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Contribution by the IBA to the ILO debate about
the future of work



IBA REPORT ON THE FUTURE OF WORK

SPECIAL CONSIDERATION TO LAW AND DISRUPTIVE TECHNOLOGIES

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*Reports coordinated by the IBA Global Employment Institute

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INTRODUCTION

THE IBA CONTRIBUTION TO THE ILO DEBATE ABOUT THE FUTURE OF WORK

ILO–IBA PARTNERSHIP ON THE DEBATE ABOUT ‘THE FUTURE OF WORK’ (2017-2019)

In 2017, the International Labour Organization (ILO), www.ilo.org, a tripartite United Nations agency and the most important global institution for work-related matters (formed by governments, unions and employers’ associations from 187 Member States), opened an interesting and crucial worldwide debate about the future of work, which will be developed until June 2019.

The Legal Practice Division (LPD) of the International Bar Association (IBA) agreed that this important debate, with its multiple legal dimensions and implications, is a great opportunity to establish an institutional collaboration between the IBA and ILO. The LPD has also agreed to promote and develop this collaboration as a LPD Special Project, to be included in the Special Project Think Tank chaired by Peter Bartlett. A specific collaboration agreement between the IBA and ILO was signed on 19 September 2017.

An important consideration of this ILO ‘Future of Work’ debate is that it not only involves employment and immigration legal perspectives, but also important work regulation topics from other legal fields, including the legal impact of new technologies in the workplace; effects on intellectual property (IP) in the employer–employee relationship; tax issues; health and safety issues; the impact of new forms of work organisation and employment relations on corporate law; the role of criminal law in protecting workers’ rights; compliance and investigation; data protection; corporate social responsibility (CSR); and the protection of human rights in the neo-technological workplace.

This project, therefore, implies a multidisciplinary legal approach for the IBA and, as such, in 2017, different LPD committees appointed representatives to a Working Group to coordinate the project and lead the preparation of each committee’s individual reports. The Working Group members and committees represented are:

- Corporate: Rabindra Jhunjhunwala (Khaitan & Co, India)
- Corporate Social Responsibility: Martijn Scheltema (Pels Rijcken & Droogleever

Fortuijn, Netherlands)

- Criminal Law and Business Crime: Ivo Leenders (Hertoghs advocaten, Netherlands)
- Diversity and Equality: Tony Hyams-Parish (DMH Stallard, United Kingdom); Rebecca

Ford (Clyde & Co, United Arab Emirates)

- Employment: Selvamalar Alagaratnam (Skrine, Malaysia)

- Global Employment Institute: Els de Wind (Van Doorne, Netherlands)
- Intellectual Property: John Wilson (John Wilson Partners, Sri Lanka)
- Migration: Tom Brett (Veale Wasbrough Vizards, UK)
- Tax: Joseph Duffy (Matheson, Ireland)
- Technology Law: Sajai Singh (J Sagar Associates, India)
- Working Group Chair: Salvador del Rey Guanter (Cuatrecasas, Spain)
- Working Group Editor: Gordon Williams (MinterEllison, Australia)

Each committee represented in the Working Group has prepared an individual report (Part Two). Each committee has followed its own methodology to reach its conclusions. Some committees have relied heavily on the answers given by lawyers in multiple jurisdictions. Others, while considering the opinions of lawyers in different jurisdictions, have prepared their reports based mainly on their knowledge and expertise as international lawyers. For easier reading, we have included a section with the executive summaries of the different reports (Part One).

In addition, the Chair of the Working Group has the responsibility of elaborating, based on the individual reports and other sources, some key points and main conclusions to be considered in the debate about the future of work from a legal perspective. In this regard, it is obvious from reading the individual reports that there is an important common theme: they have considered future work regulation from one essential perspective, namely, the impact of new technologies on that regulation as observed from their respective legal fields. It is interesting to point out that the Working Group had not previously agreed to adopt this perspective; rather, it resulted from the main questions that lawyers all over the world and in all legal areas have asked and answered about future work regulation. Therefore, it is obvious that whenever we ask ourselves about the future of work, disruptive technologies and their influence on the way we work will be at the centre of the debate.

Considering this common theme and centrality about the legal impact of new technologies, it has been included in a section (Part Three) that considers these aspects from the point of view of three of the most disruptive technologies facing work organisation: the Internet of Things (IoT), robotics and artificial intelligence (AI), including blockchain. We think that the main key points and conclusions included in that part may very well apply to other technologies, such as three-dimensional (3D) printing or virtual reality.

As the general coordinator of this project, I would like to express my deepest gratitude to the project's Working Group and to those members from its committees who have helped in the preparation of the individual reports. It is not easy for lawyers to foresee possible legal trends in work regulation, but they have made a great effort to identify at least the more relevant ones. In addition, considering their busy professional agenda, they have dedicated many hours from their free time to this project. I also want to express my gratitude to my personal assistant, Sandra Peris, for all her help with the logistical issues of this report.

Senior officers of the IBA LPD, Jaime Carey, Jon Grouf, Peter Bartlett and Carola van den Bruinhorst, have supported the project from the very start. Peter, also in charge of LPD Special Projects,

has constantly been promoting its development. Divisions Director Ronnie Hayward has helped enormously with the administrative side of the project, including the ILO–IBA agreement.

Finally, our special acknowledgment goes to Luz Vega, Coordinator of the ILO Debate on the Future of Work, and her team, who were always willing to facilitate and promote the collaboration of the IBA and ILO in this important project. The Working Group celebrated a meeting with them on 30–31 October 2018 in Geneva to discuss a draft of this report, which was highly productive.

Salvador del Rey Guanter

Working Group Chair of the ILO–IBA Project on the Future of Work

Chair of the Advisory Board of the IBA Global Employment Institute

PART ONE

EXECUTIVE SUMMARIES OF THE INDIVIDUAL REPORTS

I. FIRST REPORT: CORPORATE LAW

1. Various jurisdictions have recognised new and simplified corporate structures to encourage and boost startup businesses. In most countries, these corporate structures enjoy several benefits, including a simplified process of incorporation and ease of compliance aided by technology.
2. The use of technology has simplified compliance requirements and increased efficiency in several jurisdictions by facilitating online/one-day incorporation, providing easy and remote access to company information through the electronic maintenance of records, online submission of annual returns, online completion of corporate compliances, recognition of digital and electronic signatures and so on. It is also noted that regulatory procedures, such as online filing of applications and granting of permits and approvals for M&As, have been digitalised in various countries.
3. Technological developments have also facilitated doing business through e-voting and e-balloting; improved the attendance of shareholders, including foreign shareholders and minority shareholders, by enabling meetings to be held using videoconferencing/teleconferencing; and increased transparency through the availability of company information and easy access through a company's online database, which have enhanced shareholder participation and improved the decision-making process and efficient management of companies. Enterprises have also begun to use technology for the evaluation of performance and productivity of employees by monitoring attendance, output and punctuality, through enterprise resource planning (ERP) systems, biometrics, surveillance systems or other digital means.
4. Most jurisdictions have recognised the benefits of technology and have integrated it into their corporate systems. Technology has proven to improve efficiency, increase transparency and save time and costs. Consequently, there is a visible progression towards digitalisation in the corporate sector.
5. While technology has led to an increase in efficiency and reduction of workload, it has also resulted in the elimination of employment opportunities, much to the detriment of workers. Some governments have taken initiatives to counter the loss of employment and enhance job opportunities. However, the growing trend towards automation poses a threat to manual labour roles.
6. Additionally, in the era of the growing use of AI and robotics and lack of any specific regulation in this regard, governments and companies ought to take account of the potential effects of human workers being replaced by such technology or robots in the future.
7. Further, advanced technology is likely to subject workers to risks associated with its use. Governments will hence be required to put in place specific regulations for the protection of workers against such risks and mandate employers to provide proper training to workers,

undertake surveys to analyse health hazards and provide adequate occupational safety and health (OSH) measures, such as eye/health checkups.

8. Some of the major challenges in corporate law affecting the rights and interests of workers reported by various countries include the risk of AI replacing the workforce, outsourcing of jobs and business restructuring resulting in a reduction of the workforce, unemployment due to automation and a lack of skill development.

II. SECOND REPORT: CORPORATE SOCIAL RESPONSIBILITY LAW

1. In this report, we look at the future of work from a business, human rights and CSR perspective. We built on the responses we received to our surveys and added our personal vision and questions. This approach led to the following conclusions.
2. With regard to outsourcing and supply chains, we expect the concept of outsourcing through supply chains to remain in the future. We do not expect a decrease of outsourcing in supply chains, although this may be sector-specific. We consider the service sector to be most at risk. A potential decrease in outsourcing may be reliant on the introduction of new technology in producing countries, which may make production more time-efficient but nevertheless less appealing when linked to additional costs for the supplier. We do not expect the number of suppliers to decrease.
3. As supply chains remain important, we expect worker exploitation in supply chains to be addressed more often and to be potentially more damaging to corporations. This is connected with the issue of the living wage, which needs to be solved. Some interesting projects connected to the Sustainable Development Goals (SDGs) have emerged in this area. Furthermore, we expect an increase in OSH and the limitation of working hours in supply chains as a result of increased attention to the necessary measures. We also expect new technologies, such as blockchain and AI, to assist in mapping out supply chains and providing more transparency on these supply chains. Additionally, global framework agreements may become more important.
4. We think we may see a partial shift from the traditional corporate structure to the networked organisation. We consider the potential rise of networked organisations to be of interest for three reasons. First, we believe that networked organisations may increase the challenges in supply chains because they may enable finding a greater number of smaller producers instead of fewer larger ones. This may complicate the process of mapping out and gaining control of supply chains. Second, we think that the potential increase in the number of networked organisations may be accompanied by some specific labour-related issues, such as less job and social security and an increase in the number of self-employed persons, perhaps paired with smaller assignments. Third, we find it plausible that networked organisations may provide workers with an opportunity to assume a larger role in management.
5. If information technology (IT) developments continue towards a platform and IT-driven economy, we expect a significant number of jobs to disappear – including highly skilled jobs. These jobs may be replaced, but it is highly questionable whether the same workers will be able to fill them. Thus, the question is how to deal with the issue of (mass) unemployment

caused by IT developments, which is mainly a question of responsibility. Is this an issue governments should deal with or do employers also have a role? We would be in favour of the latter, for example, by requiring retraining or phase-out schemes through which employees would be given the opportunity to adapt to the new world of work, both in their homeland and the producing country.

6. AI is one of the IT developments that may cause many jobs to disappear. It may also increase the gap between countries that are able to deploy and develop these technologies and those that are not. Furthermore, if AI is used to screen workers and in hiring practices, this may result in less diverse organisations when the program is instilled with bias. AI screening programs may also pose other challenges, in the human rights arena generally, and regarding privacy specifically, which will have to be addressed. Thus, we believe it is necessary to start addressing AI-related issues and not wait until the technology has matured.

III. THIRD REPORT: CRIMINAL LAW AND BUSINESS CRIME

1. The aim of this report is to analyse how criminal law plays a role in the protection of workers' rights and address how specialised legislation and international cooperation can contribute to the protection of those rights.
2. The research draws attention to the existing legislation in these areas (eg, forced and child labour, human trafficking and migrant smuggling), as well as the role that corporate compliance and whistleblowing have on the relation between employees and employers and, eventually, on workers' rights.
3. The analysis shows that there is no international standardised definition of workplace harassment or sexual harassment. The regulation of harassment and the applicable sanctions differ considerably from one jurisdiction to another, even in culturally close areas, such as the European Union.
4. The results show that many difficulties exist regarding the prevention and detection of criminal offences affecting workers' and migrants' rights (eg, lack of specialisation of the authorities and difficulties in identifying victims and gathering evidence).
5. These findings highlight the importance of regulating specific criminal offences and training law enforcement officials to better address these issues, as well as the importance of promoting international cooperation between enforcement authorities in the fight against these criminal offences.
6. Cybercrime, that is, offences committed through computer systems and enabled by technology, has proven to be difficult to investigate and prosecute through traditional law enforcement mechanisms. Despite this, there is little international regulation on cybercrime, but rather various initiatives to define and combat cybercrime related to specific offences.
7. The employer can, under certain circumstances, monitor and supervise employees' compliance with the company's corporate ethics and implement schemes to encourage compliance, including whistleblowing. However, these measures have to respect the

employees' right to respect for their private life and correspondence. States should ensure that these measures are accompanied by adequate safeguards against abuse.

