court-ordered non-pecuniary sanctions at the top of these hierarchies? How might these hierarchies be developed to suit the social, political and economic contexts of specific Member States?
- Are there any examples in EU Member States of inspection and enforcement approaches resembling strategic enforcement and/or co-enforcement that might be the subject of further research? What is the feasibility of developing a combined strategic enforcement/co-enforcement inspection and enforcement model within Member States? How might strategic enforcement and co-enforcement be adapted to the social, political and economic conditions in individual EU Member States and across EU Member States?
- Could a more strategic approach to enforcement, also drawing on principles of co-enforcement, address the complexities of enforcing OSH regulatory standards in the gig economy?
- To ensure that such a strategic approach to inspection and enforcement can be operationalised, what data and information would regulators need for determining priority sectors and business

structures for interventions, and how can EU Member States develop a coordinated system for collecting and sharing such data and information?

- How can this strategic approach to inspection and enforcement be institutionalised as part of a coordinated approach to compliance promotion and support across the EU Member States, in a way that accommodates their social, economic and political differences, and ‘orchestrates’ the various institutions, actors and factors (including economic incentives and social norms) that support OSH compliance and best practice? Can this approach build on state policies such as the Danish model of ‘orchestration’ and regulatory theories such as ‘smart regulation’, but at the same time address criticisms of ‘regulatory new governance’? These criticisms (discussed in section 1.3 of the literature review) include the view that regulatory new governance approaches underplay the use of deterrence, assume non-compliance is the result of ignorance and/or incompetence rather than a deliberate strategy to reduce costs, and fail to acknowledge the power imbalances between capital and labour.

As with the proposed research on supporting compliance and better OSH practice through leverage in supply chains outlined in section 3.3.2, comparative case study research is recommended for investigating the working relationships between OSH regulators, a variety of worker organisations and, where appropriate, exemplary firms from the same sectors in a selection of EU Member States with different OSH systems. The project might begin with the multilingual research team searching for examples of inspection and enforcement models in EU Member States that embrace similar, or potentially similar, elements of the strategic enforcement and co-enforcement models reviewed above. This might involve a careful literature review and scanning for suitable inspectorates and worker organisations in appropriate EU countries for case study research of current practice and possible experiments in developing a strategic/co-enforcement approach adapted to local conditions. The normative challenge would then be to develop a general enforcement model that could be tailored to the social, political and economic contexts of specific EU countries. The need for a coordinated approach to ensure that a range of institutions are aligned in their efforts to support and promote compliance and OSH best practice will draw in elements from the other four fields of current review.

Key informants were consulted on these proposals, as on those concerning supply chains (see Project 2 below), and there was broad agreement on their necessity as future empirical studies. Informants pointed out a need for a high level of cooperation with regulators in carrying out this type of study. They drew attention to the links between research on innovative regulatory approaches and other areas of the review, such as prevention services. They also suggested that it was just as important to study the barriers to innovative success and discover the reasons why innovative approaches may not work in some contexts. They further suggested that cross-national studies of innovative practices in the EU would be especially valuable.

▪ **Other research proposals on innovative regulatory approaches — enhancing general deterrence**

In Chapter 7 of the literature review, the review of EU-level discourse on the enforcement of OSH standards revealed a policy concern that Member States need to impose severe penalties on firms failing to meet their OSH obligations, and ensure that penalties are effective, dissuasive and a deterrent. Both the review in Chapter 1 of the literature on the enforcement of OSH regulatory standards and the review of current EU enforcement practice in Chapter 7 noted that OSH regulators in some Member States have adopted a cooperative, ‘advise and persuade’ approach to enforcement. Some commentators, most notably Carson (1979, 1980, 1985) and Johnstone (2003), have argued that this has led to the ‘ambiguity’ of OSH crime (at least in the United Kingdom and Australia); that is, that OSH offences have become regarded as not being ‘really criminal’.

In the literature review, Chapter 1 also summarised the research on the effectiveness of specific and general deterrence. It noted the absence of evidence that any OSH regulator has ever used a fully fledged deterrence strategy to enforce OSH regulatory standards. Influential contemporary approaches to enforcement have reasserted the importance of deterrence. Responsive enforcement (Chapter 1) emphasises the importance of a ‘benign big gun’ at the top of the ‘enforcement pyramid’ to provide incentives for voluntary compliance in response to cooperative methods at the bottom of the pyramid.

