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Shaping the transition: artificial intelligence and social dialogue

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Shaping the transition: Artificial intelligence and social dialogue

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Abstract

Rapid advances in the development and adoption of artificial intelligence (AI) technologies provide new opportunities but also raise fears about disruptive labour market and workplace transitions. This working paper examines how social dialogue can shape the AI transition in beneficial ways for both workers and firms. It highlights that social dialogue can generally help foster inclusive labour markets and ease technological transitions, and presents new descriptive evidence together with ongoing initiatives from social partners showing that social dialogue has an important role to play in the AI transition as well. The paper also discusses how AI adoption may affect social dialogue itself, e.g. by adding new pressures on weakening labour relations systems and posing practical challenges to social partners, such as insufficient AI-related expertise and resources to respond to the AI transition. Based on these insights, the paper suggests a few measures for policy makers who would like to support social partners' efforts in shaping the AI transition.

Übersicht

Die rasanten Fortschritte bei der Entwicklung und Einführung von Künstlicher Intelligenz (KI) in der Arbeitswelt eröffnen neue Chancen, wecken aber auch Ängste vor disruptiven Transformationen. In diesem Papier wird untersucht, wie der soziale Dialog diese Transformationen fair gestalten kann. Zunächst gibt das Papier einen Überblick, wie der soziale Dialog im Allgemeinen dazu beitragen kann, technologischen Wandel im Arbeitsmarkt zu erleichtern, und inwiefern sich die durch KI hervorgerufene Transformationen aus Sicht der Sozialpartner von denen bisheriger Technologien unterscheiden. Daraufhin stellt das Papier neue empirische Erkenntnisse sowie laufende Initiativen von Sozialpartnern vor, die zeigen, dass der soziale Dialog auch durch KI hervorgerufene Transformationen fair gestalten kann. Dabei diskutiert das Papier auch, wie sich die Einführung von KI-Systemen auf den sozialen Dialog selbst auswirken kann, indem sie beispielsweise neuen Druck auf Arbeitsbeziehungen ausübt und Sozialpartner vor praktische Herausforderungen, wie unzureichende KI-spezifische Fachkenntnisse, stellt. Auf der Grundlage dieser Erkenntnisse schlägt das Papier einige Maßnahmen vor, wie Politikverantwortliche die Bemühungen von Sozialpartnern unterstützen können, durch KI hervorgerufene Transformationen fair zu gestalten.

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Executive summary

Artificial Intelligence (AI) technologies will have an important impact on labour markets and the workplace. As a result, workers and employers will need to grapple with significant transitions and adjustments. As with any technological change, AI adoption will bring both benefits and risks for workers and employers, so the overall impact will depend on AI's implementation at the workplace level, the role of regulation in governing AI adoption and the extent to which all stakeholders are involved. Against this background, this working paper examines how social dialogue can help shape the AI transition in beneficial ways for both workers and employers. In the 2019 OECD AI Principles, governments agreed to take steps to ensure a fair transition for workers as AI is adopted, including through social dialogue. Accordingly, the paper highlights that social dialogue can help to foster inclusive labour markets and ease technological transitions, and presents new descriptive evidence together with social partners' ongoing initiatives on the role of social dialogue in the AI transition.

Social dialogue can ease technological transitions, but faces general challenges

Social dialogue is an important instrument for involving and building consensus among the main stakeholders in the labour market. As such, social dialogue can for instance help employers find flexible and pragmatic – yet fair – solutions to labour market challenges, and collective bargaining can shape the design and definition of new and existing rights, and complement government efforts to strengthen labour market security and adaptability. At the same time, social partners face ongoing challenges like declining representation of their members, which new forms of work and new business models, enabled by organisational and technological changes, risk to exacerbate.

The AI transition may not only affect workers and employers, but also social dialogue itself

AI adoption will bring both benefits and risks for workers and employers at workplace and labour market levels. Reviewing these from unions' perspective indicates that their concern is increasingly shifting from risks of job destruction towards other risks of AI adoption in the workplace, linked for example to potential discrimination, excessive surveillance and violations of human rights. At the same time, AI technologies may also affect social partners' capacity to promote and mitigate benefits and risks of AI for workers and employers, for example by increasing information asymmetries between bargaining parties.

Social partners have taken several initiatives to shape the AI transition, but need AI-related expertise

New descriptive evidence based on cross-sectional European data suggests that social dialogue might contribute to mitigate AI's impact on risks relating to working conditions. Additional questionnaire insights and ongoing activities from social partners show that they are already engaging in raising voice, advising

policy and negotiating their first AI-related agreements. However, most ongoing activities stem from a few very active unions and employers' organisations. In this respect, the lack of AI-related expertise among social partners is one of their major challenges to support their members in the AI transition.

Policymakers can accompany social partners' efforts to shape the AI transition

While each country's situation and labour relations differ, policymakers could consider promoting consultations and discussions on the AI transition with social partners and other stakeholders. They could also support social partners' efforts to expand their membership to non-represented forms of work and employers like in the platform economy, as well as promote AI-related expertise, and digital education more generally, in the workplace for management, workers and their representatives.

In the future, more data and analysis at the individual and firm levels will be necessary to understand how social dialogue shapes the AI transition, also between different occupations and sectors. In particular, this would require having firm-level panel data that combines information on AI adoption, social dialogue and labour market outcomes or working conditions at the same time.

Kurzfassung

Künstliche Intelligenz (KI) wird erhebliche Auswirkungen auf die Arbeitswelt haben, wodurch sich Arbeitnehmer*innen und Unternehmen mit neuen Transformationsprozessen auseinandersetzen müssen. Wie jeder technologische Wandel wird auch die Einführung von KI sowohl Chancen als auch Herausforderungen mit sich bringen, sodass die Gesamtauswirkungen davon abhängen werden, wie KI auf betrieblicher Ebene umgesetzt wird, welche Rolle Regulierungen bei der Einführung von KI spielen und inwieweit alle Beteiligten dabei einbezogen werden. Vor diesem Hintergrund untersucht dieses Papier, wie der soziale Dialog dazu beitragen kann, durch KI hervorgerufene Transformationen fair zu gestalten. In den OECD-Leitprinzipien für KI von 2019 haben sich die Regierungen darauf geeinigt, "Maßnahmen zu ergreifen, auch im Rahmen des sozialen Dialogs, faire Transformationen für die Arbeitnehmer*innen bei der Einführung von KI zu gewährleisten, z. B. durch Schulungsprogramme während des Arbeitslebens, Unterstützung für die Betroffenen und Zugang zu neuen Möglichkeiten auf dem Arbeitsmarkt". Dementsprechend hebt dieses Papier hervor, wie der Sozialdialog im Allgemeinen dazu beitragen kann, inklusive Arbeitsmärkte zu fördern und technologischen Wandel zu erleichtern, und stellt neue empirische Erkenntnisse sowie laufende Initiativen von Sozialpartnern vor, die zeigen, dass der soziale Dialog auch durch KI hervorgerufene Transformationen fair gestalten kann.

Sozialdialog kann technologischen Wandel erleichtern, steht aber vor allgemeinen Herausforderungen

Der soziale Dialog ist ein wichtiges Instrument zur Einbindung und Konsensbildung zwischen verschiedenen Akteuren im Arbeitsmarkt. Als solches kann er beispielsweise Unternehmen dabei helfen, flexible und pragmatische - aber dennoch faire - Lösungen für neue Herausforderungen des Arbeitsmarktes zu finden. Tarifverhandlungen können zudem die Gestaltung neuer und bestehender Rechte beeinflussen sowie die Bemühungen von Regierungen zur Stärkung von Sicherheit und Anpassungsfähigkeit des Arbeitsmarktes ergänzen. Gleichzeitig stehen Sozialpartner vor allgemeinen Herausforderungen wie z. B. rückläufige Mitgliederzahlen, die durch neue Arbeitsformen und Geschäftsmodelle wie digitale Plattformen verschärft werden.

Die Einführung von KI kann nicht nur Arbeitnehmer*innen und Unternehmen betreffen, sondern auch Sozialdialog selbst

Die Einführung von KI wird sowohl Chancen als auch Herausforderungen für Arbeitnehmer*innen und Unternehmen mit sich bringen. In dieser Hinsicht scheint sich der Fokus von Arbeitnehmervertretungen zunehmend von Chancen und Herausforderungen durch KI auf Arbeitsmarktebene (wie technologische Arbeitslosigkeit) auf jene am Arbeitsplatz zu verlagern, die beispielsweise mit einer höheren Arbeitsplatzqualität aber auch mit potenzieller Diskriminierung, übermäßiger Überwachung und Verletzung von Menschenrechten verbunden sein können. Gleichzeitig kann die Einführung von KI aber auch die Fähigkeit der Sozialpartner beeinträchtigen, die Chancen und Herausforderungen von KI für

Arbeitnehmer*innen und Unternehmen zu fördern und abzumildern, indem sie beispielsweise Informationsasymmetrien zwischen Dialog- und Verhandlungspartnern verschärft.

Sozialpartner in OECD Ländern haben mehrere Initiativen ergriffen, um durch KI hervorgerufene Transformationen fair zu gestalten, benötigen dafür jedoch KI-spezifisches Fachwissen

Neue empirische Erkenntnisse deuten darauf hin, dass der soziale Dialog dazu beitragen kann, Risiken von KI auf Arbeitsbedingungen abzumildern. Zusätzliche Erkenntnisse aus Fragebögen und laufende Aktivitäten von Sozialpartnern zeigen, dass sie bereits Arbeitnehmer*innen und Unternehmen über die Einführung und Auswirkungen von KI informieren, Politikverantwortliche beraten und erste KI-bezogene Tarifverträge aushandeln. Die meisten solcher Aktivitäten stammen bisher jedoch mehrheitlich von wenigen sehr aktiven Gewerkschaften und Arbeitgeberverbänden auf nationaler und internationaler Ebene, während viele andere Sozialpartner vor der Herausforderung von mangelndem KI-spezifischem Wissen stehen.

Politikverantwortliche können Sozialpartner dabei unterstützen, durch KI hervorgerufene Transformationen fair zu gestalten

Auch wenn sich Arbeitsbeziehungen zwischen verschiedenen Ländern unterscheiden, können Politikverantwortliche erwägen, Konsultationen und Diskussionen über die Einführung von KI und damit verbundenen Transformationen mit Sozialpartnern und anderen Interessengruppen zu fördern. Darüber hinaus können sie die Bemühungen der Sozialpartner unterstützen, ihre Mitgliedschaft auf nicht vertretene, digitale Arbeitsformen und Geschäftsmodelle wie z.B. digitale Plattformen auszudehnen, sowie KI-bezogenes Fachwissen am Arbeitsplatz für Vorstände, Arbeitnehmer*innen und deren verschiedene Interessenvertretungen fördern.

In Zukunft werden mehr Daten und Analysen auf individueller und betrieblicher Ebene erforderlich sein, um zu verstehen, wie der soziale Dialog die Einführung von KI und damit verbundene Transformationen fair gestalten kann – und wie sich dies zwischen Berufsgruppen und Sektoren unterscheidet. Solche Analysen würden insbesondere die Verfügbarkeit von Paneldaten auf betrieblicher Ebene voraussetzen, die Informationen über die Einführung von KI, sozialem Dialog und Arbeitsmarktergebnisse bzw. Arbeitsbedingungen gleichzeitig beinhalten.

Introduction

1. Recent years have seen rapid advances in the development and adoption of artificial intelligence (AI) technologies, notably in the areas of natural language processing, computer vision, automation and/or optimisation, and robotics. In light of the different scope and understanding of AI, this working paper uses the definition of an AI system established by the Expert Group on Artificial Intelligence at the OECD (AIGO) that defines AI as machine-based systems that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments¹ (OECD, 2019^[1]).

2. AI technologies will have important impacts on labour markets and the workplace. As with any technological change, AI will bring both benefits and risks, which already have been extensively reviewed (see for example Lane and Saint-Martin (2021^[2])). At the *labour market* level, AI technologies for example may increase productivity and create new jobs. At the same time, AI technologies can replace or at least alter other jobs, thus increasing reskilling needs and risking the displacement of workers and business models unable to adapt. Similarly, at the *workplace* level, AI technologies can improve the quality of the working environment² for example by reducing stress and safety risks. Yet, they can also lower job quality and raise concerns including potential discrimination, excessive surveillance as well as deficits regarding transparency, explainability and accountability of AI-influenced decisions (Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]). Against this background, the way AI will be regulated, and the extent to which all stakeholders will be involved in the design of regulations and implementations in the workplace are key elements to explore.