8. The risk of an insider threat, especially in the area of critical infrastructure, has led governments to approve legislation that enables companies to perform background checks of potential employees and ongoing monitoring and control of their employees' behaviour.

IV. FOURTH REPORT: DIVERSITY AND EQUALITY LAW

1. The reports produced by the Global Employment Institute (GEI) in the past eight years identify that a number of developments have addressed discrimination in the workforce and encouraged diversity. However, development has often been slow. In some instances, positive developments have been led by organisations taking voluntary steps, rather than by governments through the implementation of legislation. In other instances, organisations may be failing to focus on issues, for example, in managing a multigenerational workforce. Swifter change may therefore require more concerted government intervention.
2. Looking forward, while there will continue to be a strengthening of discrimination laws in those jurisdictions where certain groups remain unprotected, it is unlikely that the range of protected groups (or characteristics) will extend beyond those that exist in Europe and the United States. What is likely is that current laws will be used in different ways to test the legality of working practices, such as those seen with the gig economy and with potential situations faced by employers employing increasing numbers of generations at the same time, thereby raising issues of age discrimination.
3. Notwithstanding the slow progress, there is likely to be a continued drive to improve diversity in the workplace, whether by using legislation or quotas to force change or by introducing legislation that requires organisations to publish statistics relating to diversity, thereby indirectly and softly naming and shaming employers with a poor record and lack of acceptable improvement in these areas. It is hoped that employers will respond by proactively bringing about further change themselves and embracing diversity and inclusion in a way that has only been seen for a relatively small number of employers.

V. FIFTH REPORT: EMPLOYMENT AND INDUSTRIAL RELATIONS LAW

1. The first question in the survey required the respondents to set out the changes they anticipated to the laws of their jurisdiction, in particular, in respect of working from home, flexible/temporary work, shared jobs, part-time versus full-time work and the right to disconnect (ie, to not engage in work-related electronic communications outside work), with particular emphasis on laws to protect the self-employed, caregiver or other leave and wage structures for flexible workers.
2. The European states of Finland and Spain anticipate changes such as the new Working Hours Act and laws to address flexible and part-time work in Finland. Finland also expects to see legislative changes relating to the right to disconnect. However, in Finland, the concept of shared jobs is not widely known and, although the rate of self-employed or independent

workers is expected to increase, the social benefit laws provide protection and benefit only to a limited extent, with no change in sight. Nor is any change in legislation on leave expected. Changes seen thus far are created by the expectations of employees and response by employers without the benefit of legislation to shape or control such benefits. Flexible forms of remuneration are seen as beneficial, but opposition by trade unions prevents their development. In Spain, the changes have been limited to discussions on the need for legislation to address the right to disconnect. This is despite an increase in flexible work and part-time work.

3. Austria does not expect to see any changes in laws relating to those areas. Austria and Spain already have adequate protection in terms of social security and pension for self-employed and independent workers. Collective bargaining, which covers about 90 per cent of the workforce, is also seen as an adequate mechanism to protect workers. As such, no change is seen as necessary to cope with the increase of such workers. Like Finland, Austria does not see any changes in laws relating to leave but expects some flexibility in the relation between employers and employees in this area. Spain expects to see an increase in paternity leave benefits, but despite much discussion on work-life balance, no other changes are foreseen.
4. In South America, there are no anticipated changes to laws, but it is noted that, in countries such as Argentina, working from home and temporary work are on the rise. It is therefore possible that in the near future, changes to laws and to regulate self-employed and independent workers may become necessary. Presently, the law restricts flexible forms of remuneration. The laws on leave, however, are expected to change in reaction to the work–life balance demands of employees. In Chile, no changes or demands from the workforce for better leave benefits are expected. Self-employed and independent workers are presently covered by social security regulations.
5. Asia also does not see any impending changes to laws. None of the countries, whether China with its vast industries and workforce, Japan with its focus on technology, Malaysia with the large presence of foreign workers or Singapore, which sees itself as a leader in the region, see any real changes on the horizon. China acknowledges an increase in self-employed and independent workers, but does not foresee regulations to protect them. Similarly, employees may expect and even demand flexible working time/conditions, but no changes to laws are expected, although minimum wages may be on the increase. Japan anticipates some slight change, with an increase in the timeframe within which employees are given flexibility of work hours (termed ‘clearance period’) from one month to three months and sees the need to legislate to deal with the advent of AI, but has yet to see any proposals towards protecting self-employed or independent workers. There is some move towards paternity leave, but it is still very much in the early stages of discussion. Japan is also awaiting a Supreme Court ruling on the disparity of wages between full-time workers and others. It is expected that the Court will rule that such disparity is unlawful. Malaysia recently introduced the Self-Employment Social Security Act to protect the self-employed. There is also a slow but sure change towards achieving better work–life balance, with the first expected change to be the increase of maternity leave from 60 to 90 days. In Singapore, the laws relating to maternity, paternity and childcare leave were recently revised upwards, so no further changes are anticipated.

6. Finally, respondents were asked to comment on whether they foresee any difficulties in the application of current legislation to new business models and frameworks created by the collaborative economy and the erasing of limits between industries. Interestingly, even in Europe, difficulties are anticipated, possibly, as stated by the Austrian respondent, due to the nature of unionism and/or collective bargaining. Spain would like to see legislation deal with the classification issue, particularly concerning independent workers. Argentina sees the need for new legislation to deal with the challenges, and Chile sees a specific need to adapt a very inflexible labour statute to a flexible gig economy. In China, working hours law may need to be rejigged. In Japan, the concern is over the protection of independent workers. In Malaysia, no specific challenges are anticipated.

VI. SIXTH REPORT: GLOBAL IMMIGRATION AND NATIONALITY LAWS

1. Analysis of the responses, coupled with the previous Annual Global Reports (AGRs) of the IBA GEI, lead to the following conclusions on the relationship between global immigration and nationality laws and the future of work.
2. Skills shortages: The ability of governments, through their immigration policies, to recognise and adapt to skill shortages leaves much to be desired, with many having no formal mechanism for adapting immigration policies to skill shortages, while others do not respond quickly enough.
3. Flexible working: While many employers throughout the world are looking to introduce flexibility to their workforces, most reported immigration regimes take very little account of this, particularly in relation to migrants moving primarily for work.
4. Integration: Most reporting countries allow certain categories of migrant to acquire permanent residence and will also permit accompanying family members; however, the extent to which non-traditional relationships are recognised varies considerably. Issues of integration, including welcoming refugees, are likely to be most closely bound up in each country's attitudes to immigration, which is jeopardised by the rise of populist sentiment in many jurisdictions.
5. Entrepreneurs and investors: Many countries have schemes for encouraging and welcoming entrepreneurs (or job creators) and investors (or wealth creators), although there was much negativity from respondents as to whether governments would be able to adapt those schemes to changes in the workplace over the next decade.
6. Multinationals: Most jurisdictions have immigration schemes in place that assist established and establishing multinationals, with very few changes to the current arrangements anticipated.
7. Technological advancements will act as a driver in the development of immigration policy as governments seek to encourage technology workers to their jurisdiction. Governments must also consider whether immigration laws need to be amended to reflect the need for workers to enter the jurisdiction to work with specialist technologies and perform activities that may be prohibited by laws drafted long before such technologies existed. Technology also acts as a force for change in the implementation of immigration controls, being used for security, facilitating easier entry to a country and even in the decision-making process.

VII. SEVENTH REPORT: INTELLECTUAL PROPERTY LAW

1. It is generally understood that innovation is key for the survival of businesses and will be even more so in the future. Evidence for this exists in the context of the exponential growth of innovative companies such as Amazon. The increasing adoption of AI in the workplace will likely have a significant impact on the future of work.
2. Therefore, it is important to consider whether the human workforce or AI will be the main source of innovation. Considerable effort and study will be required to consider what changes, if any, to rules in IP laws are required when it comes to allocation of rights to IP/know-how originating from employees and associated economic benefits, so as to promote and ensure innovation.
3. New rules will need to evolve when it comes to ownership of and benefit from innovation/know-how originating from AI.
4. Further, in an increasingly interconnected and highly networked business world, questions will need to be answered, such as whether independent contractors will innovate and license their innovations to organisations or innovation will occur within an organisation and what changes, if any, to IP laws would be needed.
5. In the context of the future of work, it is important to examine how the laws governing IP creation and protection need to evolve from the perspective of employees and more generally.
6. Presently, with regard to copyright and authorship, patents and inventorship, and industrial designs and creatorship, the norm is that there has to be a natural person, and innovation generated by AI stands outside this scope. Therefore, it is clear that most countries will have to look into new interpretations of their IP laws to see if they can accommodate IP generated through AI regarding ownership and protection of economic and moral rights. Increased innovation through AI will undoubtedly affect the workplace and roles of employees, though it is difficult to predict how.
7. As innovation is critical for the survival of businesses, consideration may be given to the development of some form of shared model of ownership, leading to more sharing of ownership and economic benefits of IP/know-how between the employer and employee, the developer of the AI and the employer, and the independent contractor and the person commissioning the work. However, it appears that contractual provisions may soon become the default way of dealing with these issues until policy directions and accompanying legal changes can be established to ensure that innovation and generation of IP and know-how is fostered and promoted.

VIII. EIGHTH REPORT: LITIGATION LAW

AI is a sub-field of computer science and is simply defined as the ‘science of making computers do things that require intelligence when done by humans’.¹ Regardless of how well designed and programmed AI products or services are, factors beyond the machine’s control may trigger an incident that causes injury or damage to third parties. Reported accidents involving industrial robots and two accidents in March 2018 involving autonomous vehicles are examples of the ability for machines to cause damage.

There is no specific regulation for damage caused by AI systems or products equipped with AI technology. Computers have no legal personhood so cannot be held liable for their actions. Therefore, liability law must find an answer within its old rules or must create rules to regulate the civil responsibility arising from offences performed by AI systems.

Driverless cars have been in the spotlight as one of the most disruptive products developed using AI technology. There is concern about how to allocate the liability in the case of accidents involving autonomous vehicles. Various solutions, which may be applied to other AI products or services, have been provided by different legal scholars:

- David C Vladeck claims that when the incident results from a human error (but not the driver), the product liability rules should be applied as they would be to non-autonomous cars.
- The same author considers that a variation on the doctrine of ‘common enterprise’ liability should be applied for those situations in which the machine has acted autonomously and there is no human wrongdoing.
- Others advocate a strict liability test adapted to autonomous vehicles. According to this theory, the manufacturer would only be held liable if the car would not perform as another reasonable car would perform. Other authors claim that the strict liability regime applied to animals, children, employees or ultra-hazardous activities should be applicable in cases in which damage derives from AI software (vicarious liability). A common example of vicarious liability is in a workplace environment where the employer might be held liable for wrongful acts or omissions of an employee if those same actions or omissions were carried out in the course of their employment.
- Another solution, as advocated by Jeffrey R Zohn, could be to treat autonomous vehicles as non-car products with similar features, such as autopilot technologies under which ships and aeroplanes operate. In the case of autopilot technology, the liability is allocated to the manufacturer, except when there is misuse.

In any case, there is always the possibility of attributing legal personhood to AI systems, enabling the direct responsibility of those entities. In 2010, Bert-Jaap Koops et al predicted that the legal system would have three courses of action in time:

- short term: interpretation and extension of existing law;

¹ Throughout this work, words such as ‘computers’, ‘machines’, ‘AI tools’ or ‘AI software’ will be used interchangeably to make reference to AI systems. The purpose of this work is not to focus on the technological part of it, but rather to raise legal questions and try to offer legal solutions.

- medium term: limited personhood with strict liability; and
- long term: full personhood with ‘post-human’ rights.

The question of whether computers may assume legal personhood has been discussed in the literature for almost three decades. What may seem far-fetched nowadays may be a given in a few decades. There is no *a priori* reason to prevent autonomous AI machines from being granted a legal status, in the same way there was no reason to, in principle, prevent corporations and other legal fictions from acquiring their legal status. This solution will depend, on the one hand, on the position that one adopts towards law and technology and what the requirements to be considered a ‘person’ are and, on the other hand, the actual effects of the use of truly autonomous entities and their impact on society.

Depending on the theory adopted to regulate this issue, legislators may be fostering or hindering technological development. Therefore, as in other fields, regulation will have to be carefully executed. For instance, if, in case of a working accident, the employer is the entity deemed liable, companies will certainly be more resistant or less permeable to the inclusion of AI systems in their businesses. On the contrary, if computers assume some type of legal personhood and are deemed as responsible for their own acts, companies will certainly be less resistant or more permeable to adopting AI systems. This is not to say that the effect of regulation on technological development should be the only, or even the main, criterion to use when regulating this issue. However, this might be easily neglected by legislators and therefore deserves to be emphasised.