Strategic enforcement (Chapter 7) proposes that deterrence, and particularly general deterrence, be ‘front and centre’ of a regulator’s strategic approach to enforcement. All this points to the need for a research project that takes a mixed-methods approach to build upon existing research into deterrence and address the following questions:

- How large do financial penalties have to be to have a general deterrent effect on MSEs, medium-sized corporations and very large corporations?
- Under what circumstances are very large financial penalties likely to lead to ‘regulatory resistance’, under-reporting or possible corruption?
- What factors prevent organisations from receiving accurate information about financial penalties imposed upon others?
- What strategies can regulators adopt to ensure that organisations find out about, and take note of, financial penalties?
- What other elements need to be included in a deterrence strategy to make it effective?
- What kinds of messages might be effective to reassert the seriousness of OSH offending and project deterrence throughout industries or geographical locations?

3.3.2 Supporting compliance and better OSH practice through leverage in supply chain relations

As was the case for Project 1, what follows in the description of Project 2 was proposed in the interim report of the overarching review and was included in consultations with key informants. As before, it is reproduced here with only minor modifications that reflect the outcomes of these consultations.

▪ Project 2: What determines supply chain support for OSH?

Recent times have seen an increase in the significance of the role of supply chain relations in the organisation of work and business. As a result, among the determinants of OSH conditions, vertical relationships between buyers and suppliers have increased their influence, leading to worsening conditions for workers and a more challenging scenario for conventional means of supporting compliance. In certain cases, however, research shows that supply chains can be used to leverage compliance with OSH standards and better practice. As Table 1 indicates, key research questions therefore concern what determines whether supply relations constrain or support sound OSH practice, and how the latter could be made more widespread.

Research indicates that the remedies most likely to be effective are found when a variety of regulatory and compliance promotion strategies combine to support both vertical and horizontal pressures on firms in supply chains, ensuring that OSH considerations are prominent in the demands placed on suppliers, and that they are sufficiently resourced and motivated to deliver them. This suggests that coordinated actions of a multiplicity of actors and processes are likely to be most effective in bringing about effective actions, and that only rarely are market and business considerations alone sufficient to motivate enterprises to safeguard workers. Further research within the EU therefore needs to ask the following questions:

- What motivates enterprises to outsource work instead of doing it themselves? In cases where there are expected negative OSH outcomes of subcontracting, for example, how could enterprises be motivated to avoid excessive outsourcing?
- What factors provide capacities for coordinated actions to support leverage of improved OSH within supply chains?
- What incentivises positive supply chain actions and determines their transfer and sustainability?
- How do national contexts support or constrain the use of supply chain relations to promote OSH among suppliers?
- What innovative enforcement approaches are there among regulatory agencies in relation to supply chains, and how effectively are they delivered in EU Member States?
- What is the role of regulatory inspection in addressing supply chain influences in their actions to enforce compliance in EU Member States?

- What is the role of other OSH specialist inputs in achieving supply chain leverage?

These questions include consideration of interaction between the different forms of support for securing compliance, how they might act in concert with other forms of support and the effectiveness of their coordination. Here, again, what stimulates and sustains the concerted actions of the different types of support for compliance remains a key focus of this research and analysis. The questions also address leadership. Evidence suggests that neither public regulation nor the market alone serve to ensure compliance with OSH standards among business actors involved in these scenarios. The most successful schemes, illustrated by the examples in the text boxes in Chapter 5 of the literature review, were driven by key actors, often external to the businesses and supply chains in question, and linked to collaboration taking place between private and public regulatory actors to achieve more coordinated influence. In all such initiatives, inspired leadership and coordinated actions play a significant role in their success. Who provides this leadership and under what circumstances it succeeds in coordinating the engagement of a multiplicity of other actors and processes remain subjects for more detailed investigation.