3. Drawing on previous OECD work on the importance of social dialogue for inclusive labour markets and for easing technological transitions (OECD, 2018^[4]; 2019^[5]), this working paper focuses on the relationship between AI adoption and social dialogue. It examines how social dialogue can shape the AI transition in beneficial ways for both workers and employers, while presenting new descriptive evidence on the role of social partners and recent initiatives in this area. The paper also discusses how AI is affecting social dialogue itself, e.g. by adding new pressures on generally weakening labour relations systems, as well as practical challenges for social partners, such as insufficient AI-related expertise to respond to the AI transition. The paper concludes with suggesting a few measures for social partners as well as policy makers who would like to support social partners' efforts in shaping the AI transition.

¹ The full definition is "An AI system is a machine-based system that is capable of influencing the environment by producing an output (predictions, recommendations or decisions) for a given set of objectives. It uses machine and/or human-based data and inputs to (i) perceive real and/or virtual environments; (ii) abstract these perceptions into models through analysis in an automated manner (e.g., with machine learning), or manually; and (iii) use model inference to formulate options for outcomes. AI systems are designed to operate with varying levels of autonomy."

² The OECD Framework for Measuring and Assessing Job Quality (Cazes, Hijzen and Saint-Martin, 2015^[16]) takes a multi-dimensional approach and defines job quality in terms of earnings quality, labour market security and quality of working environment.

4. To this end, the working paper draws on a combination of literature review (academic literature and publications by social partners on AI and social dialogue), OECD questionnaires circulated to social partners through the TUAC and Business@OECD networks on social partners' views and responses to AI adoption, and a descriptive analysis using European, cross-sectional data from 40,000 establishments. It benefited also from qualitative insights from OECD expert meetings and consultations with researchers, social partners, employers and AI developers consulted during the course of this project.

Outline of the working paper

5. The working paper proceeds as follows. Section 1 provides an overview of previous OECD findings about social dialogue's role for inclusive and well-functioning labour markets that are relevant for the AI transition, as well as of the challenges faced by social dialogue in a changing world of work. Section 2 discusses to what extent the AI transition may differ from previous technological changes in the way it affects labour markets, workplaces and social dialogue itself. To better capture social dialogue's role in shaping the AI transition, section 3 first examines the empirical relationship between AI and social dialogue, before mapping recent social partners' initiatives to shape the AI transition across OECD countries. Building on insights from the previous parts, section 4 concludes with suggesting some measures for policymakers willing to support social dialogue in its response to AI adoption.

1 Social dialogue in the changing world of work

6. Labour markets across OECD countries are in constant flux. Recent developments, linked to the COVID-19 pandemic and the need to accelerate the green transition, together with new technologies, globalisation and demographic changes are shaping labour markets and workplaces. While some of these developments offer opportunities to re-think and improve the world of work, they also create challenges for workers and employers to navigate resulting changes. Rapid advances in the development and adoption of AI technologies, accelerated by the surge in teleworking and enabling software during the COVID-19 pandemic, are raising fears about particularly disruptive labour market and workplace transitions (Bernhardt, Kresge and Suleiman, 2021^[6]).

7. As outlined in previous OECD research, social dialogue and well-designed collective bargaining systems can play an important role in fostering inclusive labour markets and in easing technological transitions for workers and employers (OECD, 2018^[4]; 2019^[5]). This section starts by presenting social partners' main channels of action, before highlighting OECD findings on social dialogue's role in helping employers find flexible and pragmatic solutions to labour market challenges, in shaping new rights and in complementing governments' efforts to strengthen workers' security and adaptability, which are all relevant aspects for the AI transition. It next recalls the general challenges faced by social dialogue that may also affect its role in the AI transition.

1.1. Social dialogue's key role

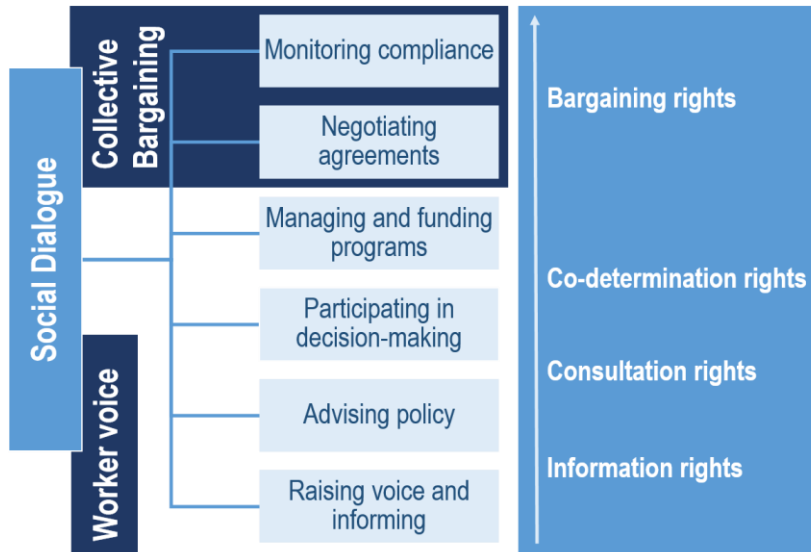
8. Social dialogue³ can be broad and often voluntary. It can be informal, such as exchanges of information in the workplace or declarations of intent at the national level, but also formal, such as the establishment of work councils or inclusion of social partners in national working groups and committees. One important formal instrument of social partners is collective bargaining, which in most cases is based on a national legal framework defining the rights and obligations of the bargaining parties – and which is a fundamental labour right (OECD, 2019^[5]). Unlike broader social dialogue processes, collective bargaining and resulting agreements at the firm, sectoral or national level therefore provide a legal basis for the covered parties to abide by any consensus reached.

³ Social dialogue includes any kind of negotiation, consultation or exchange of information between workers, firms or their representatives (e.g. social partners) – and in tripartite processes with the government. At sectoral and national levels, interests of labour and management are mainly represented by trade unions and employers' organisations, while at the firm and workplace level, worker voice can be both direct as well as mediated through different and often co-existing representative institutions. These include union representatives, unions' presence in firm-level management boards, work councils elected by all workers irrespective of union membership or workers' representatives (who can be independent). Worker-elected councils or representatives dedicated specifically to occupational health and safety issues are also often present in the workplace across OECD countries (OECD, 2019^[5]).

1.1.1. Social partners’ main channels of action

9. As social dialogue’s main actors, social partners can engage in various channels of action at the workplace, firm, sectoral and national levels. Each of these actions can vary based on the underlying legal framework, ranging from no rights (such as voluntary and informal exchanges of information) to information, consultation co-determination and finally bargaining rights (Figure 1.1).

Figure 1.1. Social partners’ channels of action and underlying legal frameworks



Source: Adaptation summarising findings in OECD (2019^[5]), *Negotiating our way up*, <https://dx.doi.org/10.1787/1fd2da34-en>.

10. Social partners can voice concerns, inform and alert workers, employers and the general public debate through the publication of strategy papers, guidelines or similar outreach activities. Such activities may indirectly shape policy debates,⁴ for instance by highlighting legislative gaps observed by social partners’ members or by proposing specific guidelines that policies reflect or integrate. Moreover, social partners can directly advise policymakers through lobbying or consulting, which can take place in the form of ad-hoc tripartite discussions initiated by the government or consultation rights granted to social partners.

11. In more formal forms of social dialogue, social partners can also participate in decision-making, for instance to determine what technology and training⁵ are adopted at the workplace, firm or national level. Yet, social partners’ involvement in decision-making is very heterogeneous across countries: While in some countries, unions are strongly involved in the reflection and implementation of digital strategies for example, they remain marginal to this debate in others (Degryse, 2016^[7]). Two examples of high

⁴ For example, many EU directives such as the recently passed resolution on the right to disconnect are inspired by pre-existing EU level social partners discussions and agreements, as in this case the European framework agreement on digitalisation (Eurofound, 2021^[113]).

⁵ Unions for example can play an important role in working with the industry to establish training or apprenticeship programs where new skills will be acquired (Aleks, Maffie and Saksida, 2020^[114]) and in many countries, social partners also play an institutional role in the design of training policies (Muñoz de Bustillo Llorente, 2020^[115]).

involvement in this respect are the co-determination laws in Sweden and a national collective agreement in Belgium, which require employers to inform and consult worker representations before adopting new technologies with consequences on employment and working conditions (Dencik, 2021^[8]; UNI Europa Finance; Insurance Europe; Amice; Bipar, 2021^[9]).

12. Finally, social partners can negotiate framework⁶ and collective agreements. While framework agreements are merely declarations of intent, collective bargaining and resulting collective agreements at the firm, sectoral or national level are legally binding, with potential mechanisms to extend or derogate from agreements of other firms and sectors. Other channels of action available for social partners then consists in managing programs like training and unemployment insurance as laid out in collective agreements, or/and being involved in monitoring and compliance procedures regarding the terms set in collective agreements. Yet, monitoring compliance tends to be a lower priority activity⁷ for both unions and employers' organisations, at least compared to other channels of action like negotiating agreements or raising voice and informing (ILO, 2017^[10]).

1.1.2. Fostering inclusive labour markets and easing technological transitions

13. Previous OECD research (2019^[5]) has highlighted the granularities of collective bargaining systems and workers' voice, and the importance of understanding their actual organisation and functioning to properly assess how social dialogue may shape labour market outcomes. The main findings are reported in Figure 1.2. They show notably that collective bargaining, provided it has high coverage while leaving some margins of flexibility, can foster inclusive and dynamic labour markets when bargaining systems are coordinated⁸ and the quality of labour relations between the social partners is high.⁹

⁶ European framework agreements are one of several possible outcomes a of EU-level social dialogue. The term is intended to highlight the particular nature of the agreement as providing an outline of general principles to be implemented in the Member States 'either in accordance with the procedures and practices specific to management and labour and the Member States or at the joint request of the signatory parties, by a Council decision on a proposal from the Commission' (Article 139(2) EC).

⁷ While social partners can help ensure compliance with agreements and regulation more generally, this is usually the responsibility of other complementary institutions, such as labour and health and safety inspectorates (OECD, 2019^[5]).

⁸ The presence and degree of co-ordination within and between social partners is important to not only produce independent negotiations, but to ensure inclusiveness across firms and sectors. Co-ordination mechanisms can exist between different levels, for example when sectoral or firm level agreements follow the guidelines fixed by peak-level organisations or by a social pact, or at the same level, for example when sectors or firms follow the standards set in another

⁹ Representativeness and the quality of labour relations are important building blocks of collective bargaining systems and social dialogue more broadly, since fragmented and poorly representative social partners for instance are likely to be less inclusive and increase the level of strife. While the quality of labour relations is often deeply rooted into broader societal factors,, some features of collective bargaining systems themselves like incentives for regular renegotiation and mechanisms that ensure enforcement can help promote trust between social partners (OECD, 2019^[5]).

Figure 1.2. Workers' voice and collective bargaining can improve labour market performance and the quality of the working environment.



Note: Results when studying the link between collective bargaining systems, types of worker voice and a series of labour market performance outcomes and indicators of the quality of the working environment, using micro- and sector-level data available.

Source: OECD (2019^[5]), *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work*, OECD Publishing, Paris.

14. In addition, collective bargaining systems and workers' voice arrangements also matter for job quality. The quality of the working environment is higher on average in countries with well-organised social partners and a large coverage of collective agreements. At the firm level, both direct and mixed forms of voice (where workers' representatives coexist with direct dialogue between workers and managers) are also associated with a higher quality of the working environment compared to the absence of voice. By contrast, the presence of representative workers' voice in firms where there are no parallel means of direct exchange between workers and managers is not associated with a better quality of the working environment. While these results are not evidence of causal relationships, they highlight the importance of good labour relations and social dialogue context at the firm level (OECD, 2019^[5]).

15. As demographic and technological changes unfold, social dialogue can help easing resulting transitions for workers and employers. Through social partners' main channels of action and the way collective bargaining and workers' voice shape labour market outcomes, social dialogue can allow employers to adjust wages, working time, work organisation and tasks to new needs in a flexible and pragmatic manner. It can help shaping new rights, adapting existing ones, regulating the use of new technologies, providing active support to workers transitioning to new jobs and anticipating skills needs (OECD, 2019^[5]).