IX. NINTH REPORT: TAX LAW

1. The survey and our analysis have highlighted challenges and opportunities for national tax systems and potential significant effects on national tax receipts because of the changing nature of work.
2. The nature of the employment relationship is changing. There appears to be a shift towards non-employee relationships, self-employed individuals and workers operating in the gig economy. Traditional tax systems have been designed to reflect self-employment as an indicator of entrepreneurship. This may no longer be the case and tax policy may need to change to protect the new breed of workers, remove the distinctions between traditional employees and the self-employed and incentivise true entrepreneurship within the economy.
3. The primary revenue source for national exchequers comprises tax receipts on current earnings and value added tax (VAT) receipts (which ultimately falls to be paid by end-consumers out of after-tax earnings). This results in a potentially unstable tax base and puts particular pressure on pension payments in an era of ageing populations. There is significant uncertainty about the sustainability of this model, particularly considering the impact that technological development may have on employment levels. Given the exponential rate of change in technological development, the redundancy of certain jobs across huge sectors of the global economy could happen quickly. Falling employment levels would dramatically affect the level of income tax receipts and VAT receipts.
4. It is possible that jobs will be created to replace the jobs made redundant by technological development. But it is not clear how quickly this would happen. There would need to be

significant investment in education and training, and tax policy can play an important role in encouraging such education. In addition, governments can consider how to reduce the direct tax costs associated with the employment of individuals and how to reduce the tax burden on corporates so as to encourage investment in individuals.

5. In the meantime, how national exchequers can plug any tax gap caused by falling employment levels and how tax disincentives on employment can be removed must be determined. There is not an alternative obvious income source for national exchequers.
6. There has been a significant focus in recent years on the international base erosion and profit shifting (BEPS) project. Essentially, this was a project aimed at eliminating mismatches in international tax laws and ensuring that multinational corporations paid more tax. While the BEPS project has driven a lot of changes in international tax rules and changes in corporate behaviour, it is clear that there are likely to be further changes in international tax laws, ultimately resulting in higher corporate taxes. We have yet to see what impact a higher corporate tax rate will have on corporate investment and job creation, or indeed consumer prices. While certain corporate tax problems need to be addressed, a focus on corporate taxation, as a tax on the year's profits, seems to be fraught with the risk of being inherently unstable and ultimately borne by the consumer.
7. Consumption taxes, such as VAT and sales tax, while relatively easy to adjust, are highly regressive as they are ultimately borne by the end-consumer and affect the poorer to a much greater degree. Innovative taxes, such as a digital tax, have been proposed, but ultimately they seem to be another form of consumption tax or simply a new means of allocating taxing rights.
8. There have been international discussions on new forms of taxation, such as a tax on data or taxation based on market intangibles. The BEPS project has successfully closed the door on many forms of 'nowhere income' (ie, income allocated to no jurisdiction that as a result is taxed nowhere). However, it is difficult to see how many of the new proposals do anything other than reallocate global tax receipts among countries and fail to increase global tax receipts. In such circumstances, history shows that large developed countries tend to do better when it comes to designing rules around the allocation of resources.
9. Perhaps there needs to be a greater focus on new types of taxation, such as wealth and property taxes, which recognise the large, stable base of inherited wealth accumulated in the world's most developed countries over many centuries instead of simply looking at current year profits or income taxes.
10. Technology is changing how and where people work and equally how corporations connect and sell to customers. This creates challenges for tax systems designed in a different era. Greater employee mobility raises important questions as to where value is created within organisations. This creates significant uncertainty around the appropriate nexus for corporate taxation. The BEPS project, the European Common Consolidated Corporate Tax Base proposals and other follow-up international initiatives continue to focus on dividing the taxation rights of corporate profits. It is clear that the old rules of corporate taxation need to be adapted to suit the modern world, but whether any of the proposed rules will benefit countries other than the large traditional powers is not clear.

11. The rapidly changing nature of work in today's technologically advanced and globalised world poses many challenges for national tax systems. In some instances, countries seek to adapt traditional tax rules to cater for these unforeseen changes. In others, proposals such as the taxation of robots, the establishment of permanent establishment (PE) rules and the development of a digital tax represent innovative ways in which systems seek to deal with these challenges.

X. TENTH REPORT: TECHNOLOGY LAW

1. Most jurisdictions have recognised the benefits of technology and have integrated it into their corporate systems. Technology has proven to improve efficiency, increase transparency and save time and costs (eg, by encouraging remote working/work from home). Consequently, there is a visible progression towards digitalisation in the corporate sector. However, most countries are not fully prepared to deal with the negative effects of digitalisation. Regulations by and large have lagged behind the pace of digitalisation. Only a few countries have implemented meaningful legislation that controls and channels the impact of technology and protects employees from the negative effects of workplace automation.
2. While technology has led to an increase in efficiency and reduction of workload, it has also resulted in the elimination of employment opportunities, much to the detriment of workers. The growing trend towards automation poses a greater threat to manual labour roles than to roles that need customer interaction. A large multinational bank forecasts that in the US alone, 47 per cent of employees will cede their place to automation and AI in the next few decades. Adapting or implementing technology in the workplace may also lead to discrimination in recruitment procedures, with those proficient in the use of technology at a distinct advantage. Some governments have taken initiatives to counter the loss of employment and enhance job opportunities.
3. Technology has played a significant role in reducing regulatory burden and improving corporate governance and compliance. Several countries use videoconferencing for board meetings, have e-voting, pass circular resolutions via email and report to stock exchanges through electronic means. Digitalisation has also modified the way employee appraisals take place and has helped companies to gather performance data more accurately. The majority of the surveyed countries has legislation for the protection of copyright and data privacy (including personal data). Some countries reported that they are in the process of strengthening existing laws/implementing new laws to ensure data privacy improves diversity and reduces, if not eliminates, hiring discrimination against those with disabilities, women and minorities more effectively across several sectors.
4. Some of the major challenges in corporate law affecting the rights and interests of workers reported by various countries include the risk of AI replacing the workforce; outsourcing of jobs and business restructuring resulting in reduction of the workforce; and unemployment due to automation and lack of skill development. The pace of digitalisation also poses challenges for the interpretation and application of the related parts of the legal system, including workplace regulatory rules, employment/contract law and liability law.

PART TWO

INDIVIDUAL REPORTS OF THE IBA WORKING GROUP

- I. FIRST REPORT: CORPORATE LAW
- II. SECOND REPORT: CORPORATE SOCIAL RESPONSIBILITY LAW
- III. THIRD REPORT: CRIMINAL LAW AND BUSINESS CRIME
- IV. FOURTH REPORT: DIVERSITY AND EQUALITY LAW*
- V. FIFTH REPORT: EMPLOYMENT AND INDUSTRIAL RELATIONS LAW*
- VI. SIXTH REPORT: GLOBAL IMMIGRATION AND NATIONALITY LAWS*
- VII. SEVENTH REPORT: INTELLECTUAL PROPERTY LAW
- VIII. EIGHTH REPORT: LITIGATION LAW
- IX. NINTH REPORT: TAX LAW
- X. TENTH REPORT: TECHNOLOGY LAW

*Reports coordinated by the IBA GEI

I. FIRST REPORT: CORPORATE LAW

Prepared by Rabindra Jhunjhunwala (Khaitan & Co, India)

Executive summary

I. Corporate law and technology

Various jurisdictions have recognised new and simplified corporate structures to encourage and boost startup businesses. In most countries, these corporate structures enjoy several benefits, including a simplified process of incorporation and ease of compliance aided by technology.

The use of technology has simplified compliance requirements and increased efficiency in several jurisdictions by facilitating online/one-day incorporation, providing easy and remote access to company information through the maintenance of records electronically, online submission of annual returns, online completion of corporate compliances, recognition of digital and electronic signatures and so on. It is also noted that regulatory procedures, such as the online filing of applications and granting of permits and approvals for M&As, have been digitalised in various countries.

Technological developments have also facilitated doing business through e-voting and e-balloting; improved the attendance of shareholders, including foreign shareholders and minority shareholders, by enabling meetings to be held using videoconferencing/teleconferencing; and increased transparency through the availability of company information and easy access through a company's online database, which have enhanced shareholder participation and improved the decision-making process and efficient management of companies. Enterprises have also begun to use technology for the evaluation of performance and productivity of employees by monitoring attendance, output, punctuality and so on through ERP systems, biometrics, surveillance systems or other such digital means.

Most jurisdictions have recognised the benefits of technology and have integrated it into their corporate systems. Technology has proven to improve efficiency, increase transparency and save time and costs. Consequently, there is a visible progression towards digitalisation in the corporate sector.

While technology has led to an increase in efficiency and reduction of workload, it has also resulted in the elimination of employment opportunities, much to the detriment of workers. Some governments have taken initiatives to counter the loss of employment and enhance job opportunities. However, the growing trend towards automation poses a threat to manual labour roles.

Additionally, in the era of the growing use of AI and robotics and lack of any specific regulation in this regard, governments and companies ought to take account of the potential effects of human workers being replaced by such technology or robots in the future.

Further, advanced technology is likely to subject workers to risks associated with its use. Governments will hence be required to put in place specific regulations for the protection of workers against such risks and mandate employers to provide proper training to workers, undertake surveys to analyse health hazards and provide adequate OSH measures, such as eye/health check-ups.

Some of the major challenges in corporate law affecting the rights and interests of workers reported

by various countries include the risk of AI replacing the workforce, outsourcing of jobs and business restructuring resulting in a reduction of the workforce, unemployment due to automation and a lack of skill development.

Influence of blockchain technology on the future of employment

Blockchain is essentially an encrypted electronic ledger of, inter alia, transactions, agreements and contracts that are required to be independently recorded and verified. Each block is time-stamped and all data is confirmed anonymously in a record of events that is spread across several parties and permanently saved. As this ledger is decentralised and does not have a central point of vulnerability, it is secure from external attack.

Estonia has been experimenting with blockchain since 2007 for its national digital identity scheme. This technology has enabled Estonia to create unmodifiable, secure records of identity with multiple strands of information on citizens strung together in a single chain.

In India, NITI Aayog, the government think tank, has been a great proponent of blockchain. It aims to introduce blockchain technology in areas such as education, health and agriculture. Although Indian regulators, such as the Reserve Bank of India (RBI), still do not approve of cryptocurrencies, the recognition of blockchain technology as a way to improve the functioning of various sectors could be seen as a positive step. Further, even private individuals, companies and startups appear to have increased their demand for talented blockchain developers, despite regulatory uncertainty.

As it is distributed across several computers around the world, blockchain provides access to an up-to-date version of the ledger to everyone on the network and thereby ensures utmost transparency. This gives rise to many uses of blockchain technology in the workplace:

1. Blockchain-enabled curriculum vitae (CV)

Blockchain technology creates a medium to bring together information from various sources in a single place. For instance, blockchain can compile the plethora of information about habits, preferences, skills and interests of a person available on the internet and create a comprehensive digital dossier about their hiring potential. This technology will thus help to reduce information asymmetries and outdo CVs in the future. Thus, blockchain will facilitate ‘verified’ measures of a prospective candidate’s ability and render more comprehensive overviews of talent and to what extent the person is hireable.

2. Equal pay and equal opportunities at work

For various reasons, including maternity absence, higher tendency towards part-time work and working from home, women are very often paid less than men around the world. The transparency offered by the open ledger qualities of blockchain technology can lead to increased transparency in remuneration for men and women, creating limited opportunity to justify differences in remuneration, and alleviate such endemic discrimination in the world’s labour markets.

3. Facilitate payments for cross-border gig workers

Most workers in the gig economy suffer from wage penalties, lack of income and job insecurity. Additionally, payment of salaries/wages is difficult as the workers themselves often have to pay

the fees/charges for cross-currency payments. Such payment transfers can be eliminated, and internationalised to any currency, through a blockchain-based cryptocurrency transfer facilitated by the instant verification qualities of blockchain technology. In a pilot scheme between Thailand and Myanmar in 2017, it was demonstrated that blockchain technology can be used to facilitate the transfer of remittance money between currencies without transaction fees.