Previous research suggests considerable variation between sectors and EU Member States in influences on the operation of leverage in supply chains, and further study needs to establish more clearly the factors that bring about positive influence on OSH practices in specific cases. Comparative case study research investigating relations and leverage in supply chains from the same sectors in a selection of EU Member States with different OSH systems is therefore recommended. Research design with such a case study focus would also involve consideration of elements in all five fields of the current review, and especially those concerning innovative inspection, economic incentives and social reporting. EU-OSHA would need to take account of this when designing any call for future proposals for empirical studies to take forward the research agenda of the programme, and care would be required to avoid the possibility of repetition when seeking cross-cutting studies.

Because of their nature and ubiquitous presence in the current structure and operation of economic relations, supply chains provide a possible focus for further research on forms of support for securing compliance in the face of changes in the structure, organisation and control of work. Using supply chain relations as the starting point, research could look at the framework of support for compliance with better OSH practice that surrounds them, and ask questions about how this might be orchestrated to address more effectively the kinds of OSH problems that arise in these supply chains:

- directly as a result of the relations involved;
- because it is at the end of these chains that work with poor OSH conditions and outcomes is often found, and it also often lies beyond the reach of most conventional institutional forms of support for compliance (in such cases supply chain relations may provide useful ways to extend the reach of some form of regulatory control); or
- because of both of the above.

Consultation with key informants on these proposals for future research on OSH and supply chains concerned what they thought *it would be most useful to know about making better use of supply chain relations to support compliance and improve OSH practice*. Efforts were made in these discussions to take account of questions of national context, sectors, comparative approaches, previous research on supply chain leverage, the balance of horizontal and vertical influence in securing compliance and so on. Generally, there was strong support for future research along the lines outlined. This was especially so in relation to case study approaches and securing cooperation from transnational companies in several sectors for the empirical work. One way to achieve this, for example, might be to look at a few major construction firms that operate in Member States and research how their experience of supply chain leverage is achieved under the Temporary and Mobile Worksites Directive (Directive 92/57/EEC) in various countries. This would combine research into supply chain leverage with a perspective of how the same approach is used by regulators, using their different techniques as seen from the perspective of the audience that this directive is intended to influence. Such a study might be enhanced by cross-referencing data on OSH outcomes in the same countries.

- **Further research projects concerning supply chain leverage**

The above research proposal is deliberately structured to be as wide ranging as possible and to allow the possibility of some choice on the specific areas of focus, while at the same time accounting for the influence of the wider framework of social and economic relations that are determined by context. This allows for a number of further directions in which future research on the role of supply chain relations could develop; for example, further work could be undertaken to research the detailed operation of specific influences on positive OSH actions in supply chains. It is generally accepted that, while the business relations of supply chains determine the nature of the vertical influences within them, there are a range of horizontal influences that arise from the regulatory, labour relations and prevention service contexts in which they operate. The effects of these will differ between countries and sectors, and are also dependent on firm size. As noted in the research proposal above, careful selection of case studies would help to elucidate the details of their effects. As well as choosing to study cases of large companies operating both domestically and globally in different sectors, other studies might focus on the positive influences from regulatory agencies, trade unions or consumer activist groups and so on. Here, again, there will be synergies to explore in relation to social norms and social reporting, as well as in relation to innovative regulatory actions.

Another perspective on the role of supply chains is found in relation to the nature of change. Buyers at the heads of these chains have been placed in such powerful positions because of patterns of business behaviour that have themselves been determined by particular circumstances. These circumstances are subject to change. For example, recent discussion of the COVID-19 pandemic has pointed to the way in which it has revealed weaknesses in long global supply chains and the business model of just-in-time production that serves to underpin their operation. It has been suggested that lessons learned from this experience may lead to a substantial change in the role, structure, location and organisation of supply chains in the future. Speculative discussion has, for example, suggested that there may be greater diversity in the form of future supply chains and greater local sourcing of production capacities. It is not clear how such change, should it take place, would impact on the role of leverage to support improved OSH in these chains, but clearly the implications could be significant. Changes like these could potentially offer opportunities for greater orchestration of preventive efforts to improve OSH among suppliers. There may, therefore, be a case for research studies monitoring the impact of supply chains in the future.