1.2. Ongoing challenges for social dialogue

16. In the past decades, social dialogue and collective bargaining have been under increasing pressures. Across OECD countries, trade union density has declined in general from 33% on average in 1975 to 16% in 2019 and the share of workers covered by a collective agreement shrank from 46% in 1985 to 32% on average in 2019. The development of non-standard forms of work including platform work exacerbate this decline, as workers with such non-standard forms of work are 50% less likely to be unionised than standard workers (OECD, 2018^[4]; 2019^[5]). This underrepresentation is particularly relevant for the discussion on AI adoption because especially in the platform economy, firms tend to be early AI adopters – if AI is not already enabling part of the business model in the first place (Adams-Prassl, 2019^[11]; Liu et al., 2021^[12]; Malik, Budhwar and Srikanth, 2020^[13]).

17. On the employers' side, the share of workers employed in a firm that is represented by an employers' organisation has stayed relatively stable at around 59% across OECD countries – but small firms and those with new business models enabled by organisational and technological changes are also much less likely to be represented (OECD, 2019^[5]). This suggests that employers' organisations also need

to improve their representativeness by reaching out to underrepresented or new actors. Yet, reaching a balance between the needs of their historical members and platforms may in some cases not be an easy challenge – as platforms for instance often see themselves as matchmaker and not as an employer (Johnston and Land-Kazlauskas, 2018^[14]).

18. On this latter point, the development of platforms might also affect the quality of labour relations, notably the trust between the negotiating parties. Cattero and D’Onofrio (2018^[15]) for example discuss the case of the German Verdi union, which has not been able to bargain with Amazon Germany. Specified reasons include the platform’s reluctance to enter any relevant discussions as well as its strategy (similarly to other platforms like the food delivery service Gorillas) to make bargaining structures complex by establishing franchise models or Dutch corporate forms that require electing a work council for each warehouse (as discussed for example in Meaker (2021^[16])). At the same time in Sweden for example, where union density and collective bargaining coverage is very high, some platforms have voluntarily signed sectoral collective bargaining agreements with both unions and employers’ organisations, without prior industrial action (Söderqvist and Bernhardt, 2019^[17]).

19. Despite these challenges, social dialogue should be mobilised as performing functions that are still relevant and without many alternatives (OECD, 2019^[5]). Moreover, both social partners and governments are adjusting to the challenges posed by the changing world of work: social partners are already developing strategies to increase their representativeness in sectors and occupations exposed to new and digital businesses models by challenging workers’ classification and adapting bargaining practices to be more inclusive.¹⁰ At the same time, some governments have also engaged in supporting social partners to better mobilise particularly collective bargaining by regulating the correct classification of workers and by extending bargaining rights to some self-employed workers who fall into a “grey zone” between different employment classifications or who work in unbalanced power relationships (OECD, 2019^[5]).

20. Before examining social dialogue’s role in shaping the AI transition against this background, the next section discusses to what extent it differs from previous technological changes in its effects on workers, employers and social dialogue itself.

¹⁰ This kind of unionism relies on diversified strategies to bring bargaining counterparts to the table and can result in substantive gains for workers, but usually lacks a legal mandate and thus rights attached to any kind of dialogue process (Johnston and Land-Kazlauskas, 2018^[14])

2 AI transition: What is different this time?

21. Recent years have seen rapid advances in the development and adoption of AI technologies, notably in the areas of natural language processing, computer vision, automation and/or optimisation, and robotics. While the AI-related literature has already extensively reviewed the expected benefits and risks of AI adoption for workers and employers, less attention has been devoted to social partners' views and priorities in promoting or mitigating these impacts, as well as potential AI impacts on social dialogue itself.

22. Filling this gap, this section discusses the nature and impact of AI technologies from social partners' perspective, with greater insights from unions' perspective due to information availability. It starts with a short review of the different understandings of AI and its impacts on labour market and workplace levels, and then discusses the specific challenges AI poses to social partners and their capacity to engage in dialogue and bargaining.

2.1. Disentangling AI from digitisation and automation

23. Current applications of AI technologies vary considerably in scope and ambition, contributing to the difficulty of establishing a common understanding of AI and its impact on labour markets and workplaces.. AI systems can be embedded in purely software-based systems (such as voice assistants, image analysis, search engines and face recognition applications), but can also co-exist or be embedded in other technologies and hardware devices (such as robots, or autonomous cars) (Montagnier and Ek, 2021^[18]). While significant progress has been made over recent years in areas such as natural language processing (NLP), it is important to underline that even the most advanced AI technologies available today are still "narrow" in the sense that they are designed to accomplish specific problem-solving or reasoning tasks but are not capable of "general" intelligent action as anticipated and sometimes even feared by some scholars and in public debates (OECD, 2019^[19]).

24. In light of the plurality of complex definitions, some social partners have developed guides and explanations to help workers and employers understand what AI means in specific contexts. In line with the OECD Framework for Classifying AI systems (OECD, 2022^[20]), the British TUC for instance suggests thinking of AI as a system with different components that include data and data processing, predictive models using the data, decisions made using the predictive models, and a response or output based on the decisions (TUC, 2021^[21]). As such, different AI components can serve different purposes in the workplace, which may also shape workers' and employers' understanding of AI. Correspondingly, the trade union-linked Hans Böckler Foundation in Germany for example proposes a categorisation of AI into four most relevant deployment models, which include support for workers, partial replacement of workers,

support for decisions in personnel management and independent takeover of respective decisions¹¹ (Albrecht and Kellermann, 2020_[22]).

25. What underlies all these different understandings is that AI technologies differ from other digital technologies and broader automation in two main ways, which are highlighted in the OECD Framework for Classifying AI Systems (OECD, 2022_[20]):

26. AI technologies enable the automated processing of numerous types of data and in vast amounts, producing outcomes and recommendations rapidly and at scale.

27. AI technologies, notably through their ability to learn, allow for decision-making assistance through predictions in tasks such as recognition, event detection, forecasting, personalisation, interaction support, goal-driven optimisation and reasoning with knowledge structures.

28. Although it would therefore be valuable to clearly distinguish AI impacts on labour markets and workplaces from those of other technologies, for example to differentiate between AI-driven and general automation, available data to date does not permit this – also because AI is generally embedded in other technological systems to the extent that is almost indistinguishable (Montagnier and Ek, 2021_[18]). Therefore, studies on automation or other technologies and software more generally may still be valuable in providing information on installed infrastructure *susceptible* to adopting AI technologies (see the empirical literature review and descriptive analysis in section 3).

2.2. Unions' views on benefits and risks of AI

29. As any technological change, AI brings both risks and benefits (see for example Lane and Saint-Martin (2021_[2]) and Salvi del Pero, Wyckoff and Vourc'h (2022_[3])). While some of them, such as the risk of task automation and profiling may appear similar to those brought by digital technologies, others may fundamentally change the working relationship and call for specific attention from social partners.

30. To better understand social partners' priorities concerning the AI transition, an OECD questionnaire was addressed to trade unions and employers' organisations through the TUAC and Business@OECD networks across OECD countries (see Box 2.1 for more information). This questionnaire complements previous social partners' surveys on digital technologies more generally (see for example Voss and Riede (2018_[23])) and country specific social partners surveys on AI (see for example those by ver.di (2019_[24]) and INPUT Consulting in cooperation with the humAIn work lab (2021_[25]) in Germany), but is not representative and thus mainly adds more recent yet qualitative insights.

¹¹ According to Albrecht and Kellermann (2020_[22]), examples in this category include AI systems that create shift schedules, assemble teams, determine performance appraisals or make a preselection of applicants – but do not, for instance, independently hire or fire employees.

Box 2.1. The OECD questionnaire on artificial intelligence and social dialogue

The questionnaire was circulated to social partners in October 2021 through the TUAC and Business@OECD networks across OECD countries. It therefore reached confederations at the national level representing a variety of local unions or employers' organisations. Overall, 17 different of such confederations from 12 OECD countries responded, which include Belgium, Canada, Germany, Denmark, Finland, France, the United Kingdom, Greece, Ireland, Italy, New Zealand and Sweden. The responses included 15 from trade union confederations and only 2 from employers' organisation confederations.

The questionnaire aimed to collect qualitative information, which was subsequently discussed in two OECD expert workshops in November 2021 and February 2022 including social partners, researchers, employers and AI developers. The questionnaire focused on social partners' assessment of and responses to AI's main impacts on the world of work and social dialogue itself and was structured along four parts (the version sent to unions can be found in the Annex):

1. Understanding social partners' awareness of what AI exactly entails;
2. Reviewing social partners' assessment of the risks and benefits relating to AI adoption at labour market and workplace levels;
3. Collecting information on how social partners are responding to support workers and employers in the AI transition;
4. Reviewing social partners' assessment of how AI adoption may affect social dialogue itself, including new challenges but also new opportunities and tools to facilitate their work.

Limitations

The questionnaire's results are non-representative and qualitative, thus mainly adding social partner views and details to otherwise academic literature and cross-country data. Responses are likely biased in stemming mostly from social partners already active in the area of AI – which may in turn positively affect the responses by the respondents' high level of awareness and engagement.

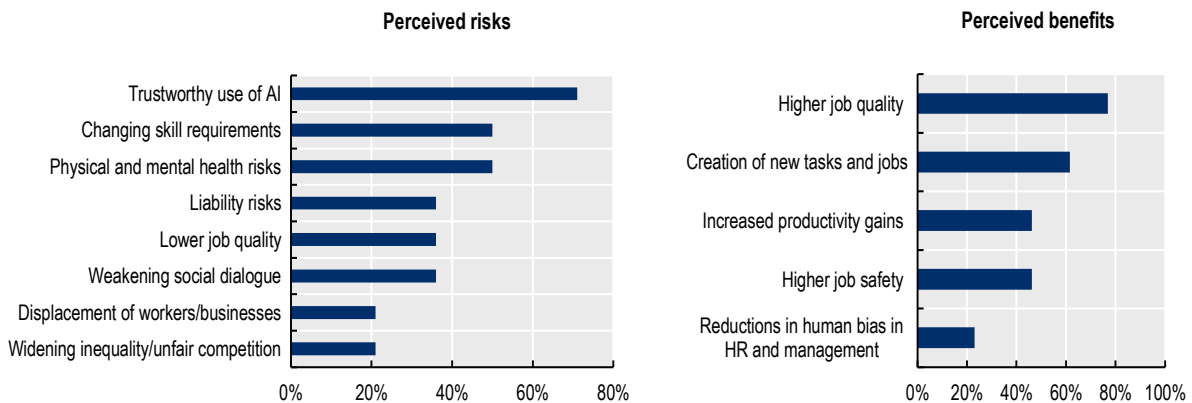
31. Overall, unions' priority appears to shift from macro-economic concerns (notably AI's impact on job destruction) to more micro-economic ones (notably the trustworthy use of AI, changing skill demands and job quality at the workplace level). In a previous survey carried out with union representatives across Europe in 2018, in which job destruction and job creation due to automation were still ranked as the most important risk and benefit of AI in the future of work (with 52% and 45% respectively). Risks and benefits relating to job quality (i.e. working time intensification and reduction) came second with 38% and 31%, respectively (Voss and Riede, 2018^[23]). Similarly, two thirds of work councils, HR councils and supervisory boards surveyed by the ver.di union in Germany¹² a year later feared AI-induced decreases in available jobs while only half of them expected increasing work intensity (ver.di, 2019^[24]). In contrast, unions'

¹² Responses cover the services sector, notably public administration, defence and social security, financial and insurance services, trade, and health and social services.

responses¹³ to the OECD questionnaire in 2021 highlight that the trustworthy use of AI,¹⁴ changing skill requirements and physical and mental health risks is their main concern, while perceiving AI mostly as benefiting job quality and creating new tasks and jobs (Figure 2.1). The OECD understands “trustworthy use of AI” as values-based principles, including whether the use of AI breaches workers’ dignity and right to privacy, upholds fairness, non-discrimination and avoids bias, and whether it promotes autonomy and agency (Salvi del Pero, Wyckoff and Vourc’h, 2022^[3]). This apparent focus shift from macro-economic concerns to more micro-economic ones is also echoed by a survey of German work councils through the network of ver.di, IG Metall and DGB in the same year, who rank changing work content and skill demand as their biggest concern of AI adoption – before job destruction (INPUT Consulting and humAI work lab, 2021^[25]).

Figure 2.1. Unions focus on AI’s impact at workplace levels

Percentage of surveyed trade union confederations



Note: Responses stem from 15 large trade union confederations representing various local unions. Only two confederations of employers’ organisations responded to the questionnaire and are thus not included in the graph.. Responses are based on pre-defined answer options (see Annex) and may thus not be exhaustive.