II. Corporate law and employment relationship

1. *Gig economy*

A relatively new employment structure in the form of the gig economy has been gaining popularity in most countries with the launch of services such as Uber and Airbnb. The regulatory framework around the gig economy is largely unclear at this stage because it is a recent phenomenon. Further, there appears to be much uncertainty with regard to the classification of gig workers, because some jurisdictions recognise them as workers, while others see them as independent contractors or self-employed. Rights granted to gig workers also vary in several jurisdictions depending on whether such workers are identified as employees/workers or independent contractors/self-employed. Accordingly, most countries have raised the concern for specific regulations for the protection of the rights and interests of workers in the gig economy.

2. *Subcontracting*

Subcontracting is also picking up pace in various economies. However, subcontracted workers tend to receive lower remuneration than directly employed workers in some countries and also lack security of tenure. Few jurisdictions have specific regulations governing employment relationships with subcontracted workers. Consequently, they have limited rights and protection under law.

3. *Collective bargaining rights*

Collective bargaining rights and freedom of association of workers is prevalent in most jurisdictions. Companies engaging workers typically enter into collective bargaining agreements with works councils/trade unions. These agreements are critical to workers as they set out the terms and conditions affecting their employment, including remuneration, working conditions, leave and holidays, working hours, minimal payments and other reimbursements, training and safety.

4. *Business restructuring affecting employment*

Business restructuring and cross-border M&As tend to cause a reduction of the workforce and loss of employment. To mitigate this loss, many jurisdictions mandate prior consultations to be held with works councils and disclosure of the intended restructuring before the execution of any commercial agreements that may affect the rights of employees. In some cases, employers are required to obtain the prior consent of employees for transfer upon restructuring, and upon the failure of an employee to consent to transfer, the departing employee is entitled to a severance package.

Certain other jurisdictions require prior approval of the authorities to be obtained for retrenchment of employees due to reorganisation of the business. The extant regulations in various

jurisdictions offer some protection and security to its employees. However, in most jurisdictions, labour legislation is conservative, formalistic and outdated and there is a critical need to update these laws to combat the challenges faced by employees.

5. *Challenges in employment law*

The major challenges noted in the area of employment law include the need for regulation and protection of workers in the gig economy; a protracted dispute resolution process, which delays justice for both workers and employees; poor training and capacity building by enterprises; and gender inequality and wage gaps between men and women.

III. Corporate law and diversity

1. *Equal pay for equal work*

The labour legislation of most countries recognises the doctrine of ‘equal pay for equal work’ to avoid wage discrimination between men and women; migrants and nationals; outsourced and local workers and so on. However, some countries fail to extend this principle to outsourced workers and migrant workers, and tend to differentiate in payments made to these types of workers from directly employed or local workers.

2. *Gender equality and wage gaps*

Most enterprises have adopted measures to improve gender equality by providing maternity leave, childcare leave, flexible working hours, working from home, crèche facilities and so on, and several countries encourage women to take up managerial positions and facilitate this process by allowing these benefits. However, the proportion of women in managerial positions is fairly low, though a rising trend towards increased participation of women in managerial positions has been indicated in some jurisdictions. Accordingly, governments and enterprises need to implement favourable policies to encourage and facilitate women’s access to higher positions. The publication of remuneration reports by enterprises is required to ascertain wage gaps and take adequate measures to bridge any such gaps, but laws mandating such disclosures are rare.

IV. Corporate law and rights

1. *Legislative mandate for corporate transparency*

To improve corporate transparency, countries have enacted various legislation which mandates the disclosure of company information, adherence to transparency norms, publishing remuneration reports and so on. In certain countries, it is also mandatory for companies to publish information with respect to the functioning of the company on its official website. These measures aim to prevent mismanagement and increase accountability of the company management.

2. *Regulatory framework against sexual harassment and discrimination*

The laws in most jurisdictions require company policies to lay down regulations against discrimination and to set up equal opportunity policies to promote anti-discrimination. The laws in this regard are generally very stringent, and contravention of such laws is dealt

with very seriously. However, some countries still do not have any regulation or policy on discrimination against workers. It is critical for governments to understand the need for protection against discrimination, sexual harassment, bullying and violence, implement adequate legislation and take stringent action against defaulters. It is also the responsibility of employers to formulate rules and regulations to ensure a safe working environment for their employees.

3. *Penalties and proceedings for the misconduct of workers*

In most jurisdictions, the procedure for reporting, investigating and imposing penalties in cases of misconduct are regulated by the internal policies of the company and typically include reporting and encouraging affected parties to file complaints, investigation, setting up disciplinary committees and disciplinary proceedings. Accordingly, companies themselves determine the procedure and punishment to be awarded, ranging from mere warnings to dismissal from employment, depending on the gravity of the misconduct. Some countries also reported that their laws provide fixed procedures to deal with cases of misconduct.

4. *Data privacy and copyright protection*

Protection of copyright and data privacy is prevalent in most economies in the form of legislation, contracts, company policies or constitutional protection. A common trend noted in relation to copyright in several jurisdictions is that, unless otherwise agreed, copyright over any work prepared by employees during the course of employment belongs to the employer. Countries have also realised the importance of data protection and privacy, and have enacted legislation in this regard, which needs to be updated from time to time to keep up with advancements in technology.

Introduction: the survey and methodology

This IBA–ILO report on the future of work (the ‘Report’) was prepared by Khaitan & Co, headed by Rabindra Jhunjunwala and his team comprising Anshul Prakash, Parag Bhide, Kanika Mathew and Shreya Vajpei, with the encouragement and guidance of the members of the IBA Corporate and M&A Law Committee (the ‘Working Group’). On 27 February 2018, the Working Group released a questionnaire, which is the basis of the findings made in this Report. The survey put forward 26 questions (and several sub-questions) to the respondents, primarily in relation to: (1) recent changes in corporate policies and legislation owing to the influence of technology; and (2) the impact of technological advancements on employment.²

² **The Working Group and contributors to the report**

The Working Group is pleased to present this Report reflecting the results of a comprehensive survey of 55 countries. The Report delivers an insight into policies and practices in the corporate sector, the recent changes due to advancements in technology and its impact on employment globally. The Working Group intends that the public release of this Report will help to identify the challenges in the corporate sector affecting employment and to propose changes to the existing regulatory framework among jurisdictions. The Working Group is indebted to all the below 55 countries for their contributions to the survey.

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The questions were tailored to encourage the respondents to provide detailed responses on the emerging trends in the corporate sector and the impact of advanced technology on work opportunities in each of their jurisdictions.

The responses received from 55 countries were analysed, and this Report has been prepared on the basis of the survey responses received from those countries.

Substantive questions

The substantive questions asked in the survey in relation to corporate policies and practices, the influence of technology on the corporate sector and its impact on employment were as follows:

A. Corporate law and technology

1. Has the legislature in your jurisdiction recognised new corporate structures, such as startup businesses, for providing incentives in terms of any regulatory relaxation or flexibility on compliance certification by management as a result of technology?
2. Have there been changes in regulation with regard to the import/export of technology in your country by companies?
3. Has there been any change in the regulation governing cross-border M&As to counter the loss or enhance the increase in jobs due to the integration of technology across borders?
4. In the past decade, have there been some major changes by your regulators in the process of the granting of regulatory approvals in M&As because of technology? Further, has this change affected the amount of the workforce working with regulators? If yes, does the government provide for reskilling/re-employment of the workforce working with regulators?
5. What role does technology play in the corporate governance in your country? For example, minimum disruption of work by allowing e-voting as a stakeholder. Please provide a synopsis of the legislative provisions.
6. What is the procedure of performance and productivity control followed by the enterprises in your country? Does this procedure concern some technological gadgets or means? Are workers and management duly informed about these procedures? Are policies concerning the use of these means negotiated with workers' representatives?

7. What is the role of technology in performance evaluation and productivity? Is there any regulation in this respect? Are there regulations concerning the interaction of workers and robots? Are there any regulations concerning work tracking and control? Are there regulations or studies concerning the impact of technology on workers?
8. Are there regulations concerning the impact of technology on OSH? Are there any legal requirements concerning the use of technology for OSH reasons?
9. Has technology changed shareholder relationships? Has it increased the participation by shareholders in the company? Has this increase resulted in improved efficiency of the overall functioning of the companies in your jurisdiction? Has this increase helped in ensuring that minority shareholders' rights are better protected? Have you noticed any instances where this increase has led to better management of the company in terms of planning, organising, staffing, coordinating and controlling?
10. Does the law in your country permit the convening of board/shareholder meetings through videoconferencing or any other technology means? If yes, are there any restrictions on agendas to be adopted through such meetings? Are all types of corporations permitted to hold such meetings?
11. What do you consider to be the three main challenges in the area of corporate law in your country that may affect the workforce significantly? Is your government considering or implementing any solutions?

B. Corporate law and employment relationships

1. What is the most common employment structure of the enterprises in your country? Does the law contain provisions to regulate the employment structure that an enterprise may follow? Has there been any modification in such law lately? Is it legally possible for enterprises in your country to externalise the production process? What is the incidence of the gig economy, subcontracting and labour platforms in existing enterprises?
2. Is there any particular legislative framework that recognises and/or regulates the status of workers in the gig economy? If yes:
 - i. Are they classified as workers or self-employed or any other such classification?
 - ii. Who is responsible for their social security?
 - iii. Who is responsible for ensuring OSH measures?
 - iv. Who is responsible for ensuring proper working conditions?
 - v. Do they enjoy freedom of association and collective bargaining rights?
3. What is the remuneration trend for gig workers? Has their wage or income from work increased or decreased as a trend? Have these circumstances been recognised by the concerned authorities in your country to provide for a legislative framework in this regard?

4. Are there other emerging trends in the labour platforms in your country that are a result of technological development? If yes:
 - i. What are the key features of these trends?
 - ii. Have the concerned authorities in your jurisdiction recognised these trends?
 - iii. Have these trends been beneficial for workers? Please enunciate.
5. What has been the impact of technological advances on subcontracting? Has there been a shift in terms of preference among employers towards subcontracting? If yes:
 - i. Has it been beneficial for subcontracted workers?
 - ii. Have the concerned authorities recognised this trend?
6. Have any new forms of cooperatives or any other form of crowd work emerged in your country? What has been the role of cooperatives in your country in response to the growth of unregulated markets due to technological changes and increase in migrants/refugees? To what extent does regulation have to change to prevent the misclassification of new forms of work and grant all dependent workers the right to collective bargaining and freedom of association?
7. What are the trends of collective bargaining in enterprises and how many collective agreements have been executed since 2010 (if such data is available in the public domain)? What are the main subjects dealt with in these collective agreements?
8. Does your country recognise transnational company agreements (multinational corporations (MNCs) executing global agreements with workers located in various jurisdictions with same degree of rights and obligations) in any form (by practice and/or by law)? What are the latest regulatory developments in the nature and scope of transnational company agreements?
9. What changes have there been in the corporate laws in the past decade that could materially affect the rights of workers:
 - i. before, during or after a business reorganisation, merger or acquisition; and is there any specific carve-out for a share deal versus an asset or business transfer deal concerning automatic transfer of employment?
 - ii. to employee participation or employee involvement in works councils, collective agreements or other consultative bodies?
10. What do you consider to be the three main challenges in the area of employment law in your country that may affect the workforce significantly? Is your government considering or implementing any solutions?

C. Corporate law and diversity

1. Does the law in your jurisdiction provide for equal pay for work of equal value? If yes, how is such a law implemented and enforced in practice against the background of:
 - i. automation;
 - ii. migration; and
 - iii. outsourcing?
2. Do enterprises in your jurisdiction collect data that is disaggregated on the basis of gender? Does this data reflect that management positions have become more accessible to women in the past decade? Further, does your jurisdiction provide for special provisions to facilitate access to management positions by women, such as flexible working hours, allowing working from home during and post pregnancy? Are there specific measures provided in the enterprise by-laws concerning aspects of gender equality, for example, maternity, paternity and parental leave and childcare facilities?
3. Does the law mandate any specific requirement to disclose gender pay gaps from a corporate governance perspective? Is it as a matter of practice that corporations in your jurisdiction disclose such gaps or is there any legislative proposal to implement such requirements in the near future?

D. Corporate law and rights

4. Does legislation mandate the enterprise by-laws to provide for the following:
 - i. procedures concerning corporate transparency;
 - ii. procedures concerning respect for gender equality and protection against any form of discrimination, violence, sexual harassment and bullying; and
 - iii. what are the internal procedures in terms of reporting, inquiry and imposing penalties in cases of misconduct?
5. Do enterprises in your jurisdiction follow a policy concerning copyright due to a mandate under law or by practice? Further, is there a policy concerning individual privacy?