3.3.3 Future research on social norms in support of OSH

Recommending new empirical research on the role of social norms, social reporting and CSR in providing support for securing compliance and better OSH practice is complicated. This is because, although they can be related to one another in certain ways of understanding OSH, the three topics addressed in this area are significantly different and spread across quite separate fields of knowledge and research disciplines, which are more or less relevant to OSH and to support for securing compliance. There are also some fundamental differences between the ways in which research needs could be conceived in relation to each of these topics. For example, more fundamental research might be required in the case of understanding social norms, while it may be helpful to adopt more applied, and even instrumental, ways of thinking about future research concerning social reporting and CSR.

Despite this discontinuity, there are several research questions involving these topics that are relevant to the aims of the research programme, as outlined in Table 1. These questions include, for example, those concerned with developing a better understanding of ways in which social norms might contribute more to the social amplification of OSH prevention strategies. They should seek to understand why some firms or controllers of business undertakings may be more responsive than others to the pressures that can be created by the concerted application of these norms, as well as to demands for social reporting. Equally, applied research on how social norms are constituted and expressed may inform their possible uses in relation to compliance in the case of 'hard to reach' firms and so-called 'reactors and avoiders' among micro firms and similar organisations.

Such questions might be regarded as requiring more fundamental research in social science disciplines than is possible under EU-OSHA's research programme. Here, as elsewhere in the identification of future research needs emerging from the overarching review, we would recommend liaison between EU-OSHA and the architects of larger research programmes concerning health, social and economic

affairs in the EU as a possible way forward in researching ways to support the improvement of the work environment for large numbers of EU citizens in the future.

Within the reach of the research programme itself, further applied empirical research may be useful in relation to how sustainability and transferability of the effects of social norms and social reporting initiatives could be improved, and how social media applications might be harnessed more effectively in these scenarios. Case study and comparative research on examples of such strategies and applications could, for example, be undertaken to explore the contexts in which such approaches are successful and sustainable, and how they might be made more so. More systematic research could also be conducted to examine links between CSR reporting requirements (both voluntary and mandated) and the evidence of causative effects on improved compliance or better OSH practice.

An obvious feature of such applied research is its links to the proposals already outlined in other areas such as innovative regulatory strategies and supply chain leverage. These research areas will also have applications in the case of economic incentives and prevention services. It may be, therefore, that the best way of articulating future approaches to research in this area in the research programme is through addressing social norms and social reporting as elements of the further research required in the other four areas addressed in this review. To do this, the architects of the research programme would need to be clear on the most practicable connections that could be better identified between the role of these factors and those of other areas of support in more strategically coordinated ways of securing compliance and better OSH practice. Finally in this area, as also noted in Table 1, the implications of the COVID-19 pandemic for the role of social norms, social reporting and CSR for the support of securing OSH compliance are also relevant and would need to be borne in mind.

3.3.4 Economic incentives and the business case

Chapter 4 of the literature review, and its summary in Part 2 of this final report, make clear that a host of research studies on economic incentives already exist. The outlines of how these incentives work to support better OSH practices, and what needs to be in place to support their effectiveness, are therefore already known, and fundamental new research in this area is perhaps unnecessary. However, there is a need for more precise knowledge on several factors often involved in economic incentivisation, as well as on the possible development of 'toolkits' on economic incentives that might be useful at sector or national levels when planning strategic interventions on OSH, including those previously developed by EU-OSHA.

In terms of improving the quality of what is already known concerning the role of economic incentives, gaining a more critical understanding of the effects of insurance-based incentive strategies and systems, and the conditions and contexts under which they are most effective, is recommended. These initiatives often stand out among the reported successes of economic incentivisation; however, they are bounded by context and not necessarily easily transferred. More research on what works, where and for whom is therefore important. Given the increasing use of the 'business case' in arguments promoting better OSH practices, more standardised and comparable approaches to the role of cost-benefit analysis in relation to economic measures and work-related injuries and ill health are also needed.

From a more instrumental perspective, EU-OSHA may wish to consider updating the compilation of good examples of best practice in relation to economic incentives, and give more careful consideration to issues of sustainability and transfer, especially in relation to taking proper account of the effects of differences in national and sector contexts. Such examples could feed into the national- or sector-level toolkits referred to above. It is also something that might be achieved through cooperation with organisations already reporting such activities (as previously suggested).