Source: OECD questionnaire on artificial intelligence and social dialogue (Box 2.1)

32. This priority shift is in line with recent waves of evidence (on both automation (Georgieff and Milanez, 2021^[26]; Dauth et al., 2021^[27]) and AI specifically (Georgieff and Hye, 2021^[28]), suggesting that AI adoption so far has predominantly complemented and augmented tasks instead of completely replacing them and thus endangering entire jobs (Lane and Saint-Martin, 2021^[2]). One possible explanation is that even tasks at high risk of substitution can require expertise that is difficult to formalise, and can be integrated into broader work processes that are difficult to restructure (Albrecht and Kellermann, 2020^[22]). In either way, AI technologies that complement and augment tasks and jobs will create the need for re-skilling and up-skilling workers in order to understand and interact with AI in work processes, which will

¹³ Only two confederations of employers’ organisations responded to the questionnaire and are thus not included in the graphs.

¹⁴ There is broad debate about the use of ethics to describe principles that should govern the use of AI in society and in the workplace. This working paper follows the OECD AI principles’ definition of trustworthiness, but it will also use the term ethical, in line with public debate, and particularly to discuss potential concerns that may emerge to avoid harm (for a detailed discussion, see Salvi del Pero, Wyckoff and Vourc’h (2022^[3])).

likely also impact existing ways of skill acquisition and training methods at the workplace (Lane and Saint-Martin, 2021^[2]; Ponce del Castillo, 2018^[29]).

33. Accordingly, unions' responses in the OECD questionnaire suggest that they see both the biggest benefit and concern in AI's impact on the workplace. In light of potential benefits, unions perceive AI to improve primarily job quality.¹⁵ Possible mechanisms include that the use of AI may reduce stress, fatigue and safety risks through a better work organisation and task optimisation. For example, AI can support or substitute repetitive or physically and mentally strenuous tasks, thereby allowing workers to focus on more interesting and safe tasks. Moreover, AI can also offer opportunities to reduce discrimination in the workplace, or better monitor the well-being and security of workers (Cazes, 2021^[30]).

34. In terms of risks, unions' responses highlight that they are most concerned about ethical issues (e.g. the trustworthy use of AI), followed by changing skill requirements and physical and mental health risks. In this respect, AI adoption in the workplace raises considerations that need to be made when promoting a trustworthy use of AI in society and the economy in general (for an overview, see also the OECD AI Principles (2019^[11])), but are especially relevant regarding the use of AI systems in the workplace. These considerations include whether AI systems guarantee inclusive growth, sustainable development and well-being; human rights (privacy, fairness, agency and dignity); transparency and explainability; robustness, safety and security; and accountability. Indeed, AI technologies may lead to increased workers' dependency in their interaction with machines and increased safety risks, which are all key drivers of the quality of the working environment (OECD, 2015^[31]). Finally, AI systems may also lead to excessive monitoring, more opaque employment decisions, and reduced autonomy and agency, among others (Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]).

2.3. What new challenges does AI pose for social dialogue?

35. Beyond affecting workers and employers, AI technologies may also affect social partners' capacity to support their members through dialogue and bargaining – adding pressures to the general challenges they face through new forms of work and business models that are enabled by organisational and technological changes, among others. At the same time, the risk of weakening social dialogue and collective bargaining through AI adoption is still perceived as comparatively low by social partners, with 30% in Voss and Riede (2018^[23]) and slightly higher in the OECD social partners questionnaire in 2021 (Figure 2.1).

36. As the previous subsection highlighted, AI technologies are not only expected to diffuse rapidly, especially into management and human resource practices, but also to continuously develop through their potential to self-improve, which will require continuing adjustments from workers and employers (Lane and Saint-Martin, 2021^[2]). For social dialogue, this will likely require a shift away from monitoring and agreeing to constant rules towards more regular consolidations between social partners and other operating parties as well as new forms of centralised and de-centralised conflict resolution mechanisms (Albrecht and Kellermann, 2020^[22]). While social partners may thus need to adapt the frequency and way of consolidating with each other, scholars have argued that collective bargaining is the most effective instrument to address AI-related issues in a rapid and customized fashion, precisely because of the flexibility it offers at different labour market levels (see for example De Stefano (2020^[32]; 2020^[33])). In contrast, new legislation might struggle to respond promptly to potential unforeseen developments of AI along other technological changes in the labour market (Aloisi, 2021^[34]).

¹⁵ The OECD Framework for Measuring and Assessing Job Quality (Cazes, Hijzen and Saint-Martin, 2015^[116]) takes a multi-dimensional approach and defines job quality in terms of earnings quality, labour market security and quality of working environment .

37. At the same time, AI technologies may also complicate social partners' capacity to consolidate and bargain. For example, the British TUC fears that the use of AI likely changes the employment relationship in a way that blurs accountabilities of decisions (TUC, 2021^[21]), which may ultimately affect social partners' capacity to represent workers' and employers' interests. Integrating AI into co-determination structures can for example be a challenge, when employers cannot make the necessary information about AI-influenced decisions available to workers or their representatives, because they are themselves detached from AI developers who may not disclose information (Albrecht and Kellermann, 2020^[22]) or who may reside in other countries with different regulations (Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]). Accountabilities may also be unclear if knowledge gaps exist about adopted AI systems between developers, vendors, and contracting authorities, as well as between those negotiating the procurement (Colclough, 2022^[35]).

38. In this respect and beyond blurring accountabilities, AI may also affect social dialogue by changing the power balance between workers, employers and their representatives, for instance when AI-based surveillance of workers generates information asymmetries (Rani and Singh, 2019^[36]; De Stefano, 2018^[37]). Such asymmetries are likely to reduce workers' negotiation and bargaining position (Adler-Bell and Miller, 2018^[38]), especially when workers are not aware that they are interacting with AI, or not sufficiently informed about the outcomes of this interaction, for example when AI is adopted in already used technologies through updates and is as such not considered new technology on which workers' representations should be consulted (EESC and CFDT Cadres, 2022^[39]). Yet, even in the case where AI adoption is considered new, not all OECD countries for example require prior agreement with workers' representatives before monitoring workers through new technologies (Aloisi, 2021^[34]; Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]). Furthermore, power imbalances through information asymmetries may question the notion of workers' consent to interact with AI or allow the processing of obtained data. Even in countries where employers are supposed to obtain workers' consent for the use of their personal data (whether in recruitment, management or other processes), power imbalances in the employment relations can make it difficult for workers to actually deny consent (Data Protection Working Party, 2017^[40]; Moore, 2020^[41]).

39. Moreover, the increased individualisation potential of workforce management induced by AI can further exacerbate power imbalances. The delegation of management and assistance functions to AI technologies risks to reduce the social dimension of work and to isolate workers (Nguyen and Mateescu, 2019^[42]). The already frequent use of AI in the platform economy for instance is combined with a less traditional work relationship, in terms of a workforce that is both fragmented and underrepresented by unions, making recourse for AI-influenced decisions more difficult to contest or rectify (De Stefano, 2018^[37]). Additionally, many of the tasks that underpin AI technologies are increasingly contracted out to a "ghost workforce" as coined by Gray and Suri (2019^[43]). While many platform workers must be geographically proximate to clients, such as when delivering food or driving passengers, ghost workers can reside anywhere and may thus be even more vulnerable to exploitation through potentially less stringent labour standards and less access to and coverage of collective bargaining (Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]). Yet at the same time as being affected by AI-induced power imbalances, social dialogue and collective bargaining are crucial to ensure that power imbalances do not rise to unsustainable levels, especially in countries with limited legal protection against AI-related issues like surveillance, such as for example some parts of the United States (Bodie, 2017^[44]).

40. Finally, fears exist that the use of AI may even limit or prevent social dialogue to some extent. AI-based monitoring of workers for instance can potentially be used to monitor union activity and prevent collective organising, as observed for ride-hailing or delivery platforms (De Stefano, 2016^[45]; EESC and CFDT Cadres, 2022^[39]). In this respect, AI might for instance be used to analyse information such as the location of union offices, the activity of union officials, the use of union-related vocabulary in emails, and even union activity on social media (TUC, 2021^[21]). This risk appears to be higher in non-standard forms

of work and in countries where laws do not anchor or support institutionalised forms of social dialogue and collective bargaining, particularly beyond the firm level.

41. The expected impacts of AI adoption at labour market and workplace levels on social dialogue highlight at least two important insights. First, AI's particular features such as its speed of diffusion, self-learning potential and impact on power relations and accountabilities will pose specific challenges to social partners. Second, these particular features further emphasise the importance of social dialogue as a flexible and inclusive way of support for workers and employers in the AI transition.

3 AI in the labour market: what role for social dialogue?

42. For social dialogue, AI technologies may just be another technological change as a result of which workers and employers need support in grappling with transitions. Yet, they also give rise to a number of specific concerns that warrant a closer look on the role social dialogue may play in the AI transition. Along these lines, this section first investigates the empirical link between AI adoption and social dialogue, then maps concrete examples of social partners' responses to AI across OECD countries and finally discusses the practical support social partners may need in launching responses.

3.1. How do social dialogue and AI relate empirically?

43. Empirical findings in previous OECD research (2019^[5]) have shown that social dialogue and particularly collective bargaining systems can, when set up in certain ways, improve labour market outcomes, such as wages, wage inequality, employment and the quality of the working environment (see section 1.1.2). Along these lines, this subsection concentrates on the specific relationship between social dialogue and AI's impact. It starts by reviewing the existing literature, before providing new empirical insights on how representative workers' voice mitigates AI's impact on risks relating to working conditions.

3.1.1. Social dialogue, AI adoption and labour market performance: A literature review

44. The empirical literature on social dialogue and AI adoption is scarce and focuses only on few, imperfect measures of social dialogue and AI adoption. Most studies for instance primarily concentrate on AI-related automation in the form of robots, rather than AI-related technologies (in management practices for instance), and rely on indicators of AI exposure rather than actual AI adoption (see Georgieff and Hye (2021^[28]) for a detailed overview of the differences between the two kinds of AI indicator). As for social dialogue, studies tend to focus on indicators of workers' voice rather than employers' organisation or collective bargaining indicators.

45. Generally, the two following main questions have been explored by the empirical literature: Does the presence of workers' voice slow down or facilitate the adoption of AI at the workplace? Does the *impact* of AI adoption differ when forms of workers' voice exist? Regarding the first question, the literature finds mixed and only descriptive findings that might suffer from reverse causality (e.g., adopting AI could instead decrease workers' voice). Keeping these caveats in mind, Onorato (2018^[46]) finds that at national level, union density is negatively associated with robot adoption in OECD countries, using a constructed panel dataset based on data from the International Federation of Robotics and OECD statistics. Similarly but at the firm level, Genz, Bellmann and Matthes (2018^[47]) find that in Germany, the sole existence of work councils is associated with a statistically significant lower adoption of automation- and digital technologies in general. However, the authors find evidence suggesting that work councils foster adoption of these technologies in establishments that employ a high share of workers who are conducting *physical demanding* tasks. In contrast, Belloc, Burdin and Landini (2022^[48]) find a positive association between workers' representation and the adoption of robots and data analytics in management practices in Europe,

using cross-sectional data from the European Company Survey 2019. The authors investigate various potential mechanisms driving these associations and find suggestive evidence that workers' representation influences workplace practices, notably in terms of training intensity and process innovation, in ways that may enhance the complementarity between labour and AI technologies.

46. Regarding the second question (e.g. the effect of workers' representation on the *impact* of AI adoption), the literature points towards a beneficial moderating effect on wages and employment, but does not explore the impact on job quality/working conditions. Using a fixed effects regression analysis with constructed panel data from the Luxembourg Income Study and the U.S. Current Population Survey from the 1980s onwards, Parolin (2019^[49]) for instance finds that declines in bargaining coverage at the national level are associated with declining relative wage growth for occupations at higher risk of automation. This strand of the literature is further motivated by the landmark paper of Dauth et al (2021^[27]), which finds that early robot adoption in the German manufacturing sector was not associated with increased unemployment but instead with increased reskilling of workers – contrary to findings from the United States (Acemoglu and Restrepo, 2018^[50]). The authors' conjecture that this finding could be due to stronger labour market institutions in Germany like collective bargaining, but do not provide direct evidence on this. Following this pursuit using a random effects regression analysis with constructed panel data from the European Labour Force Survey and the U.S. Current Population Survey, Haapanala, Marx and Parolin (2022^[51]) indeed find that union density mitigates employment decline in automation-exposed industries – but only for high-educated and middle-aged to older workers (above 35 years).

3.1.2. How does representative workers' voice shape the impact of AI on working conditions? New evidence

47. The scarcity of empirical evidence on the link between social dialogue, AI adoption and its effects is largely due to data limitations. Most existing individual- and firm-level panel data do not for instance simultaneously include indicators on these three aspects and require matching information from different sources or limiting the analysis to cross-sectional or constructed panel.