Key findings

I. Corporate law and technology

1. *Legislative recognition of new corporate structures and influence of technology on compliance flexibility and regulatory relaxation*

The survey demonstrated that new corporate structures to encourage startup businesses have been formed and recognised by several jurisdictions, such as the ‘simplified corporation’ in Argentina, ‘starter limited liability company’ in Belgium, ‘simplified limited liability company’ in Croatia, ‘capital commercial company’ in Slovakia, ‘one person company’ in India and the

proposed 'simple joint stock company' in Poland. The views many of the respondents suggested that ease of compliance certification through digital means, such as online incorporation, maintenance of records and registers electronically, online reservation of company names and online compliance reporting, are practised at present and gaining momentum in several countries. It appears that while more countries are rapidly moving towards digitalisation, several continue to use traditional means.

2. *Changes in regulation of the import/export of technology*

Some of the reported key changes in regulation of the import/export of technology are:

- i. The National Tax Authority of Argentina has eliminated certain stringent requirements for import, which has simplified the process of the importation of technology.
- ii. Azerbaijan and Belarus have exempted technology and technological equipment with respect to industrial and technological parks from import duty and provided significant tax incentives.
- iii. Chile has exempted generally created software from the ambit of import tax and restricted its applicability to custom created software.
- iv. France has placed certain restrictive measures against Iraq, Russia and Syria for dual-purpose goods. Further, the transfer of technology requires authorisation from a competent national authority in France and Germany.
- v. Japan reported that its Foreign Exchange and Foreign Trade Act 2017 was amended to strengthen criminal and administrative penalties for import/export violations and expand filing obligations on foreign investors to prevent the loss of confidential technology.
- vi. Russia has tightened its regulation related to import/export by imposing limitations on the import/export of technology and software.

Other respondents, such as the Bahamas, Bangladesh, Belgium, Bosnia, Finland, Hungary, India, Indonesia, Pakistan, the Philippines, Slovakia, Slovenia, Spain, Sri Lanka, Turkey, the UK and Zimbabwe reported that there have been no key changes in the regulation of the import/export of technology in their jurisdictions in the recent past.

3. *Impact of the integration of technology and cross-border M&As on local employment*

Some of the respondents, including the Bahamas, Lithuania and Zimbabwe, reported that they have regulations to ensure the protection of local employment, including regulatory approval for cross-border M&As conditional upon the protection of local jobs, prohibition of employment termination due to M&As and imposition of redundancy payments.

A few respondents reported that their country has proposed changes to its regulations to protect key sectors of the economy from foreign investment and strengthen penalties for investors who fail to honour their commitments.

There appear to have been fewer instances of any key changes in regulations governing cross-border M&As to counter the loss of employment or to enhance job opportunities due to the global integration of technology.

4. *Digitalisation of regulatory procedures and consequent effect on the workforce*

Some respondents, including Finland, India, Indonesia and the UK, admitted that there has been significant progression towards digital means for filing applications and obtaining approvals in relation to M&As in their jurisdictions.

No major changes have been made by the regulators towards the digitalisation of regulatory procedures in several countries, including Austria, Azerbaijan, the Bahamas, Bangladesh, Belarus, Bosnia, Canada, Croatia and Denmark.

There is limited information in the responses on the impact of such technological advancements on the workforce employed with regulators, apart from in Finland, where digitalisation has led to a reduction of the workforce and employees have been trained and employed in other areas.

5. *Role of technology in corporate governance*

Several respondents reported that there has been an increased use of technology to reduce regulatory burden and improve the ease of doing business in their jurisdictions, while a few responded that maintaining good corporate governance and technological innovation is being gradually implemented through corporate regulations.

An appreciable number of countries indicated that holding board and general meetings electronically, e-voting, passing circular resolutions via email, e-balloting and reporting to stock exchanges through electronic means are accepted in their jurisdictions. Some countries reported that the display of corporate information on the websites of corporations is being recognised by regulators. However, Albania and the UAE reported that e-voting is not permitted. All these measures have helped to enhance shareholder participation, improved the decision-making process, achieved better transparency, improved enforcement and increased efficiency in the management of companies. Fewer countries responded that technology has not played a significant role in corporate governance in the country.

6. *Procedures for the evaluation of performance and productivity of workers*

The survey demonstrated that there is no uniform procedure for performance and productivity control, and such procedures vary largely from enterprise to enterprise in almost all jurisdictions.

Some countries, such as Ghana, Hungary, India, Kenya, Sri Lanka, Turkey, Ukraine and the UK, reported that technology is used for monitoring attendance, output and punctuality through ERP systems, biometrics, surveillance systems or other digital means.

A computerised balanced scorecard and other technologies are used to evaluate efficiency in Ghana. The use of technology for performance evaluation was found to be common among most enterprises in Azerbaijan and India. In Austria, technology has shifted the focus on the method of evaluation from input-based to output-based.

In the majority of countries, while employees are required to be fully informed of such internal procedures and policies, these are rarely negotiated with employees. However, the use of technology in monitoring employees requires the prior consent of the works council/employees in some countries, including Austria, France, Germany and Ghana.

7. *Legislative evaluation of performance and productivity of workers*

An overwhelming majority reported that there are presently no regulations concerning the interaction of workers and robots in their jurisdictions.

A few respondents indicated a different trend, where regulations in this regard are being discussed and deliberated and beginning to take legislative shape. These countries include Estonia, where the first report on robotics regulations was released in 2017; France, where international standards have been developed with the aim of helping robot manufacturers and robotic system integrators to achieve the safety objectives set by regulations, in particular to comply with essential health and safety requirements; and South Korea, where a bill, the Robot Basic Act, which aims to establish basic ethical rules with which designers, manufacturers and users of robots must comply, was proposed on 19 July 2017 and is being discussed by the relevant committees.

On the other hand, countries such as Japan and India have reported that the use of AI is on the rise and the governments and companies have taken account of the potential effects of human workers being replaced by such technology or robots. While Japanese companies have been at the forefront of using robots and other technology to improve productivity and efficiency, given the cultural ethos of the country and the Japanese government's continued emphasis on full-term employment, along with acute labour shortages in several sectors as a result of declining population, the use of technology has been seen as a gap filler and has not drastically affected the workforce in companies operating in Japan. Hence, there are no specific regulations concerning the interaction of workers and robots.

8. *Regulations on the impact of technology on OSH*

Only 25 per cent of the countries indicated that there are any regulations concerning the impact of technology on OSH in their jurisdictions.

In Austria, the Bahamas, Croatia, the Netherlands, Peru and Vietnam, the regulations mandate that if new technology is introduced in the workplace, adequate training and instructions are required to be provided to workers.

China and Colombia reported that employers are required to conduct surveys to analyse the health risks to which they are subjected as a result of the use of new technology.

Belgium, Ireland and Latvia have specific requirements under law to use work equipment and display screens, such as mandatory eye/health checks and employer regulations for the use of displays.

Fewer countries have adequate regulations to ensure OSH measures to protect workers from the risks of advanced technology.

9. *Changes in shareholder relationships*

The majority of countries reported that technology has had a significant impact on shareholder relationships and improved shareholder participation, including the attendance of foreign shareholders and minority shareholders by enabling them to attend meetings remotely through videoconferencing or teleconferencing.

Fewer respondents, such as Albania, Bangladesh, Mexico and Uruguay, reported that there has not been any significant change in shareholder relationships due to technology.

Technology has made holding meetings easier, reduced time and costs incurred and improved overall efficiency in the management of companies. Additionally, technology has increased transparency through the availability of company information and easy access through the company's online database, resulting in active participation of shareholders in the affairs of the company in various jurisdictions.

10. Influence of technology on flexibility of compliance

Nearly 90 per cent of the countries reported that the convening of board or shareholders meetings through videoconferencing and other digital means is an accepted practice in most cases, and there are generally no restrictions on the agenda to be adopted in such meetings.

Croatia, India, the Philippines and Ukraine reported that convening meetings through digital means (eg, videoconferencing and teleconferencing) is permitted only for board meetings, and Mexico and Slovakia indicated that meetings through digital means are not permitted under any circumstances.

Only certain types of corporate entities in Austria, France, Indonesia and Spain are allowed to hold meetings electronically, and in Hungary and Poland, such meetings are permitted only if authorised under the articles of association of the entity. Some countries, including India, reported that the regulators have prescribed various safeguards, such as the recording of proceedings to avoid any misuse of electronic facilities for holding board meetings.

11. Challenges in corporate law affecting the workforce

The major challenges faced in the area of corporate law that significantly affect the workforce include:

- i. the risk of AI replacing the workforce in the Netherlands;
- ii. outsourcing of jobs and M&A transactions resulting in a reduction of employment in the Philippines;
- iii. poor employee representations on the board of companies in Croatia;
- iv. non-negotiable employment agreements in Hungary and flexibility of working time of employees and layoff procedures in France;
- v. lack of flexibility of existing labour rules and new limitations on the ability to subcontract and outsource personnel in Mexico;
- vi. lack of enforcement of skill development legislation in Myanmar; and
- vii. unemployment due to automation, growth of self-employment due to self-sufficient economy and the incursion of technology in the lives of employees in Uruguay.

II. Corporate law and employment relationships

1. *Regulations governing employment structures*

The survey indicated that the majority of the countries' enterprises are free to choose their own employment structure. The fixed-term employment agreement on a full-time or part-time basis appeared to be a relatively common employment structure.

While there is labour legislation to protect and regulate employment relationships, employment structures are rarely regulated and vary depending on the nature of the business.

Most of the respondents reported that the externalisation of the production process is common in their jurisdictions with a few exceptions, such as Azerbaijan and Zimbabwe.

With the launch of Uber, Airbnb and other online services, the gig economy is emerging as a popular employment structure and is well received in Argentina, Australia, Canada, Colombia and Japan among others. However, this trend is yet to gain popularity in countries such as Albania, Germany, Ghana and Hungary.

2. *Recognition and regulation of the gig economy*

Most jurisdictions do not have any specific legislation that governs workers in the gig economy.

Five countries reported that gig workers are recognised and regulated in their jurisdictions. These regulations, inter alia, include the Telework Regulation introduced in Colombia in 2008, the Employment Act 2007 of Kenya, the Smart Regulation framework introduced in Slovakia in 2016 and the Labour Code of Vietnam 2012.

Most countries reported that workers in the gig economy are classified as self-employed. Colombia, Ghana, Nigeria, Turkey and Zimbabwe categorise them as employees/workers, and in Singapore, this classification depends wholly on working arrangements, that is, under a 'contract for service', they are categorised as self-employed, and under a 'contract of service', they are classified as employees/workers.

3. *Protection of the rights of gig workers*

A slim majority of the countries, including Azerbaijan, Croatia, Hungary and Kenya, reported that the responsibility of ensuring OSH measures for gig workers is dependent on whether the workers are considered as employees or self-employed. If they are treated as workers or employees, the employer is responsible for their social security, ensuring OSH measures and proper working conditions. If they are treated as self-employed, individuals are responsible for their social security, OSH and ensuring proper working conditions.

Hong Kong SAR, Malaysia and Nigeria indicated that an employer in each of their jurisdictions is required to ensure reasonable working conditions and OSH measures, irrespective of whether gig workers are categorised as employees/workers or self-employed/independent contractors.

India and Sri Lanka reported that the terms of employment contracts solely govern such responsibilities, whereas in Zimbabwe, this responsibility was vested in the National Social Security Authority and the employer.

4. *Freedom of association and collective bargaining rights of workers in the gig economy*

Based on the views expressed in the survey, this trend appears to vary largely among countries.

- i. In countries including Canada, Croatia, Ghana, Hungary, Japan, Kenya, Lithuania, the Philippines, Slovenia and Sri Lanka, freedom of association and collective bargaining rights are provided only to 'workers' and not the 'self-employed'. Therefore, workers in the gig economy are not entitled to these rights in these jurisdictions.
- ii. In Azerbaijan, Colombia, Finland, Hong Kong SAR, Pakistan, Singapore, South Korea and Zimbabwe, self-employed individuals such as gig workers are allowed to form associations and exercise collective bargaining rights through these associations.
- iii. Further, it has been reported that in Belgium, France, Germany, Spain and Ukraine, gig workers enjoy freedom of association, but are not entitled to any collective bargaining rights.

5. *Remuneration of gig workers*

Considering that the gig economy is a fairly recent phenomenon, the statistics are largely unclear. Some of the countries, including Belarus, China, Estonia, Malta, the Netherlands and Ukraine, demonstrated an increase in the income of gig workers due to growing popularity.