A more theoretically informed level of analysis, but also an important and useful contribution to knowledge, may result from carrying out a thorough investigation of the role of societal and company expectations in relation to potential costs of failure to support OSH, and their possible connections with the successful application of economic incentives to enhance OSH support. There are also some cross-cutting connections here between economic incentives and social norms that might be fruitfully explored.

A key research question that needs to be further explored in relation to economic incentives concerns the role they could play in reaching firms that are not normally proactive on matters of spontaneous

compliance (for example those among MSEs that EU-OSHA research refers to as ‘reactors and avoiders’). There are some limited suggestions in the literature concerning incentives that may address these firms, but most of the reports of successful uses of economic incentives concern those that are deployed among more obviously receptive firms. Yet, as much research on current challenges makes clear, it is among the ‘hard to reach’ firms that the greater challenges for support for better OSH practice are likely to be found and therefore require attention.

As suggested in section 2.6 of this final report and elaborated in the literature review, economic incentivisation is not only that provided by external interventions narrowly geared to rewarding OSH behaviours leading to compliance and better practice; such incentivisation can also result from deterrence strategies that employ financial penalties and the like. Overall, it encompasses a host of ways of achieving a raised awareness among firms and controllers of business undertakings concerning the financial or business implications of their actions in relation to OSH. Here, there are considerable research opportunities to explore combinations of incentivisation from an economic or business perspective with other research areas covered in the overarching review, such as innovative regulatory strategies and supply chain leverage, as well as the those in relation to social norms that have been already mentioned. It would seem most likely that, in terms of added value, EU relevance and the cost-effective use of the limited funding in the research programme, proposals with such cross-cutting aims that included economic incentivisation as one element of combinations of support for securing better OSH practice may represent the best way to use research resources in this area. They would also be the most useful way of taking account of possible lessons from the experience of the COVID-19 pandemic for external economic incentives and the business case for OSH.

3.3.5 Prevention services

We have previously noted that, in many respects, further research on the role of prevention services in support for securing compliance in OSH is relatively far removed from that on the other elements of the overarching review (see Part 2 of this report and Chapter 6 of the literature review). While prevention services are clearly concerned with contributing to better OSH practice, in most EU Member States the institutions traditionally providing such services have rather tenuous links to innovative regulatory approaches, supply chain leverage, social reporting and the like. It is also quite difficult to generalise about these relations because of the great variation in what constitute prevention services in different Member States and the centrality and significance of their engagement with OSH. As the overarching review demonstrates, such variation is to some extent historical and linked to different patterns of development of institutional engagement with preventive health and welfare issues more widely in different Member States. However, it is further complicated by trends in the marketisation of public institutions and changes in the nature of professionalism in OSH in recent decades.

There is quite limited comparative analysis in the literature concerning these patterns or the changes that have occurred in them. Nor is there very much robust comparative analysis concerning their effects on the role of external prevention services, the contexts in which they are felt or their outcomes in terms of support for better OSH practice. Such information that exists in the literature is incomplete and mostly quite old. There is therefore a strong case for undertaking more comparative study in all these areas. It is important to gather more systematic data that are comparable between EU Member States on the type, extent of coverage and effectiveness of prevention services. At the same time, it is important to determine what the main operational models of prevention services are, what drives the way they operate and the extent of their contribution within different EU Member States. This might include some wider consideration of contexts such as health costs related to OSH, the role of occupational medicine within health care, the influence of professional associations and so on, which could be used in a more thorough evaluation of trends in its marketisation than seems to have been the case previously.

The overarching review identified some examples of what appear to be successful and sustainable approaches to prevention services in modern economies — the German social insurance model, for example. However, questions need to be asked concerning the extent to which this social/employment insurance model for the delivery of prevention services offers solutions that are transferable and sustainable in all Member States. Overall, a significant research question that requires answering therefore concerns what needs to be done at European, national and sectoral levels to ensure that the role of prevention services is more relevant and useful in the emergent post-industrial economies of EU

Member States. Related to these institutional issues are further questions concerning the competencies and resourcing models necessary to ensure more widespread effectiveness and how they can be made more relevant to current challenges.