48. Against this background, this section attempts to bring some insights in analysing how representative workers' voice might mitigate AI's impact on several risks relating to working conditions in Europe (for a detailed overview, see Box 3.1). Similar to existing empirical studies, the empirical strategy relies on cross-sectional data that only includes proxies of AI adoption in the sense that the technology adopted probably includes AI components – or is at least susceptible to AI adoption. In contrast to most existing studies however, the Third European Survey of Enterprises on New and Emerging Risks (ESENER-3) data analysed in this section allows for distinguishing proxies for different *types* of AI systems used in the workplace, since it includes information on usage of robots as well as software to monitor the content and pace of work. Moreover, while the data also do not include information on establishments' affiliation with an employers' organisation or the general quality of labour relations, they do differentiate among different types of representative workers' voice.

Box 3.1. How does representative workers' voice mitigate the impact of AI on risks relating to working conditions?

The empirical strategy follows the model in Haapanala, Marx and Parolin (2022^[51]) by estimating the moderating (e.g. interaction) effect of representative workers' voice on AI's impact on labour market performance. Yet, instead of looking at employment and wage effects like Haapanala, Marx and Parolin, the analysis is conducted at the workplace level and considers AI's impact on some working conditions. A probit regression is adopted instead of fixed effects regression due to the cross-sectional nature of the data.

The Third European Survey of Enterprises on New and Emerging Risks (ESENER-3) (EU-OSHA, 2019^[52]) asked 45,420 establishments from 33 countries and different sectors how health and safety risks were managed at the workplace level, with a particular focus on digitalisation and psychosocial risks. The survey covers all EU Member States, Iceland, North Macedonia, Norway, Serbia, Switzerland and the United Kingdom. The ESENER-3 survey includes detailed information on various forms of representative workers' voice that co-exist at the workplace, different types of technologies used and some aspects of non-monetary working conditions.

The probit regression model is specified as follows:

$$Y_{ijc} = \beta_0 + \beta_1 AI_{ijc} + \beta_2 WR_{ijc} + \beta_3 WR_{ijc} \times AI_{ijc} + \beta_4 X_{ijc} + \varepsilon_{ijc}$$

where subscript i denotes the establishment; Y_i is the dependent variable (e.g. different working conditions outcomes as dummy variables); AI_i is a dummy variable equal to 1 if the establishment i in industry j and located in country c uses either robots, smart devices or software to monitor workers or determine the content and pace of their work; WR_i is a dummy variable for the presence of worker representation at the establishment level (tested separately for three types of representation, e.g. the presence of a trade union representative, a works council or a health and safety committee/representative elected by workers); X_i is the vector of controls at the establishment level (e.g. country, industry, size, age, economic situation, share of old workers, if the person interviewed is the owner/manager, and if teleworking is possible) similarly to Belloc, Burdin and Landini (2022^[48]), who use a similar European-level dataset; and ε_i are the residuals.

The variable of interest here is the coefficient β_3 that captures the AI-worker representation interaction. If β_3 is negative, the effect of AI on the selected outcome will be **mitigated** in establishments with worker representation compared to establishments with no worker representation. The unmitigated effect of AI is denoted by β_1 and the actual mitigated effect of AI is then denoted by $\beta_1 + \beta_3$, which can be derived from the regression table in the Annex.

Sources:

EU-OSHA (2019), *The Third European Survey of Enterprises on New and Emerging Risks*, <https://visualisation.osha.europa.eu/esener/en/survey/overview/2019>.

Haapanala, H., I. Marx and Z. Parolin (2022), "Robots and Unions: The Moderating Effect of Organised Labour on Technological Unemployment", *IZA Discussion Paper Series No. 15080*, <https://www.iza.org/publications/dp/15080>.

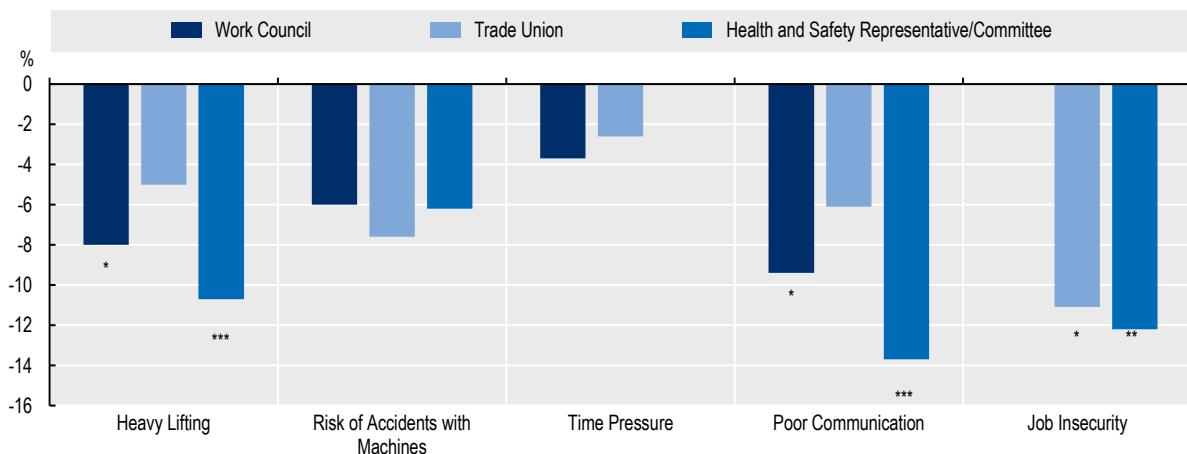
49. In the ESENER-3 survey, 26% of establishments report using AI, of which AI-related management software is more common than AI-related hardware devices. While only 5% establishments report using robots or wearable devices, 12% and 15% of establishments report using software to monitor workers or to determine the content and pace of their work respectively. Moreover, 63% of establishments report having at least one form of worker representation. Worker elected health and safety representatives and committees are the most common form of representative workers' voice in surveyed establishments with

almost 50%, while only 30% of establishments report having a trade union representative or a works council (forms of representations may co-exist in one establishment).

50. Results from probit regressions suggest that workers’ representation indeed mitigates AI’s impact on several risks relating to working conditions. Figure 3.1 displays the magnitude and significance of the interaction effect, only to show how workers’ representation might shape the effect of AI – the ultimate effect of AI mitigated by workers’ voice can be derived from the regression table in the Annex. AI-using establishments that have a work council or a worker-elected health and safety representative/committee are significantly less likely to expose their workers to heavy lifting (8% and 11% respectively) and to communicate poorly (9% and 14% respectively) than establishments using AI but do not have representative workers’ voice¹⁶ (effects are tested separately). Moreover, AI-using establishments that also have a trade union representative or worker-elected health and safety representative/committee are less likely to be prone to job insecurity (11% and 12% respectively) than establishments using AI but do not have representative workers’ voice. The three forms of representative voice also appear to reduce risks of accidents with machines and time pressure due to the use of AI in those establishments, but results are non-significant.

Figure 3.1. Representative workers’ voice is associated with mitigating AI’s impacts on risks relating to working conditions, but causality remains unclear

Marginal effects, i.e. percentage change in the probability of outcome variable following a discrete change in the relevant explanatory variable



Note: Results are based on probit regressions including establishment-level controls (country, industry, size, age, economic situation, share of old workers, if the person interviewed is the owner/manager and if teleworking is possible). The figure reports marginal effects, i.e. the percentage change in the probability of outcome variable following a discrete change in the relevant explanatory variable. For example, establishments using AI that also have a work council are 8% less likely to expose their workers to heavy lifting than establishments using AI but do not have a works council. *, **, *** denote the statistical significance at the 10%, 5%, and 1% level, respectively.

Source: OECD estimates based on the Third European Survey of Enterprises on New and Emerging Risks (2019^[52]) (ESENER-3).

51. Moreover, these results indicate that worker-elected health and safety representatives/committees have the highest mitigating effect on risks relating to working conditions. These results are robust to different sets of controls and heterogeneous checks. One of these checks for example included estimating

¹⁶ The dummy variable equals 1 if a worker elected health and safety committee/representative exists in an establishment and it equals 0 if no health and safety committee/representative exists or if it is appointed by the business.

the mitigating effect of representative workers' voice on the workplace impact of different *types* of AI, which revealed that respective effects are larger and more significant for AI-related management software than for AI-related hardware devices – but again highest for worker-elected health and safety representatives/committees. In terms of potential mechanisms driving the mitigating effect of representative workers' voice on several risks relating working conditions, a recent paper suggests that representation indirectly affects the type of AI systems employers invest in by shaping job designs (Belloc et al., 2022^[53]). Specifically, the authors find that in establishments with representative workers' voice, jobs are richer and tasks less routinised – and thus more difficult to monitor, potentially helping to instead orient AI-related investments towards those AI systems that improve working conditions.

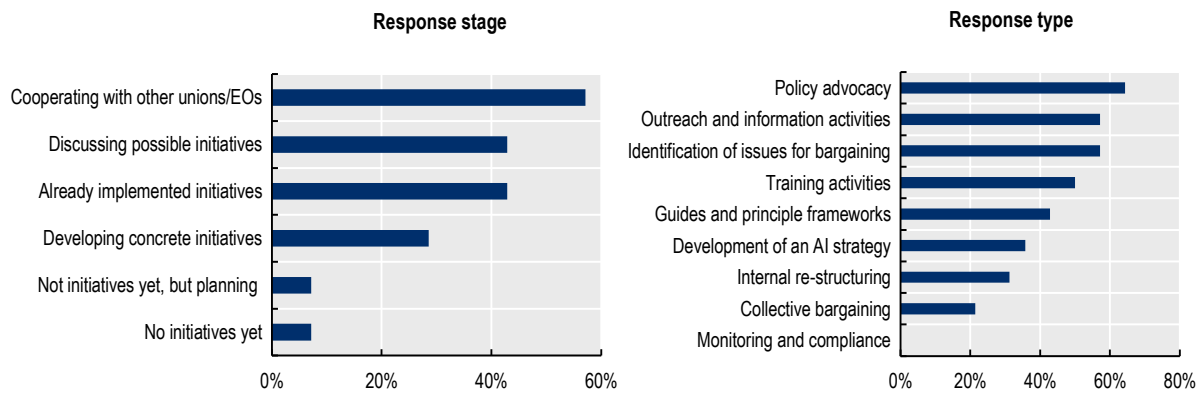
52. Albeit controlling for an extensive set of variables, the analysis presented above remains descriptive and mostly serves as a motivation to investigate further any causal relation between workers' voice and the AI transition. Moreover, future research should further investigate the impact of different social dialogue and collective bargaining indicators, as well as of different types of direct and representative workers' voice. On this latter aspect, the OECD carried out a cross-sectional survey with 5 000 workers and 2 000 firms in the manufacturing and financial sectors in Germany, Austria, the United States, Canada, the United Kingdom and Ireland. Results from the forthcoming publication indicate that more positive outcomes in terms of productivity and working conditions can be observed in firms that consult workers directly or worker representatives regarding the adoption of new technologies (OECD, 2023^[54]).

3.2. Social partners' responses to AI adoption

53. To complement the previous descriptive empirical evidence, this section reviews to what extent social partners have started engaging in various channels of action as a response to AI transition. Depending on the national and regulatory settings as well as practices and traditions across OECD countries, social partners can engage in various initiatives and at different levels (e.g. workplace, firm, sectoral and national). As described in section 1, social partners can raise voice and inform, advise policymakers, participate in decision-making for example when it comes to determining what technology is adopted, manage and fund programs like training, negotiate agreements and monitor compliance of terms set out in agreements. Beyond these main activities, social partners are also increasing their efforts to broaden their outreach through the use of digital technologies – for example to attract, recruit and inform members through social platforms (Houghton and Hodder, 2021^[55]) and to gain insights that strengthen their position in negotiations (Voss and Riede, 2018^[23]). In this respect, AI technologies may also provide innovative solutions and new opportunities for social partners (for some examples, see section 3.2.4 below).

54. The OECD questionnaire provides some interesting insights on how social partners have started responding to AI transition. It shows that while many are engaging in outreach and information activities, while some are advocating for new or improved rights, very few have engaged in negotiating agreements (Figure 3.2).

Figure 3.2. Unions' responses to the AI transition mainly concentrate on raising voice and advising policy



Note: Responses stem from 15 large trade union confederations representing various local unions. Only two confederations of employers' organisations responded to the questionnaire and are thus not included in the graph.

Source: OECD questionnaire on artificial intelligence and social dialogue (Box 2.1).

3.2.1. Raising voice and informing

55. Many social partners across OECD countries have already started responding to the AI transition in the form of raising voice – mainly through publishing position papers, guidelines and advice directed towards workers, employers but also policymakers (Cazes, 2021^[30]).