In Croatia, remuneration is increasing due to a boost in the gig economy, and this is recognised by the authorities which are taking initiatives to adopt legislation changing the conditions and requirements for licensing and operation in this sector.

Azerbaijan, Kenya and Vietnam reported that the government has fixed the minimum statutory wages payable to all types of employees, including gig workers, to ensure fair remuneration to all workers. The Colombian Teleworker Law (recognised by Law 1221 of 2008) and the Turkish labour laws ensure equal pay for equal work for all types of workers.

Slovenia indicated that, in the recent years, there have been civil initiatives with proposals for a legislative framework for gig workers to provide a greater balance between their flexibility and work safety of gig workers.

France and Zimbabwe showed a decreasing trend in the income of gig workers. In Zimbabwe this is largely due to high supply and low demand and lack of a legislative framework. The French government is taking initiatives to protect gig workers, particularly those in the transportation sector, such as Uber and SnappCar.

6. *Emerging trends in labour platforms influenced by technology*

Australia, Hong Kong SAR and Indonesia, indicated that there has been a switch to automation, which has decreased workload, but at the same time increased the susceptibility of the elimination of employee positions. This is detrimental to the interests of employees because it leads to the reduction of the workforce, but the respondents showed that the authorities are focused on the impact of technological development on manual labour roles.

A similar trend was reported by the Bahamas, where the promotion of e-banking has led to a reduction in employment in the domestic financial industry. The increasing trend of e-banking

is recognised by the authorities, but no legislation has been enacted in this regard. The country further reported that recent amendments to its Employment Act 2001 in relation to redundancy offers some protection to employees.

Other trends reported by the surveyed countries include:

- i. **Online platforms:** Online platforms, such as social media, online channels and blogs, have become increasingly popular and have led to new opportunities for income generation in various countries.
- ii. **Working from home:** Canada, France, Japan, Nigeria and the Philippines, among others, reported benefits from technological advancements that have enabled employees to work from home. India has also recognised the importance of working from home, especially in the case of women employees who wish to work from home after their statutory maternity leave. Telework has proven to be a flexible way of working and enables employees to use virtual networks, shared platforms and verbally communicative robots to work from home or locations outside the employer's office or be virtually present in the office. Working from home has been beneficial to workers by allowing flexible work hours, saving time, improving productivity and maintaining work–life balance.
- iii. **AI:** Due to the technological development in AI, robots and teleworking, the demand from the traditional employment market has decreased in countries such as South Korea and Spain. A new employment market for workers in information and communications technology has been created in South Korea. These technological advancements have been advantageous and disadvantageous, with the creation of flexible working hours and reduction of workload, but with the loss of jobs or lowering of compensation for workers who fail to acquire new skills.
- iv. **Business process outsourcing (BPO):** Due to the advancement of technology, countries such as India and Mauritius are leading players in the BPO sector. The Mauritian government has been investing in improved infrastructure and intelligence and developing new value added and high-end activities to craft an enabling ecosystem for BPO companies to develop with technology and to create more job opportunities. The Mauritian government has made creating employment and promoting sustainable development and innovation a key focus.

7. *Effects of technological advancements on subcontracting*

Twenty four countries demonstrated an inclination in favour of subcontracting as a result of technological advancements. The effects of technological developments on subcontracting in the surveyed countries have been varied:

- i. **Albania:** Subcontracting has proven to be beneficial to its workers in specific sectors, such as technology-related services.
- ii. **Croatia:** The country demonstrated a shift in preference towards subcontracting among employers, and the trend has created more work for people employed by subcontracting companies or self-employed subcontractors. However, there is no specific regulation concerning subcontracting in Croatia.

- iii. **Belgium:** Technological advances have created more flexibility in subcontracting due to technological advances, and a shift towards subcontracting is evident in the country. Technological advances appear to have been advantageous and disadvantageous to subcontracted workers as they give more flexibility but increase uncertainty and affect job security. The Belgian authorities have recognised the rise in subcontracting and the Employment Relations Act 2006 prescribes the general criteria for the characterisation of employment relationships.
- iv. **Finland:** Subcontracting and the utilisation of agency-hired labour has become increasingly preferred in Finland. Due to mandatory background checks on subcontractors and technological advances, subcontractors are likely to be better incentivised to ensure compliance with relevant employment legislation. The Finnish Act on Contractor's Obligations and Liability when Work is Contracted Out was enacted in 2007 (amended from time to time) with an aim to prevent the informal or grey economy and other undesirable features of increased subcontracting.
- v. **Ghana:** Subcontracting is presently not very beneficial to workers in terms of remuneration and security of tenure.
- vi. **Colombia:** The country has witnessed cases in which subcontracting schemes have been misused to the detriment of employees' legal and constitutional rights. The Colombian labour authorities, however, have been very active in terms of investigating and penalising organisations for illegal subcontracting practices.

8. *Emergence of new forms of cooperatives*

Very few jurisdictions have witnessed the emergence of any new forms of cooperatives or any other form of crowd work, unlike South Korea, where cooperatives are set up to further the independence of immigrant women.

The replies suggest that the introduction of a new legislative framework is required to prevent the misclassification of new forms of work and grant all dependent workers the right to collective bargaining and freedom of association.

Malaysia indicated that entities in the country are exploring the avenue of crowd work aimed at securing jobs for freelancers and non-conventional roles. The Netherlands also reported that crowd work is growing. There are no regulations that have been changed to prevent the misclassification of new forms of work, given that they are still largely unexplored.

Russia reported that cooperatives as a form of crowd work are not recognised by Russian law and there are no special legal regulations in this regard. Considering that cooperatives are not recognised in Russia, any amendments to the situation allowing them the right to collective bargaining were reported to be very unlikely. A similar case was noted in Australia, which demonstrated that a significant change in regulation will be required to grant all workers the right to collective bargaining and freedom of association. Zimbabwe reported that no new forms of crowd work have emerged, but freedom of association is constitutionally protected.

9. Recent trends in collective bargaining

Estonia and Turkey reported a declining trend in collective bargaining in enterprises. In Mauritius, the culture of negotiation and collective bargaining is not yet developed, and Hong Kong SAR reported that collective bargaining agreements are not prevalent.

Based on the data provided, this table shows the nature and extent of collective bargaining agreements entered into by enterprises in various jurisdictions:

COUNTRY	PERIOD	NUMBER OF COLLECTIVE BARGAINING AGREEMENTS	MAIN SUBJECTS OF COLLECTIVE BARGAINING AGREEMENTS
Australia	2010–2018	154,536	These agreements largely cover terms affecting employment relations
Colombia	2000–2015	6,273	–
Croatia	Since 2010	172	Provisions on the conclusion and termination of employment agreements, types of employment agreements, working hours
France	2010–2015	717	Employment, vocational training, working conditions and social guarantees
Latvia	Since 2010	1,000	Remuneration and labour protection, improving the qualification of the employees, work procedures
Netherlands	Since 2010	300	Secondary employment conditions, such as rest hours, rosters, payment of remuneration during illness
Russia	2010–2017	130,000	Remuneration, employment, retraining, issues concerning the granting of leave and the duration, environmental safety and protection of employees' health at work, guarantees and privileges for employees who combine their work with studies
Singapore	2010–2017	3,000	Salary and conditions of employment

Slovenia	Since 2010	10	Employment contracts, internships, working hours, breaks and rest periods, overtime, night shifts, holiday, leave, freedom of association and collective bargaining rights, minimal payments and other reimbursements, continuing education
Spain	2012–2015	7,193	Salary levels by professional categories, contractual breaches that could be sanctioned (disciplinary regime) and mobility rules or working-day provisions

10. *Validity of transnational company agreements*

Based on the responses, it can be inferred that several countries, including Azerbaijan, Estonia, Hong Kong, Mauritius, the Netherlands, Philippines, Russia, Singapore, South Korea, Uruguay and Zimbabwe, recognise transnational company agreements provided that such agreements are in compliance with their respective labour legislation.

In Austria, transnational company agreements have been used as a new instrument of cooperation between enterprises in Europe since 2000, and in Belgium, such agreements are recognised, provided they are signed by one or more unions.

Countries including Argentina, Australia, Chile, China, Denmark and Finland reported that transnational company agreements are not recognised and local labour laws will prevail in all circumstances.

11. *Material changes in corporate law affecting the rights of workers during business restructuring*

Changes in countries' corporate laws affecting the rights of workers during business reorganisations included:

- i. **Albania:** To ensure transparency during reorganisation, the law mandates the publishing of all relevant commercial agreements with the Albanian commercial registry and on the company's website before any implementation. Further, the legal representatives of companies are obligated to inform works councils about issues regarding restructuring and the employer is required to inform and consult the representative of the employees or unions before any reorganisation of the company or taking decisions introducing substantial changes in employment.
- ii. **Belgium:** The rights and obligations of employees at the time of M&As are protected under law and employees cannot be retrenched due to reorganisation.

- iii. Croatia: Recent changes in labour laws have introduced employee participation rights and workers' representation on the boards of companies.
- iv. Germany: Under German law, although the works council does not have a genuine codetermination right regarding the business decision on the purchase or sale of a company, the employer has an obligation to inform the economic committee set up in the company about economic matters.
- v. India and Indonesia: The law mandates that workers' consent is required for transfer during restructuring and workers who do not consent to transfer are entitled to a severance package and compensation from the employer.
- vi. Ireland: Irish law protects workers during business reorganisations and M&As, and employers who refuse to engage in collective bargaining can be made subject to the jurisdiction of the labour court.
- vii. Netherlands: According to Dutch corporate laws, enterprises are permitted to dismiss employees in the case of reorganisation only after obtaining approval from government authorities. Further, as per the Social and Economic Council's Merger Code 2015, an enterprise that has more than 50 employees is, in principle, obligated to notify the Social and Economic Council and unions of an intended merger.

Based on the responses to the survey, it is demonstrated that in Australia, Croatia, Slovenia, Uruguay and Zimbabwe, as a result of reorganisation, employees automatically transfer to the new employer. Further, in most countries, including Japan, Kenya, the Netherlands, Sri Lanka, South Korea and Spain, in a share deal, there is no transfer of employment as there is no change in employer.

12. *Challenges faced around employment law*

The main challenges in employment law were identified as:

- i. Australia, Bangladesh, Belgium, Canada, Denmark, Estonia, Indonesia, the Netherlands, Poland, Russia, Singapore, Slovenia and Ukraine reported a growing need for regulation, development and protection of rights of gig workers;
- ii. gender inequality and wage gaps between men and women were reported by the Bahamas, Bosnia, Germany, Ireland and the UK, among others;
- iii. the determination of appropriate minimum wage levels in comparison with an increased cost of living was reported by the Bahamas, Bangladesh, Hong Kong SAR and Hungary;
- iv. an improvement in practices of long hours and flexibility in working hours were raised by Japan, South Korea, Sri Lanka and Uruguay;
- v. poor training and capacity-building as enterprises have failed to provide adequate skill development training to employees was reported by Chile and France, and lack of skilled labour was raised as a major concern by Turkey and Mauritius, among others;

- vi. a protracted dispute resolution process that delays justice for workers and employees was raised as a primary concern by countries including India, Singapore, Zimbabwe and Ghana; and
- vii. habitual non-compliance by employers with labour standards, such as hours of work, rest days, leave and wages, in India, Peru and the Philippines; lack of understanding and appreciation of the provisions of labour laws in Ghana; ineffective and outdated laws in Kenya and Nigeria; conservative, formalistic and mostly paper-orientated labour laws in Poland; and absurd legal provisions on compensation for loss of employment in the event of any termination of employment in Zimbabwe were also raised as key challenges in employment law.

III. Corporate law and diversity

1. *Doctrine of equal pay for equal work*

Most countries responded in the affirmative on the existence of law providing for equal pay for equal work in their jurisdictions. Equal pay for equal work is ensured in various jurisdictions through specific regulations, such as the Labour Code, Law on Protection from Discrimination and Law on Gender Equality in Albania; the Employment Act 2001 in the Bahamas; the Labour Code in Chile of 2002; the Equal Treatment Act in Denmark; the Gender Equality Act 2004 in Estonia; the Finnish Non-Discrimination Act 2014 and Finnish Act on Equality between Women and Men 1986; and Germany's Pay Transparency Act 2017.