Taking a somewhat different but related perspective, the overarching review noted patterns of change in the professionalisation of support of OSH in the EU and elsewhere and, in particular, the emergence and steady growth in the professional organisation of the generalised OSH practitioner in recent decades. Yet, aside from a small body of literature concerning professional standards and training needs, there has been very limited analysis of these trends and what has led to them. A further comparative research project could be conducted in this area. Related to such a project is the need to review the roles that OSH expertise and knowledge play in the development of national and global policies to prevent work-related harms. Such a review has been important in other social and environmental fields, but has been somewhat neglected in relation to OSH. The current COVID-19 pandemic suggests that one of the consequences of this neglect may be the limited understanding of, and engagement with, the prevention of work-related transmission of the virus by the public health authorities responsible for combating its spread. It therefore becomes important to ask how changing roles for OSH prevention services and professionalism can best adapt to the changed scenarios for knowledge and practice presented by occupational and public health post COVID-19, and how this role can best provide support for securing compliance on OSH. There is also some clear overlap between these issues and those that concern innovative approaches to regulatory inspection and the role of regulation more generally. There are therefore possibilities for integration in future research projects to achieve a more cross-cutting understanding of the role of professionalism in promoting better OSH practice in the present social, political and economic contexts in the EU.

3.3.6 National contexts and change

Finally, as this review has repeatedly suggested, support for securing compliance needs to be seen in its social, economic, political and cultural contexts. These differ between EU Member States, as do both the nature and pace of the ongoing changes that occur in them. All this needs to be considered when new empirical research seeks to understand how to make such support more effective.

Some of the main implications of context and change for future research were outlined in Part 2 of this final report and are presented in more detail in Chapter 2 of the literature review. They suggest two possible courses of action in relation to commissioning further research. The first concerns obtaining better-quality information on the extent of the OSH consequences of current work and employment practices. It is increasingly acknowledged that monitoring these consequences needs to account for links between social inequalities, health outcomes and work. As Chapter 2 makes clear, better and more comprehensive means of doing this need to be developed, and better ways of enabling the uses of the information thus obtained also need to be sought.

The second area of research that is required concerns the actions needed to monitor the changing nature of the contexts in which work takes place, along with their implications for OSH generally and for supporting better practice specifically. Therefore, research concerning any of the elements of future institutional support for such better practice also needs to take account of the contexts in which this support is situated and of the changes that occur within these contexts.

From a practical point of view, while both these approaches are desirable, research commissioned under the EU-OSHA research programme is unlikely to be able to contribute significant studies addressing improvements in monitoring health outcomes and their relationship to change and its consequences. Such work is probably too wide-ranging and too demanding of resources to be practicable within the constraints of EU-OSHA's budget. Its commission is no less important for this, however, and it is recommended that EU-OSHA shares the recognition of these needs with other bodies responsible for research strategies on health and social policies within the EU. Meanwhile, it remains important that when EU-OSHA commissions research projects addressing support for compliance it requires them to include the effects of issues of context and change among the important research questions they address.

They could, for example, include questions examining whether relationships exist between different 'types' of national OSH systems and the economies in which they are embedded and qualitatively

different outcomes in the support for securing OSH compliance. Further questions could include how effectively strategies to support better practice address challenges of 'fragmented work' and work situations that lie beyond the reach of conventional intervention in different EU Member States characterised by different institutional varieties of capitalism, or how empirical measures of OSH outcomes could be more effectively related to wider measures of the health consequences of social inequality in different EU Member States. In addition, of course, they would need to include the means to address the implications of COVID-19 for all of these, and explore possible lessons for governance and regulation provided by changes in relation to OSH as a consequence of the pandemic. Again, the implication of doing so is that, whatever studies are commissioned, they would need to be EU-wide, cross-cutting and comparative.

3.4 Recommendations

This final report and the accompanying literature review present the findings of a comprehensive overarching review of the literature and the opinions of key informants concerning institutional support for securing compliance and better OSH practice. The primary aim of the overarching review was to inform the development of a research programme in which several empirical research studies will be commissioned to help to fill gaps in knowledge and applied understanding of ways to better support securing compliance on OSH in EU Member States. As such, the review is intended to contribute to:

- the knowledge base concerning institutional support for securing compliance and better OSH practice;
- informing the policies of the EU supporting OSH in this respect;
- practical OSH outcomes addressing the questions of 'what works, for whom and in which contexts' in achieving improved institutional support for securing compliance on OSH in the EU at national, sector and workplace levels.