56. Initiatives of raising voice from international and national unions largely relate to calling for greater involvement of workers and their representatives in AI-related decisions at all levels. While there is little information on social partners' involvement in respective decision-making, a survey from the German ver.di union suggests that almost two thirds of co-determination bodies at workplace and firm levels are not involved in the planning and implementation of AI projects, and one third is not even aware of whether AI is being used (ver.di, 2019^[24]). Against this backdrop, the European Trade Union Institute (ETUI) for example emphasises the need for a preventive engagement of workers and trade unions in the way algorithms are designed and deployed, calling for collective bargaining to ensure the interest of workers and to protect fundamental rights (ETUI, 2021^[56]). This is echoed by national unions such as the Teamsters Union in the United States and the German Trade Union Confederation (DGB), which call for social dialogue and collective bargaining specifically over the parameters of AI-induced or exacerbated workplace surveillance (Teamster, 2018^[57]; DGB, 2020^[58]). The German DGB also proposes principles to accelerate the innovative alignment for change processes by social partners in order to discuss the objectives of AI deployment in a participative way, to assess the consequences at the workplace and to review this in an open and ongoing process (DGB, 2020^[58]; Stowasser and Suchy, 2020^[59]).

57. In addition, unions have also started calling for greater participation of workers and their representatives in the *governance* of AI adoption. For example, European social partners have proposed the adoption of data governance models for data stewardship in the form of data trusts, data collectives and cooperatives (Allen and Masters, 2021^[60]; ETUC, 2020^[61]; Colclough, 2020^[62]; Ada Lovelace Institute and UK AI Council, 2021^[63]; British Academy for the Humanities and Social Sciences and The Royal Society, 2017^[64]). When used in the workplace, these governance mechanisms could provide workers with access and rights over the collection, analysis and storage of data that concerns them (Colclough, 2020^[62]) – ultimately to promote a trustworthy and beneficial use of data that is collected or used by AI applications in the workplace (Salvi del Pero, Wyckoff and Vourc'h, 2022^[3]).

58. In terms of thematic content in position papers and related advice material, unions almost universally include issues that relate to promoting a trustworthy use of AI and training – sometimes also establishing their own principles as guidance. For instance, the Association of Nordic Engineers proposes principles in which they stress the need to strengthen transparency (including through open audit trails and real-time oversight) and to develop technical standards and certifications to increase accountability (ANE and IT University of Copenhagen, 2018^[65]; ANE et al., 2021^[66]). Similarly, UNI Global Union proposes a list of principles relating to workers’ surveillance privacy and human dignity, which unions can use as guidance in negotiating agreements (UNI Global Union, 2019a^[67]; 2019b^[68]). Also providing practical guidance, ETUI offers a capacity-building questionnaire for unions to go through when assessing the risks of algorithmic management in particular and forming initiatives in response (ETUI, 2021^[56]). Beyond promoting a trustworthy use of AI, another important topic in unions’ efforts to raise voice and inform is the provision of training for workers affected by AI adoption. In a position paper on AI, UNI Europa ICTS (2019^[69]) for instance recommends that social partners should cooperate to identify training needs, design new education pathways, and find funding opportunities. This is also echoed by ETUC (2020^[61]), which proposes AI and digital literacy schemes for workers to understand and be part of AI adoption at their workplace.

59. Employers and their representatives have also started publishing a number of AI-related information and strategy papers, usually focusing on business policy issues such as ensuring competitive advantage and growth (Ilsøe, 2017^[70]; BusinessEurope, 2018^[71])^[23]. Hence, employers’ organisations address challenges such as barriers for AI adoption including the needs of training, data sharing practices and cybersecurity, as well as funding issues. In its AI strategy, BusinessEurope (2020^[72]) for instance proposes the creation of common European data spaces for business-to-business data access and sharing. In a different position paper, BusinessEurope (2019^[73]) also highlights the need to help workers establish a data culture and awareness of AI through re-skilling in job programs, proposing that this could be organised through a cost-sharing approach – sponsored by the EU and co-ordinated by the European social partners. Along similar lines, the Confederation of British Industry (CBI) propose the enhancement of social dialogue through the creation of joint commissions, comprising employers, academics, worker representatives and governments officials in order to examine the impact of AI on jobs and jointly propose courses of actions (CBI, 2017^[74]).

60. At the same time, a few other employers’ organisations have also started voicing concerns relating to a trustworthy use of AI (Salvi del Pero, Wyckoff and Vourc’h, 2022^[3]). In its *AI Utilization Strategy*, Japan’s Keidanren for instance emphasises the need for standards such as fairness, accountability and transparency, rules that ensure a balance between the use and protection of personal data, and guarantees for the safety and dependability of AI systems as a whole (経団連, 2019^[75]). Similarly, the US Chamber of Commerce’s Technology Engagement Center published a report with Deloitte, recommending the development of standards for AI trustworthiness, the rapid implementation of an AI risk management framework, and the development of international partnerships and standards including by the OECD (Deloitte and U.S. Chamber of Commerce Technology Engagement Center, 2021^[76]).

61. Moreover, one important joint social partners’ initiative was conducted between the German ver.di union, IBM and the German Ministry for Labour and Social affairs, who commissioned a research project and survey on experiences of AI adoption for workers and employers to inform the general public debate on AI adoption (ver.di and IBM, 2020^[77]).

3.2.2. Advising policy

62. Raising voice, informing and alerting can be ways to inform workers and employers, but also to shape policy debates. Additionally, some social partners have also started explicitly calling for policy responses, which revolve around two main aspects. First, reviewing and further developing existing regulations in areas entangled with AI adoption, which thus far mostly concentrates on data protection but

also relates to occupational health and safety, labour law and co-determination rights. Overall, as AI systems become more integrated in the workplace, legislation in these areas will likely need to adapt to effectively address concerns raised by the use of AI (Jarota, 2021^[78]; Kim and Bodie, 2021^[79]). Second, closing regulatory gaps of AI-induced or exacerbated risks with new legislation.

63. Social partners' discussion on the need to review and further develop existing regulations to protect workers and employers in the adoption of AI focuses to large extent on data protection – and in Europe, the GDPR¹⁷ is thus far the most advanced legal instrument in this respect. As pointed out by the trade union-linked Hans Böckler Foundation in Germany for instance, the GDPR contains important principles, such as privacy by default and other aspects, which also apply to AI technologies. Maybe more importantly, Article 88 also opens up scope for more specific regulations on data protection by national legislators (Albrecht and Kellermann, 2020^[22]) as well as more specific measures by collective agreements in the Member States – especially for those, which ensure the protection of workers' rights (Klengel and Wenckebach, 2021^[80]). Along these lines, the British TUC for example proposes in its AI Manifesto to enhance the existing British GDPR with a statutory guidance for employers on matters of automatic or AI-influence decision-making (TUC, 2021^[81]). At the same time, the GDPR has also been criticised as an individual approach to ensure data rights, in the sense that it aligns more with consumers' rights than workplace issues. Suggested reasons for this include that the GDPR does not account for potential differences in bargaining power between individual workers and employers, and that the complexity of data protection issues is difficult to understand by individual workers (Todolí-Signes, 2019^[82]).

64. Against this background, social partners across OECD countries have also started developing proposals for closing regulatory gaps of AI-induced or exacerbated risks with new legislation. On the European level, ETUI for instance calls for European regulation that will ensure that AI algorithms will be required to have transparent purposes in the workplace (Ponce del Castillo, 2020^[83]). In its resolution, ETUC moreover calls for the reinforcement of worker's protections from undue surveillance, as well as from biased discrimination in the workplace (ETUC, 2020^[61]). On the employers' side, BusinessEurope (2020^[72]) published a position paper on AI, which calls for legal certainty, specific responsibilities for all actors involved and a clear framework for firm compliance so that AI-based products are covered by a single set of clearly assigned product safety rules.

65. In this respect, much of the related discussion from European social partners evolves around the proposed AI Act of the European Commission, which follows up on the *Ethics Guidelines for Trustworthy AI* and the *Policy and Investment Recommendations for Trustworthy AI* from the European Commission's High-Level Expert Group on Artificial Intelligence as well as the Commission's White Paper on AI. The proposed AI Act aims to govern the development, placement and use of AI systems in the EU following a horizontal and risk-based regulatory approach. This approach differentiates between uses of AI that generate i) minimal risk; ii) low risk; iii) high risk; and iv) unacceptable risk, proposing a strict ban on the latter. Work-related AI systems fall into the high-risk category and would thus be subject to specific safeguards.

66. While the risk-based approach in the proposed European AI Act has drawn praise from both academic experts as well as social partners, several concerns arise. Some fear for example that the risk categorisation of AI applications is not easily modifiable in the proposal with respect to rapidly developing AI technologies and that the reliance on self-assessment forms may pose issues for enforcement (for a detailed overview discussion, see OECD (2022^[3])). Some social partners like the Swedish TCO also raise

¹⁷ On 25 May 2018, the European Union replaced the Data Protection Directive (European Union, 1995), by the General Data Protection Regulation (GDPR) framework (European Union, 2016). The GDPR introduced new rules governing the collection, process, and free flow of personal data regarding data subjects in the European Union. When data originating in EU member states are transferred abroad, the GDPR ensures that personal data protections travel with them. The GDPR ensures a high level of protection

concerns about the proposal's impact on existing collective agreement models in the EU Member States, particularly with respect to the responsibilities of workers and employers, the scope to further regulate AI-related issues in collective agreements in the Member states and the conditions for co-determination and worker voice (Algorithm Watch, 2022^[84]). A paper from the German trade-union linked Hans-Böckler foundation furthermore highlights that the proposed AI Act is similar to the GDPR in the sense that it is targeted at AI consumers and AI providers and thus cannot adequately address workplace issues (Klengel and Wenckebach, 2021^[80]). For example, the authors argue that not all workplace issues fall under the narrow definition of “high-risk” workplace AI systems and that transparency requirements planned for AI providers may not always extend to employers if they merely adopt AI without modifying it. Against this background and the risk of power imbalances in employment relationships as highlighted in section 2.3, a policy brief from the European Trade Union Institute for example calls for excluding AI in the field of employment policy from the proposed AI act and protecting workers with a standalone ad hoc directive instead (Ponce del Castillo, 2021^[85]).

67. Beyond the proposed AI Act of the European Commission, national unions across OECD countries are also making proposals for new legislation in their countries. Additionally to the right to data reciprocity giving workers the right to collect and combine workplace data, The British TUC for example proposes the introduction of a universal right to human review of high-risk decisions and the right of human contact when important decisions are made about people at work (TUC, 2021^[81]). The Association of Nordic Engineers also provides AI-related policy recommendations, including the need for defining responsibility (notably beyond the engineering profession) and the need for frameworks about explainability of AI-influenced decisions (ANE and IT University of Copenhagen, 2018^[65]; ANE et al., 2021^[66]). In the United States, the union AFL-CIO (2019^[86]) highlights that in the absence of data protection regulation similar to the European GDPR, platforms in particular are already using algorithms and AI tools to make decisions about hiring and firing, promotions and work organisation that are often implemented without the consent of workers. The report therefore calls for regulation in the form of the European GDPR tailored through collective bargaining.

3.2.3. Negotiating new framework and collective agreements

68. Social partners have also started to provide guidance through new framework agreements and to negotiate AI-related collective agreements, although to a lesser extent. This reflects a scarcity of collective agreements on digital technologies more generally, especially with respect to non-monetary aspects of job quality like work-life balance (Kreinin, Artale and Kossow, 2022^[87]). Moreover, the language of collective agreements that relates to new technologies can be outdated and in need of updating to stay relevant, as highlighted for example by forthcoming OECD case study interviews in the United States and Canada (OECD, 2023^[88]). Yet as discussed in sections 1 and 2, collective agreements and attached co-ordination mechanisms are particularly important vehicles to provide the flexibility and inclusiveness needed for finding solutions to rapidly developing and diffusing AI technologies at firm, sectoral and national levels.

69. In Europe, the European Social Partners Framework Agreement on Digitalisation (2020^[89]) for instance provides guidance on issues related to data, consent, privacy protection and surveillance, and the need to systematically link the collection and storage of data to ensure transparency – using the EU GDPR as a reference¹⁸. The framework also calls for a fair deployment of AI systems, i.e. ensuring that workers and groups are free from unfair bias and discrimination. On the sectoral level in the insurance and telecommunication sector, European social partners have also signed two framework agreements on AI that addressed similar elements (UNI Europa Finance; Insurance Europe; Amice; Bipar, 2021^[9]; UNI

¹⁸ Notably to the article 88 of the EU GDPR which refers to the possibilities to lay down by means of collective agreements, more specific rules to ensure the protection of the rights and freedom with regards to the processing of personal data of employees in the context of employment relationships.