2. *Influence of automation on equality in wages*

Limited information is available on the implementation of 'equal pay for equal work' against automation. In most cases, there are no special provisions or regulations governing it. The Philippines has reported that automation should not affect equality in payment in the country, and in Mauritius there are remuneration orders granting minimum remuneration in different industries that have to be adhered to, failing which the employee is entitled to file a complaint before the Equal Opportunities Commission. Belarusian legislation has implemented the piece-plus-bonus wage system, which adequately assesses the value of work done by the worker with the use of automated processes, and calculates fair and equal pay to fully comply with the principle of equal pay for work of equal value in the circumstances of intensive automation and mechanisation of work.

3. *Equality among migrants and local workers*

Chile, Japan, Latvia, Lithuania and the Netherlands reported that there can be no discrimination on the basis of nationality. Hungary, Russia and Slovenia indicated that there is a differentiation in wages to migrants and citizens in these jurisdictions. Azerbaijan pays higher wages to migrant workers as they are found to be more efficient than local workers.

4. *Equal treatment of outsourced workers*

While in most countries there are no specific regulations governing the rights of outsourced workers, in Austria, Azerbaijan and Croatia, no differentiation is made on the basis of direct employees and outsourced workers. The Philippines reported that there are differential wages for direct employees and outsourced employees, in Japan no protection of equal pay is provided to outsourced workers and in Chile and Germany there are no legal provisions to ensure equal pay for equal work to outsourced workers.

It is evident that there is discrimination in payment against outsourced workers and migrant workers in some jurisdictions.

5. *Gender equality and disclosure of wage gaps*

Argentina, Australia, Austria, France, Ghana, Mauritius, Mexico, Slovenia, South Korea and Turkey reported that the number of women in managerial positions has increased, based on data. Countries such as Chile, Croatia, Hungary and Malta recorded very limited growth of women in managerial positions. While in India, Japan, Kenya and Malaysia, the numbers are presently not very high, there appears to be a gradual rise in these jurisdictions.

According to the Workplace Gender Equality Act 2012, in Australia, employers are required to submit timely reports to the Workplace Gender Equality Agency, prepared against a set of standardised gender equality indicators, including gender pay and management positions held by women.

Measures to improve gender equality, such as maternity leave, childcare leave, flexible working hours, parental leave and working from home, are provided by the majority of countries.

An overwhelming majority of countries reported that there is no requirement for corporates to disclose wage gaps as a matter of practice, but the Netherlands indicated that a legislative proposal for promoting equal payment that mandates disclosing pay gaps was tabled. Fewer countries, including Austria, Belarus, Belgium, Finland, Germany, Hungary and Lithuania, mandate the publication of remuneration reports to ascertain gender pay gaps. In Chile it is still difficult for women to hold top managerial positions in the country, but there is a policy that mandates equal pay to men and women in the same position.

IV. Corporate law and rights

1. *Legislative mandate for corporate transparency*

Legislative mandates enacted to ensure corporate transparency were reported in the following countries:

- i. Albania: Company information is disclosed on the company website.
- ii. Argentina: Corporate transparency procedures, including anti-corruption compliance programmes, are mandatory for corporations that participate in government procurement processes.
- iii. Australia: All public and large proprietary companies must have a whistleblower policy consistent with the proposed new requirements, according to the draft legislation, from 2019 onwards.
- iv. Azerbaijan: Joint-stock companies are mandated to disclose the procedures of a transaction that is of significant importance.
- v. Bahamas: The country's securities law mandates the disclosure of all related party transactions.
- vi. China: Information on remuneration is disclosed to shareholders by companies and there is a requirement to inform the public at large for listed companies.

- vii. Denmark: Annual reports of limited liability partnerships are submitted to the business authorities to make them public, and price-sensitive information is disclosed to investors by listed companies.
- viii. Germany: Companies are required to reflect the requirements set out by the statutory law in its by-laws.
- ix. India: Company information is disclosed on the company website, information on remuneration is disclosed to shareholders by companies and there is a requirement to inform the public at large for listed companies.
- x. Ireland: Companies are required to adhere to transparency norms.
- xi. UK: Companies are required to publish on their websites any information that is useful for investors, such as who owns them, periodic financial reports and majority holding of voting rights.

Austria and Belgium reported that their local laws neither mandate the disclosure of company information nor prescribe procedures with regard to corporate transparency.

2. *Regulatory framework against gender equality, discrimination, violence, sexual harassment and bullying*

Nearly half of the countries, including Albania, Canada, China, Croatia, Denmark, Finland, Germany, Ghana, India, Latvia and Malaysia, reported that their legislature mandates enterprises to provide protection against any form of discrimination, violence, sexual harassment and bullying. The law requires company policies to implement regulations against discrimination and set up an equal opportunity policy to promote anti-discrimination.

The Australian Corporations Act 2001 enumerates corporate governance principles that prohibit discrimination. Denmark has mandated the formation of a board for equal treatment that must conduct workplace assessments every third year. Finland reported that it has specific anti-discrimination laws that ensure equal pay for equal work. Additionally, the Indian Equal Remuneration Act 1976 and the Malaysian Employment Act 1955 mandate non-discrimination on the basis of gender and ensure equality in the payment of remuneration to men and women. The Act on Securing Equal Opportunity and Treatment between Men and Women in Employment of Japan prohibits any form of discrimination and obliges employers to take measures to prevent sexual harassment against employees (men and women) in the workplace.

China, Mexico, Myanmar, the Netherlands, Nigeria, Peru, the Philippines, Poland, Russia, Singapore and Slovakia do not have legislation to protect their workers against any form of discrimination. In most of these countries, it is left to companies to apply rules with respect to any forms of discrimination. Fewer countries, like Singapore and Australia, have promulgated guidelines in their corporate governance policies to protect workers from discrimination. The Corporate Governance Principles and Recommendations of the Australian Securities Exchange's Corporate Governance Council provide that each listed entity should have and disclose a diversity policy that includes requirements for the board to set measurable objectives for achieving gender diversity and annually assess progress in achieving those objectives.

It was reported that under French law, the employer can be held liable if it does not have a policy against harassment and discrimination. Additionally, companies are encouraged to set up information actions and give appropriate instructions to workers to raise their awareness and plan prevention by including an alert procedure in the company's internal regulations.

3. *Penalties and proceedings for misconduct of workers*

In most countries, procedures for reporting, investigating and imposing penalties in cases of misconduct are regulated by the internal policies of the company and typically include reporting and encouraging affected parties to file complaints, investigation, setting up disciplinary committees and disciplinary proceedings. In most jurisdictions, companies themselves determine the procedure and punishment to be imposed. The punishment may scale from a mere warning to dismissal from employment, depending on the gravity of the misconduct.

In the Philippines, in situations in which the offence does not stop even after adequate warning, the employer will be justified in terminating employment. Further, its Anti-Sexual Harassment Act of 1995 provides for the procedure in the case of sexual harassment. In Russia, the employer has the right to investigate violations and impose disciplinary punishment on employees who breach provisions of company policies.

Bangladesh, Belarus, Finland, India, Kenya and Latvia provide fixed procedures for redressal under labour laws and rules. They also provide punishment and provisions for the dismissal of employees. Employees are entitled to compensation if there has been any discrimination.

Malta, Peru and Russia have provisions that enable internal workplace regulations under which employees can report complaints and which grant the employer the right to investigate and impose disciplinary punishments. Further, Turkey has established sexual harassment hotlines and whistleblower policies for the safety of women in the workplace.

The Minister of Labor, Employment and Social Security in Myanmar is responsible for issuing a template that lists the method of dismissal for grave misconduct by employees, and Slovakia also prescribes penalties under its labour laws.

In Croatia, each company with more than 20 employees has a duty to appoint a person authorised to handle discrimination and harassment complaints. Employee behaviour that is qualified as harassment is a violation of the employment agreement and may be sanctioned in accordance with the Labour Code and the employer's internal rules, including termination. France reported that, since 1 January 2018, all companies with at least 50 employees are required to set up a special procedure to collect alerts from whistleblowers.

4. *Copyright and data protection*

The majority of the surveyed countries have legislation for the protection of copyright and data privacy. A few countries, such as Australia, also have state-based legislation with respect to copyright and privacy laws. Azerbaijan and Pakistan have administrative and criminal sanctions for the violation of copyright. Some countries reported that they are in the process of strengthening existing laws/implementing new laws to ensure data privacy. Fewer countries,

such as Belgium, Estonia and Peru, reported that individual contracts or company policies govern data privacy and copyright protection.

In some countries, including France and Estonia, the owner of the copyright is recognised as its author. The existence of an employment contract or an order contract does not imply any assignment of implicit rights to the employer or sponsor. The employer can only have rights in limited situations in these countries.

Colombia does not follow a policy concerning copyright either because of a mandate under law or by practice. However, it has a very strict policy for data protection and privacy. Colombian data protection laws foresee penalties, including fines up to approximately \$546,869, the suspension of operations regarding the processing of personal data and the permanent shutdown of operations regarding data processing.

The survey also revealed a trend that, unless otherwise agreed, copyright over any work prepared by employees during the course of employment belongs to the employer. Based on the responses by European countries, it is noted that the recently introduced General Data Protection Regulation (GDPR) in the EU provide for very high levels of monitoring by national data protection authorities and impose hefty penalties for violations. Therefore, European companies have started substantial projects to ensure compliance with GDPR.

II. SECOND REPORT: CORPORATE SOCIAL RESPONSIBILITY LAW

Prepared by Martijn Scheltema (Pels Rijcken & Droogleever Fortuijn and Erasmus University Rotterdam, the Netherlands) and Claire Huijts (Pels Rijcken & Droogleever Fortuijn, the Netherlands)

I. Introduction

1. The ILO–IBA Special Project Working Group was asked to provide input on the future of work from a CSR/business human rights perspective.³
2. In the following, we elaborate on the future of the workforce from this perspective in connection with outsourcing, global supply chains and networked organisations, the role of workers in sustainability (management), diversity, changing working relationships and the changes brought by AI.

II. Outsourcing, supply chains and networked organisations

1. It is questionable whether technological developments will diminish the need for outsourcing through global supply chains. These technologies require (substantive) investment, which thus far has not been made in the global north. Because of the low cost of production in

³ The analysis of the committee is backed by (solicited) input from its constituency on these themes. The committee has received 19 responses. The respondents of the submitted surveys work in Australia (4), Brazil (2), Germany (1), Japan (2), Russia (1), Sweden (1), Switzerland (4), the UK (1) and the US (3). We did not receive input from developing countries, which should be kept in mind when reading this input.

these supply chains, it is not probable that investment will be made in the near future as long as the cost of production through global outsourcing remains low. The answer to whether globalisation will continue at the present pace is not clear as some expect a partial reversal of globalisation, with production moving back to developed countries.

2. On the basis of these issues, we expect supply chains to remain, including their negative effects in relation to the exploitation of workers. This may eventually change if new technology is introduced in the producing countries. Nevertheless, we consider it questionable whether the required investment would not increase the cost of production to the extent that it would make outsourcing less attractive. A development that may worsen the negative externalities of supply chains is the introduction of (internet) technology that connects Western buyers with smaller factories (or even individuals) in producing countries and enables Western buyers to source from even more producers. The input we received supports our expectation that the number of suppliers will not decrease. This may cause supply chains based on procurement with bigger factories to become even less transparent as the number of production facilities increases considerably. On the other hand, we expect to see the delayering of supply chains by larger Western companies to get a better handle on supply chain issues, such as those regarding workers' exploitation. Delayering means the number of actors in the supply chain is reduced, enabling Western buyers to assume more control over their supply chains.

However, the foregoing may depend on the type of work outsourced to developing countries. For example, many back office and call centre activities are deployed in developing countries, such as India. If these functions are replaced by AI or IT solutions, this may have a significant impact on the outsourcing of this type of work.

3. The (amount of) changes in the workforce and the (significance of the) impact of technology may be sector-specific. When regarding a potential shift from traditional companies to networked organisations, the impact may be of bigger significance in service-based sectors and of smaller significance in sectors that are highly dependent on a specific location or on capital-intensive infrastructure. A similar trend may be spotted regarding the sectors that are expected to outsource more of their operations in the future, where the service sector may be most at risk. The aforementioned developments may also coincide with the use of more freelancers in the future.
4. To date, technology is capable of performing most of the functions requiring fewer skills and education. However, the use of technology is not cost-effective at present. Thus, globalisation secures jobs for many workers in producing countries. We do not expect AI technologies to change this, especially because these technologies do not affect these types of jobs. The impact of AI will be salient for jobs requiring higher levels of education, including at the academic level. Thus, highly skilled jobs, for example, in medicine, the legal profession, accountancy, stock trading and engineering, may predominantly be at risk. In the same vein, jobs that require human contact and understanding of emotions might also be at risk (eg, in call centres providing medical advice). For example, there are AI applications in existence that are able to advise callers on medical issues, such as asthma. The callers often do not realise that they are being served by a computer. These developments raise many questions,

such as whether callers have the right to know that they are speaking to a computer, but such questions go beyond the scope of this contribution.