The following recommendations reflect the implications of the key conclusions of the overarching review in relation to future research:

- Despite the presence of a large and wide-ranging body of knowledge concerning institutional support for compliance and better OSH practice, and on the influence of change and context, the overarching review has shown that substantial knowledge gaps still exist. It therefore recommends that EU-OSHA commissions further empirical research to address these gaps.
- There are gaps in knowledge in each of the five areas covered by the review, as well as in the understanding of context and the effects of change that are influential in determining both the nature and outcomes of support for better OSH practice. In seeking to address these gaps, it is recommended that EU-OSHA makes best use of its limited budget by prioritising its commissioning of research projects according to the added value they are likely to have. That is, EU-OSHA should ensure that the work commissioned will not only make an important contribution to the knowledge base, but will also contribute to the outcomes of the research programme in informing policy and add practical value to improving institutional support for securing compliance.
- To enable such prioritisation, it is recommended that EU-OSHA considers:
 - the existence of fundamental gaps in knowledge concerning effective support for compliance and what makes it effective;
 - gaps that the review has identified between theoretical arguments about support for securing compliance and the application of such support in practice;
 - possible synergies that the review has identified between the roles of different forms of institutional support and the contexts that determine their effects; this would make more cross-cutting research projects useful;
 - suggestions in the review about how such cross-cutting projects could best explore sustainability, the possibility of transfer, and the role of leadership and orchestration in the achievement of support for securing compliance;

- recommendations outlined in Part 3 concerning new research in each of the five areas that are the focus of the review, and in the areas of context and change on which the review has also made recommendations for future research.

In its consideration of its research priorities in the light of the above points, it is further recommended that EU-OSHA also considers:

- the time frame for the research programme and an appropriate sequential development of research projects;
- the achievement of a suitable balance between generating applied knowledge and its instrumental application;
- the possible involvement of other partners who may be more appropriate sources of funding for research on selected topics to which the overarching review has drawn attention.

Regarding the final point, those generating more fundamental forms of knowledge about the nature and scale of change in OSH outcomes in the EU, and about social norms, structural and organisational change, the comparative political economy, general questions of regulatory compliance and so on, may be more appropriately supported by large research grants such as those found in other research programmes of the European Commission and similar bodies. More instrumental and descriptive accounts of good practices, for example in the use of instruments and tools to aid better OSH practices such as risk assessment, or those concerning particular interventions adopted by social insurance organisations, and sector, trade or other bodies to improve OSH outcomes, might be more appropriately funded by the bodies concerned with them. In such cases, EU-OSHA might wish to consider the possibility of coordinating such activities with those of a more analytical nature than the Agency itself funds.

A particular challenge of a research programme that investigates knowledge gaps across several related elements that constitute a single overarching issue — in this case, the effective operation of support for securing compliance in OSH — is the risk of possible repetition in the coverage of the individual research projects commissioned. It is important that EU-OSHA takes steps to ensure that this does not occur. The following strategies are recommended:

- careful orchestration of a group of projects (possibly undertaken by the same research consortium or consortia) under the same research leadership to ensure that there is no duplication of research efforts or focus among them;
- sequential development of related projects undertaken by the same or different researchers to ensure that each new project builds on the findings of the previous one;
- ongoing communication and sharing of work in progress between the researchers, research consortia and research management at EU-OSHA;
- detailed specification of research tasks in each tender to ensure that there is no duplication;
- prescriptive research management by EU-OSHA to ensure effective and consistent focus on avoiding duplication in related studies.

Finally, none of this precludes EU-OSHA commissioning some stand-alone research projects alongside more integrated ones. Recommendations in the previous section have already identify several areas where this might be appropriate, such as further research on aspects of the role of prevention services or the economic incentivisation of OSH practices.

The authors of the overarching review consider that, in following these recommendations, EU-OSHA will deliver a coherent and coordinated programme of empirical research that will address gaps identified in current knowledge and serve to provide strong evidence-based support for present and future strategies to secure compliance and better OSH practice in EU Member States.

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 beyond.

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