Europa ICTS and ETNO, 2021^[90]). Two key elements in this respect are the importance of social dialogue in shaping how AI systems are designed and used, which requires information and consultation rights for workers and their representatives, and the adherence to human oversight over AI systems and decisions to ensure a trustworthy use of AI in the workplace. The telecommunication sector agreement moreover commits to the intent of social partners' co-operation in promoting digital skills and training.

70. To this date, also a few AI-related *collective* agreements have been signed in OECD countries – although rarely exclusively on AI, but rather including aspects of AI use and resulting implications for occupational health and safety, privacy, evaluation of work performance and hiring and firing decisions in other bargaining processes (De Stefano, 2018^[37]). Moreover, several collective agreements have started regulating the use of AI not only in monitoring workers but also in directing their work (Moore, Upchurch and Whittaker, 2017^[91]; OECD, 2019^[5]).

71. AI-related collective agreements have for example been signed at the sectoral and national level in Spain, at the workplace level in Canada and at the local level in Germany. Social partners in the Spanish banking sector signed an agreement in 2021 guaranteeing that workers have the right to not being subject to decisions taken solely by algorithmic systems, and to not being discriminated against based on algorithmic decisions. Based on this agreement, banks are obliged to inform workers' representatives about the data and algorithmic systems used by “digital models with no human intervention” (Algorithm Watch, 2022^[92]). Similarly but in a tripartite context at the national level and specifically on platform workers, the Spanish Government and multiple social partners signed an agreement in 2021 guarantying platform workers' rights to algorithmic transparency. This required a modification of workers right to information, making it mandatory for platforms to inform workers' legal representatives about the mathematical or algorithmic formula determining their working conditions (for a discussion, see for example (Aranguiz, 2021^[93]). Beyond Spain and at the workplace level, IAM union representatives in Canada noted that employers have started discussions about advanced technologies including automation, which resulted in at least one agreement on language for 3D printing, new machines, and improved language for outsourcing (IAM Canada, 2021^[94]). At the local level, the General Staff Council of the city of Stuttgart in Germany and the city as a public employer recently agreed on transparent design processes for new technologies, which in the case of AI must take place before its adoption – since AI systems are difficult or even impossible to design adequately after they have been adopted (Forum Soziale Technikgestaltung, 2022^[95]).

72. Moreover and only partly related to AI, the trade unions Syndicom and Transfair agreed at the firm level with Swisscom in Switzerland to a “Smart Data” policy in 2018, which includes principles when processing workers' data (Syndicom, Swisscom and Transfair, 2018^[96]). Similarly in the United States, the Teamsters union agreed with UPS in 2018 to establish a national and joint technological change committee to review any planned technological changes and to ensure affected workers are retrained instead of dismissed (Teamsters and UPS, 2018^[97]). More dated but also more specifically related to AI, the Confederation of Norwegian Enterprise (NHO) and EL og IT Forbundet, a union for energy, electrical engineering, telecommunications and IT workers in Norway, included a section on AI in their broader “Telenor agreement” in 2016 to safeguard workers' privacy, integrity and protection against AI-reinforced discrimination or prejudice (Algorithm Watch, 2022^[98]).

73. At the same time, a lack of collective agreements specifically pertaining to AI-related issues in some countries may also reflect the strength of existing regulations and social dialogue structures. For example in Sweden, a report by the largest trade union in the private sector finds that the combination of existing collective agreements, ensured co-determination through the Workplace Act and other regulations including the Work Environment Act and the GDPR already provides a good basis for dealing with AI challenges relating to digital surveillance at the firm level – while legislation protecting personal integrity for instance could be strengthened (Unionen, 2022^[99]).

3.2.4. Making use of digital and AI tools to address workplace issues

74. A few social partners have also started reviewing how digital and AI technologies can help them in facilitating their work and in tackling general as well as AI-specific concerns, such as helping to reduce data asymmetries between workers, employers and their representatives. While social partners face difficulties in incorporating many of the technological features brought by in the era of digitalisation in order to facilitate their own work (Rotila, 2019_[100]), they tend to agree that they need to make better use of digital technologies to help them organise (Voss and Riede, 2018_[23]).

75. The use of digital technologies for example provides an opportunity for social partners to increase their representation, self-organise and improve communication with their members (Adler-Bell and Miller, 2018_[38]). In this respect, AI technologies may further boost unions through increased outreach, especially to younger members and general facilitation of internal processes, such as the renewal and management of memberships (Vandaele, 2018_[101]). Along these lines, Flanagan and Walker (2020_[102]) provide an illustration of an AI-enabled chatbot originally created by IBM, which was adapted for use by the alt-labour network Organization United for Respect ('OUR') to inform workers about their rights and then subsequently reconfigured for use by a traditional labour union in Australia, the United Workers Union ('UWU'). Similarly, the National Domestic Workers Alliance (NDWA) in the United States, which is not formally a union with legal bargaining rights but a non-profit organisation that campaigns for domestic workers' rights, also developed a chatbot for Spanish speaking domestic workers. To increase the visibility of these workers' experience during the COVID-19 pandemic, NDWA then adapted the chatbot into a survey tool and published respective insights in a report (NDWA Labs, 2020_[103]).

76. The NDWA initiative highlights that beyond aspects of outreach and increasing representation, social partners have also started developing new initiatives, as they become aware of the potential of digital technologies more generally (Voss and Riede, 2018_[104]). Ranking applications for example, initially developed by platforms for their customers are re-appropriated by workers to rank employers and their working conditions (AFL-CIO, 2019_[86]; Johnston and Land-Kazlauskas, 2018_[14]). Moreover, data analysis and machine learning techniques could also inform social partners in their work (Vandaele, 2018_[101]) – a proposal that has recently been echoed by the British TUC, which suggests that unions could investigate ways to collect and make use of worker data, for example through engaging data scientists and developing AI powered tools (TUC, 2021_[81]). According to social partners present in the OECD expert workshops, avenues for such investigation could for example include analysing large amounts of wage statements to ensure workers' correct remuneration or to evidence safety concerns with data on occupational health and safety aspects across workplaces and sectors.

77. One prominent tool along these lines is WeClock,¹⁹ an open source self-tracking app for workers to gather key data about the time spent at work, commutes or mistreatments among many other aspects. Workers can then use this information for wage-related or similar negotiations with their own manager, but also hand it over to their unions ultimately to inform broader advocacy campaigns or bargaining processes (UNI Global Union, 2019_[105]).

3.3. Promoting social partners' expertise to shape the AI transition

78. At the same time as raising voice and advising policy, only a few social partners have signed AI-specific agreements to date and their involvement in decision-making regarding AI adoption may be limited where no consultation, co-determination or bargaining rights on the adoption of new technologies pre-exist at the firm, sectoral or national level. Moreover, ongoing social partners' responses to AI based on insights

¹⁹ More information on this tool can be accessed through the website www.weclock.it

from respective social partners' publications besides the OECD's questionnaire stem from very few active unions and employers' organisations – notably larger federations at national and international levels.

79. In this respect, social partners report in the OECD's questionnaire (Box 2.1) that the lack of AI-related knowledge as well as the lack of capacities and resources to attain it is currently their main challenge to launch actions in response to the AI transition. Social partners tend to agree that they need to become "AI literate" in order to be able to critically understand AI's role and its impact on their work (ETUI, 2021^[56]). Yet, according to a survey conducted by the TUC among their represented workers, 36% felt that neither them nor their representatives for example could effectively challenge what they considered unfair decisions, due to lack of knowledge about the algorithmic operations and use, problems accessing data and management claiming infallibility of algorithms (TUC, 2020^[106]). Findings from an ILO survey also indicate that many social partners are still reflecting and taking action on "older" problems than the changing world of work through AI and digital technologies in general (ILO, 2017^[10]). This is in line with the OECD's questionnaire, where social partners indicated other pressing issues on the agenda as their second main challenge to engage in AI-related activities.

80. Given that the lack of knowledge on AI and limited capacities to attain this is a major challenge for social partners to respond to the AI transition, proposed solutions centre on how to either train them or secure expertise on AI at workplace or firm levels otherwise. The British TUC for example proposes that new forms of training for workers, employers as well as their representatives and labour administrations could be provided in collaboration between unions, employers, academics and technical experts (TUC, 2021^[21]). Along these lines, the Norwegian governmental national strategy for AI launched in January 2020 includes an initiative to engage workers with an EU funded, university designed free online course called "Elements of AI" that aims to educate worker representatives and workers on what AI is. The course is freely available online and is already used by other social partners in other countries, such as the Swedish TCO (2019^[107]). Other educational tool available for and developed by unions are Lighthouse, a UK-based online test on digital governance that helps unions identify respective knowledge gaps (Prospect, 2021^[108]), and a similar test developed by the worker- and union-oriented The Why Not Lab (2022^[109]). In terms of not only theoretical but also practical training, Public Services International has partnered with the German Friedrich-Ebert Foundation and the Why Not Lab to launch a three-year training project for unions.²⁰ In this respect, AI-related training may not only be a necessary cost for social partners, but also open up new opportunities. By building up AI-related expertise across firms and sectors, social partners could for instance participate in the certification of AI applications with regard to behavioural and performance control functions, at least for standard applications, which could facilitate AI adoption and co-determination at the same time (Albrecht and Kellermann, 2020^[22]).

81. One proposal to secure the necessary knowledge on AI at workplace and firm levels beyond the training of social partners themselves is the recruitment or consultation of technical experts. This could not only ensure more technological understanding within unions and employers' organisations, but also that worker interests are recognised in the workplaces where technology is being developed – which could in turn also contribute towards more trustworthy technology (TUC, 2021^[21]). In the OECD's questionnaire on AI and related expert workshops, social partners point out the similarity between the recruitment or consultation of technical experts or joint AI/data committees and already existing positions of health and safety representatives or committees at workplace and firm levels, who in many countries are also elected by workers (EU-OSHA, 2019^[110]). This would also correspond to the new empirical evidence presented in section 3.1.2, which suggests that out of three forms of workers' representation at the workplace level

²⁰ Detailed information about the project can be accessed through this website: <https://publicservices.international/resources/projects/our-digital-future?lang=en&id=11534&showLogin=true>.

including trade union representatives and work councils, worker-elected health and safety representatives/committees most significantly shape AI's impact on the quality of the working environment.

82. Yet, while consulting technical experts could be promising ways to foster knowledge of AI at the workplace, social partners may need government support to that end. One recent example in this respect is the German Works Council Modernization Act passed in 2021, which grants work councils the right of consulting an external expert if the introduction or application of AI is in discussion. Work councils and employers then need to conclude an agreement which regulates the deployment of the expert and the resulting costs in detail (for a discussion, see for example Maily (2021^[111]) or Polkowski and Deja (2021^[112]). Similarly, the recent agreement between the General Staff Council of the city Stuttgart and the city as a public employer stipulates that the works council may use external consulting services at the city's expense (Forum Soziale Technikgestaltung, 2022^[95]).

83. One possible nuance to consider in this respect is that the need for technical expertise may depend on existing legal frameworks for social dialogue. For example, the need for external technical expertise might be smaller in contexts where employers are required to motivate their decisions regarding the adoption of new technologies or consult worker representatives in advance – as for example the case in Belgium and Sweden. Moreover, in cases of conflict or where consultation rights alone cannot induce a mutual agreement how to adopt AI technologies, co-determination rights may further ensure the involvement of all representative parties (Klengel and Wenckebach, 2021^[80]).

4 Conclusion

84. Social dialogue can play an important role in addressing some of the key challenges driven by AI technologies. Previous OECD evidence has shown for instance that when social partners work cooperatively, social dialogue can support and usefully complement public policies in easing technological transitions, for instance by finding pragmatic solutions to labour market challenges at the firm level and anticipating skill needs (OECD, 2018^[4]; 2019^[5]). Moreover, collective bargaining systems, when coordinated, can also reduce inequalities and foster inclusive labour markets. At the same time, social partners are dealing with ongoing pressures due to decreasing representation among others, while also facing new challenges related to AI technologies.

85. Against this background, this working paper presents new descriptive evidence on the role of social dialogue in shaping the AI transition and initiatives by social partners in this area, with greater insights from unions' perspective due to data and information availability. In so doing, this paper contributes to implementing the OECD AI Principle on 'Building human capacity and preparing for labour market transformation' that states that governments should take steps, including through social dialogue, to ensure a fair transition for workers as AI is adopted and generally work closely with stakeholders to promote the responsible use of AI at work, to enhance the safety of workers and the quality of jobs, to foster entrepreneurship and productivity, and aim to ensure that the benefits AI are broadly and fairly shared.

86. In line with the existing empirical literature that looks at the role of workers' voice in mitigating AI's impact on wages and employment, findings in this paper suggest that representative workers' voice mitigates AI's impact on risks relating to working conditions, but are also not causal. Mapping social partners' ongoing responses to AI adoption, the paper next provides examples of social partners' information campaigns, advocacy and first AI-related agreements. At the same time, many social partners find themselves still at the very beginning of the process – facing considerable challenges including the lack of AI-related expertise as well as capacity and resources to gain this expertise.

87. Along these lines, social partners could increase their AI-related expertise by joining forces and co-operating to use existing resources, such as capacity-building questionnaires, guidelines and similar information material published by other social partners and governments. In light of declining coverage of collective bargaining and trade union density, it is also important that social partners keep adjusting and adapting to the changing world of work, notably to reach out to underrepresented workers and business models in AI-exposed sectors and occupations. Moreover, social partners can themselves seek to use AI and digital tools more broadly as these offer some opportunities for outreach, organisation and bargaining activities – as well as for activities to address issues caused or exacerbated by AI, such as information asymmetries – but are rarely used by social partners thus far.

88. Finally, the analysis in this paper suggests some avenues for policymakers to accompany social partners' efforts to shape the AI transition. While each country's situation and labour relations systems differ, policy makers could consider promoting consultations and discussions on AI transition with social partners and other stakeholders. They could also support social partners' efforts to expand their membership to non-represented forms of work and employers for example by regulating the correct classification of workers and by extending bargaining rights to some self-employed workers who fall into a "grey zone" between different employment classifications, as well as promote AI-related expertise in the

workplace for management, workers and their representatives (such as educational programs) and facilitate the consultation of external expertise in the workplace.

89. Ultimately, the impacts of AI on labour markets and workplaces will depend on how it is implemented – which includes both the role of regulation in governing AI adoption and the extent to which workers and employers are involved through social dialogue at workplace, firm, sectoral and national levels. In this respect, regulations and social dialogue can complement each other and form synergies, for example, when AI-related regulations set minimum standards and specify the terms that require further dialogue and bargaining. To better understand the relationship between social dialogue, regulations and a beneficial AI transition for both workers and employers in the future, more data and analysis at the individual and firm levels will be necessary. In particular, this would require having firm level surveys that combine information on AI adoption, social dialogue and labour market outcomes or job quality at the same time.

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Annex A. Supplementary table

Table A A.1. Representative workers' voice is associated with mitigating AI's impacts on risks relating to working conditions: detailed results from probit regressions

		(1) Heavy lifting		(2) Risks of accidents		(3) Time pressure		(4) Poor communication		(5) Job insecurity	
A. Work council	AI adoption (β_1)	0.224***	-9.01	0.247***	-9.68	0.264***	-10.66	0.230***	-7.86	0.211***	-6.67
	Representation (β_2)	0.103***	-3.76	0.0279	-0.97	0.105***	-3.83	0.153***	-5.03	0.221***	-6.72
	Interaction (β_3)	-0.0805*	-1.71	-0.0608	-1.25	-0.0376	-0.81	-0.0941*	-1.88	0.00445	-0.08
	Observations	30831		30843		30756		30740		30510	
	R2	0.127		0.166		0.0937		0.0818		0.0671	
B. Trade union	AI adoption (β_1)	0.219***	-8.94	0.235***	-9.34	0.255***	-10.52	0.194***	-6.67	0.243***	-8.04
	Representation (β_2)	0.182***	-5.78	0.155***	-4.86	0.178***	-5.76	0.180***	-5.13	0.301***	-7.86
	Interaction (β_3)	-0.0505	-0.98	-0.0763	-1.47	-0.0261	-0.52	-0.0614	-1.14	-0.111*	-1.91
	Observations	29715		29738		29644		29628		29423	
	R2	0.131		0.168		0.101		0.0934		0.0628	
C. Health and safety	AI adoption (β_1)	0.249***	-8.87	0.246***	-8.48	0.269***	-9.7	0.256***	-7.66	0.276***	-7.91
	Representation (β_2)	0.136***	-5.67	0.118***	-4.83	0.0717***	-3.06	0.0890***	-3.25	0.135***	-4.05
	Interaction (β_3)	-0.108***	-2.60	-0.0626	-1.48	-0.00723	-0.18	-0.138***	-3.00	-0.122**	-2.46
	Observations	31792		31812		31721		31699		31481	
	R2	0.129		0.167		0.0993		0.0882		0.0654	

Note: Results are based on probit regressions including establishment-level controls (country, industry, size, age, economic situation, share of old workers, if the person interviewed is the owner/manager and if teleworking is possible). The table reports marginal effects, i.e. the percentage change in the probability of outcome variable (1)-(5) following a discrete change in the relevant explanatory variable β_1 - β_3 . For example, establishments using AI that also have a work council are 8% less likely to expose their workers to heavy lifting than establishments using AI but do not have a works council. *, **, *** denote the statistical significance at the 10%, 5%, and 1% level, respectively. Numbers behind the effect denote the t-value equal to the coefficient divided by the standard error, e.g. the larger the t-value, the higher the probability that the coefficient is different from 0.

Source: OECD estimates based on the Third European Survey of Enterprises on New and Emerging Risks (2019_[52]) (ESENER-3).

Annex B. OECD Questionnaire on AI impact and social dialogue (union version)

1. Introduction questions

1.1. How would you rate your knowledge about artificial intelligence (AI)?

- I can explain what is meant by that
- I know roughly what it means, but find it difficult to explain
- I know the term, but not what it really means
- I have not heard of the term

1.2. There is a lot of discussion about the impact of AI on the world of work. Are there any aspects you feel are often overlooked in this discussion?

.....
.....

1.3. Which of the following AI applications do you think will mostly affect the workers in your union?

- Image recognition (e.g. identifying objects)
- Speech recognition, text recognition, or other natural language processing (e.g. chatbots)
- Forecasting, price optimisation, anomaly detection, data analysis or decision-making
- Process or equipment optimisation (e.g. optimising maintenance strategies)
- Recommendations or personalisation engines (e.g. customisable advertisements)
- Robotic process automation (e.g. warehouse automation or invoice processing)
- Autonomous robots, vehicles or drones (e.g. self-driving vehicles)
- Modelling, simulation or experimentation (e.g. virtual prototyping)
- I don't know
- Other artificial intelligence application:

.....

2. Impact of AI on the world of work: Social partners' assessments of challenges and opportunities

2.1. When thinking of AI technologies and their impact on workers, what are according to you **the three most important opportunities/benefits**?

- Increased productivity gains through more efficient work processes and greater economic competitiveness, with potentially positive effects on wages
- Creation of new tasks and jobs (including data analysts, computer engineers, scientists, network experts...)

- Higher job quality through effective collaboration between workers and AI, for instance resulting in a reduction of working time, a possible focus on more interesting tasks and increased work autonomy
 - Higher job safety, for example because existing machines will be safer or certain dangerous, physically demanding tasks are supported or performed by AI
 - Reductions in human bias in HR and management processes among others, increasing fairness for discriminated groups and minorities
 - Other (please elaborate):
-

2.2. When thinking of AI technologies and their impact on workers, what are according to you **the three most important challenges/risks?**

- Destruction of jobs and displacement of workers
 - Widening inequalities between workers, as occupations and sectors may experience different wage growth or decline as a result of AI applications
 - Rapidly changing/increasing skill requirements, associated with high re- and upskilling costs for both businesses and workers
 - Lower job quality, for example through work intensification or less personal work relationships
 - Health and psychological risks at the workplace, for example through excessive AI-based surveillance
 - Concerns regarding data privacy, data leakages, possible violations of worker's human rights and dignity, and discriminations through automated decisions based on biased data
 - Liability risks for decisions and outcomes caused by AI applications
 - Weakening collective action and social dialogue, for example through increasing information asymmetries and physical distance between workers and businesses
 - Other (please elaborate):
-

2.3. Which one, the benefits or the risks of AI adoption in the labour market, do you think will outweigh the other for the workers in your union?

- The benefits will outweigh the risks
- The risks will outweigh the benefits
- Benefits and risks will be more or less balanced
- I don't know

3. Social partners' responses: strategies and new initiatives

3.1. What role does AI adoption in the workplace currently play in your union's agenda and strategy? Please select all options that apply.

- We have not considered AI in our agenda yet

- We have not considered AI in our agenda yet, but are planning to do so
- We are discussing possible strategies and initiatives
- We are developing concrete strategies and initiatives
- We have already implemented concrete strategies and initiatives
- We are in contact/cooperation with other national or international partners on the role of AI in our agenda
- Other (please elaborate):

.....

3.2. What topics are prioritized by your union in these initiatives? Please indicate the three most important areas by ticking the boxes below.

Empowering the use of AI:

- Helping businesses to find relevant AI applications and facilitating their efficient development, introduction or diffusion in relevant sectors, businesses and occupations
- Facilitating training (re-skilling and up-skilling) of workers in line with new needs arising from AI applications in their workplace

Ensuring a fair transition to AI:

- Ensuring workers' understanding of AI applications and their implications on the workplace
- Involving workers in AI adoption
- Protecting workers endangered by displacement and negotiating potential layoffs

Promoting the responsible use of AI

- Ensuring that AI applications comply with existing regulations
- Initiating new regulations and standards
- Promoting the transparency, explainability, accountability, agency and fairness of AI applications in the workplace
- Safeguarding the quality of available or utilized AI applications in workplaces, including robustness and safety
- Other (please elaborate):

.....

3.3. Which of the following initiatives has your union already carried out to support workers in the transition to AI adoption? Please select all applicable options.

- Outreach and information activities, such as information sessions and awareness campaigns
- Guides and principle frameworks to facilitate the understanding and use of AI applications
- Publication of an AI strategy or similar documents

- Training activities, such as workshops, online courses or partnerships with educational institutions
- Structural adjustments in the union, such as new working groups, consultation meetings, contact points for AI-related questions or the engagement of new personnel
- Identification of issues for bargaining activities and collective agreements
- Engagement in bargaining activities and collective agreements
- Involvement in monitoring and compliance procedures relating to AI applications
- Targeted communication and contact with policymakers to initiate and shape AI regulations or support measures
- Other (please elaborate):

.....

Please specify your answer as much as possible. At what level do/did these initiatives take place and for how long/since when?

.....

3.4. Are you aware of concrete cases of businesses or sectors where **collective agreements have been concluded or are currently discussed** on issues related to the use of AI applications?

If yes: Please provide information on the name of the businesses or the specific sector and a brief description of the agreement.

.....

If no: What are the main reasons from your point of view (e.g., topic is not relevant, employers are against binding agreement...)?

.....

3.5. Do you recall any other concrete cases where the social dialogue in your country played a significant **role in shaping or monitoring the introduction** of AI technologies in the workplace? If yes, how and what was achieved?

.....

4. AI: New challenges and tools for social dialogue itself

4.1. Could AI enable your union to pursue its goals in any of the following ways?

- Raising awareness and receiving renewed interest into the importance of unions
- Attracting and integrating new members (such as workers in new or nonstandard forms of employment)
- Improving outreach and communication channels for members, for example through the use of chatbots or speech-recognition based hotlines

- Gaining new insights for social dialogue and collective bargaining processes, for example through analysing data provided by members (e.g. evidencing safety concerns or worker performance)
- Optimising internal processes with AI applications, for example in HR and management
- Other (please elaborate)

4.2. What obstacles do you currently face in using AI to pursue your union's goals?

- Lack of knowledge, skills or resources to attain adequate knowledge on AI
- Lack of relevant AI applications
- Lack of affordable AI applications
- Other, more pressing issues on the agenda
- Difficulties in reaching out to new members, for example because of an increasing physical distance between union representatives and workers
- Difficulties in addressing increasingly heterogeneous interests of members within the union
- Other (please elaborate)

4.3. What kind of support would your union need to use AI to pursue its goals and to help its members in their transition to AI adoption in the workplace?

- More leverage in social dialogue and collective bargaining procedures
- More support from public policy, for example through relevant regulations
- More exchange and co-operation with other unions
- A mediator to help understand legal, technical or other aspects of AI (such as partnerships with research institutions, own personnel)
In this case, who should that be?
- Other (please elaborate)

Closing question

Do you think this questionnaire misses an important aspect or nuance of unions' concerns and hopes regarding AI adoption in the labour market?