5. Obviously, privacy implications are linked to the digitalisation of the workforce. It will be a challenging and complicated but necessary process to find the right balance between the employee's right to privacy and the employer's options regarding hiring and monitoring processes, as well as the possibility to take disciplinary action based on the private, sensitive information gathered. For example, employers may implement new AI profiling technologies to evaluate whether they should hire a new employee, whether it is likely an employee will commit fraud or engage in other bad practices and which type of function may be most appropriate for an employee. It is questionable when this type of profiling will be allowed and under what circumstances. We do expect developments in this area in the near future. Furthermore, it has to be seen which consequences an employer may attach to such profiling. For example, may an employee be given another job or even be fired when AI, with a sufficient likelihood, predicts fraud that has not actually taken place? Who is allowed to assess the information provided by AI, and should employee consent be required for every individual analysis or could consent given at the outset be sufficient?

III. Labour issues in global supply chains

1. With the rise of globalisation and access to information at any time or place, the question arises of whether workers' issues in supply chains will be addressed more often and will therefore become potentially more damaging to enterprises. We expect these developments to occur in the future and that these issues will therefore receive more public scrutiny. The input we received supports this expectation.
2. We expect companies to increasingly safeguard worker safety and other workers' rights throughout global supply chains. It is not easy to predict the avenues that will be pursued to implement these safeguards. We expect contractual mechanisms and legislation to become more important, but the method may also be dependent on public perception or a combination of the aforementioned factors.
3. When reducing workers' exploitation in supply chains, a risk-orientated approach focusing on the most salient issues should be implemented.⁴ We expect new technologies, such as blockchain and AI, to enhance transparency in supply chains and assist in acquiring more comprehensive control over supply chains, in addition to the existing auditing and certification practices concerning the worst labour practices in producing countries. The input we received from our respondents did support our notion that IT solutions and AI will become more important in the control and management of supply chains. For example, blockchain has (more or less successfully) been used to enable traceability to the source in supply chains and to track and trace all participants and products. Blockchain makes transactions transparent and irrefutable and gives role-based access to all participants in the supply chain. Several agricultural supply chains, such as cocoa, palm oil and cotton, pose a

4 This should be compliant with human rights due diligence as required by Guiding Principle 17 ff of the United Nations Guiding Principles (UNGPs) for Business Human Rights and the Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises ('OECD Guidelines').

specific traceability challenge as they become mingled at mills, where they are transposed into other products. However, blockchain as such is not sufficient because the information flowing into the blockchain may be unreliable.

Thus, the flow of information fed into the blockchain should be monitored. To date, the monitoring of practices regarding workers' rights in supply chains (if any) is conducted by certification, which is far from flawless, for example, because it predominantly focuses on a paper reality and many smaller businesses can simply not afford it. Thus, AI tools will be needed to support monitoring (certification) and may eventually even take over (part of) its function at a lower cost. The AI monitoring tool will be fed relevant data from input from other actors in the supply chain, as well as complaints filed with the complaint mechanism.⁵ Furthermore, smart contracts that include legal contractual requirements (in connection with workers' rights) that have to be met before payment is made could be considered. However, this may raise the cost of production in these countries from the outset and may have an impact on the willingness to source abroad. Trade issues on the global level at present may also have an impact on global supply chains.

4. Beyond this, it is questionable whether developing countries will increase their efforts to enforce stricter labour-related standards. These countries might need an incentive to do so. These incentives may be linked to, for example, general economic development and pressure from stakeholders and/or customers. The current trade issues do not incentivise these developments. Moreover, developing countries may consider introducing labour-related standards for investors in new agreements with developed countries. Investors would have to comply with these standards to be eligible for protection under the agreement. This kind of development may also enhance the implementation of these standards by foreign companies.
5. Increased attention for measures regarding the protection of the rights of workers is expected based on the current initiatives to increase OSH and limit working hours in supply chains. An interesting example of this is the Bangladesh Accord between more than 180 companies in the garment industry and global unions after the Rana Plaza incident.⁶ The accord also shows measures in this area are considered to be obligatory for Western companies and no longer simply 'nice to have'. This is reflected by the fact the accord includes a binding dispute resolution mechanism (arbitration) wherein global unions may litigate against individual companies that do not meet their obligations under the accord.⁷ We expect binding dispute resolution mechanisms to be implemented in more initiatives regarding other workers' rights in the future. The likelihood of this is strengthened by the fact that global unions are becoming increasingly active in this area. These initiatives may also result in an increase in regulatory standards for workers' rights and enhanced enforcement of such standards in developing countries, for example, because these requirements will be set in investment agreements with developed countries.

5 See, eg, Ulula, <http://ulula.com/product> accessed 30 January 2019.

6 See for the 2018 Accord <http://bangladeshaccord.org/wp-content/uploads/2018-Accord-full-text.pdf> accessed 30 January 2019.

7 Such arbitrations have been instituted and thus far resulted in settlements between global unions and companies. See, eg, <https://pca-cpa.org/en/news/pca-press-release-settlement-of-bangladesh-accord-arbitrations> accessed 30 January 2019.

6. Furthermore, we expect an increase of global framework agreements to address these issues. Capacity and relationship building between Western buyers and international and local trade unions seems to be a vital element for improvement in this area. For example, H&M has concluded a global framework agreement with IndustriALL and IF Metall.⁸ This agreement has facilitated conflict resolution between workers and management within H&M's supply chain. The implementation of the agreement has been mainly channelled through the national monitoring committees that consist of representatives from local trade unions and H&M.⁹ In Myanmar, where a month-long strike took place after eight union leaders were fired in October 2015, the agreement was key to getting trade unionists back to work, as well as achieving trade union recognition at the Jiale Fashion factory in Yangon.¹⁰ In Pakistan, the agreement was invoked to bring together IndustriALL Pakistani affiliate the National Trade Union Federation and the local management of the Denim Clothing Company factory for joint negotiations, which resulted in the reinstatement of 88 workers after they had been fired for demanding better working conditions at the factory.¹¹ Moreover, the company continues its collaboration projects with the Swedish International Development Cooperation Agency ('Sida'), the ILO and IF Metall to train management and workers on workplace cooperation and dispute resolution.¹²
7. Although the Bangladesh Accord provides an interesting example of a dispute resolution mechanism, access to effective grievance mechanisms and remedy for workers who are victim of workers' rights violations remains a key challenge. The need to strengthen access to remedy is elucidated in a Dutch report on the duty of care that Dutch companies have in relation to business and human rights.¹³ It highlights that considerable challenges exist with respect to obtaining effective remedies through judicial processes.¹⁴ States vary considerably in the extent to which workers' rights violations may be pursued as violations under domestic law. The conduct of corporate operations through multiple subsidiaries in different states can make it difficult to identify which business entity is responsible for a violation.¹⁵

In addition, the recognition of the separate legal personalities of corporate organisations can insulate parent companies in the developed world from liability for the acts of their subsidiaries in the developing world, where many violations occur.¹⁶ The result is that, too often, the only judicial recourse available to victims is to pursue actions in host states with

8 Shift, *The Human Rights Opportunity, 15 real-life cases of how business is contributing to the Sustainable Development Goals by putting people first* (New York, July 2018), p 18.

9 *Ibid.*

10 *Ibid.*

11 *Ibid.*

12 *Ibid.*

13 Liesbeth Enneking, François Kristen, Kinanya Pijl, Tjalling Waterbolk, Jessy Emaus, Marjosse Hiel, Anne-Jetske Schaap and Ivo Giesen, executive summary to be found at www.wodc.nl/binaries/2531-summary_tcm28-124392.pdf accessed 30 January 2019.

14 See also, e.g. Robert McCorquodale, *Survey of the Provision in the United Kingdom for Access to Remedies for Victims of Human Rights Harms Involving Business Enterprises*, (17 July 2015) pp 14–29.

15 See, in connection with the violation of human rights, Jennifer Zerk, *Corporate Liability for Gross Human Rights Abuses: Toward a Fairer and More Effective System of Domestic Law Remedies* (2013), p 65 www.ohchr.org/documents/issues/business/domesticlawremedies/studydomesticlawremedies.pdf accessed 30 January 2019; Mark B Taylor, Robert C Thompson and Anita Ramasastry, *Overcoming Obstacles to Justice: Improving Access to Judicial Remedies for Business Involvement in Grave Human Rights Abuses* (2010), pp 10–11.

16 See, eg. Gwynne Skinner, 'Rethinking Limited Liability of Parent Corporations for Foreign Subsidiaries' Violations of International Human Rights Law' (2015) 72 *Washington and Lee Law Review* 1769; and Radu Mares, 'Responsibility to Respect: Why the Core Company Should Act When Affiliates Infringe Rights' in Radu Mares (ed), *The UN Guiding Principles on Business and Human Rights – Foundations and Implementation* (Martinus Nijhoff Publishers 2012) pp 169–170. Various theories that attempt to surmount this challenge thus far have encountered significant difficulties. See Skinner, pp 1819–1847.

fragile or even perceived corrupt legal systems.¹⁷ This can be especially problematic when one of the entities involved in a commercial venture is a state-owned company. Thus, we expect companies to improve access to help remedy this area. IT solutions may assist in increasing access to remedy for workers.

8. Another issue in these supply chains, which may also contribute to workers' abuse and exploitation, is the wages, which are often below the living wage in the producing countries. Thus, it is important to raise wages to a living wage. We expect Western buyers to increasingly include this issue in their policies. Current projects have been deployed and reveal the importance of industry-wide collective bargaining between employers and unions of registered and legally enforceable agreements at the national level, such that workers in the garment and textile industry within a country can negotiate their wages under the same conditions, regardless of the factory they work in and the retailers and brands they produce for.¹⁸ Furthermore, workplace dialogue and industrial relations programmes to facilitate constructive and positive communication and negotiation on wages and working conditions between employers and employees at the factory level and employer associations and trade unions at the national level are important.¹⁹ Current programmes support the establishment of democratically elected worker representation at strategic suppliers, which can lead to the establishment of trade unions if the employees so choose. The programmes also include training at the factory level on workplace cooperation, negotiation skills, collective bargaining and labour law. Several trade unions, the ILO and the Swedish development agency Sida are partners in several of these programmes.²⁰ Additionally, the contractual procurement practices of brands and retailers should ensure that payment of the negotiated wage is supported and enabled by the terms of contracts between global buyers.²¹ Beyond this, engagement with the national government is important because the national government should set minimum wages at a sufficient level and consequently enforce these regulations effectively. The regulatory environment should be such that it provides for an adequately resourced regular inspection.

The regulatory environment should also encompass a legal system which ensures that no less than legal minimum wages are paid to workers, since minimum wages play a vital role in underpinning the living wage and must be set in accordance with this level and regularly reviewed in line with the cost of living.²²

Finally, the introduction of a fair wage method that takes into full consideration the workers' skills, experience, performance and responsibilities is required.²³ The Fair Wage Method, developed by the Fair Wage Network and based on 12 dimensions, supports the creation of holistic pay structures that enable and sustain a fair living wage and facilitate improved dialogue between employers and employees at the factory level. Distinct from an

17 Oxford Pro Bono Publico, *Obstacles to Justice and Redress for Victims of Corporate Human Rights Abuse: A Comparative Submission Prepared for Professor John Ruggie*, 3 November 2008, pp 2–4 www.reports-and-materials.org/Oxford-Pro-Bono-Publico-submission-to-Ruggie-3-Nov-08.pdf accessed 30 January 2019.

18 See n 8 above, 24.

19 See n 8 above, 16.

20 *Ibid.*

21 See n 8 above, 24.

22 See n 8 above, 19 and 24.

23 See n 8 above, 17.

audit approach, the Fair Wage Method focuses on partnerships with factories, shops and brands to assess wage practices through worker and management surveys, identify root causes and implement improvements, including within human resources (HR) policies and practices.²⁴

9. More generally, persistent poverty issues in developing and producing countries may be an issue in connection with workers' exploitation. If this will be solved, at least to a certain extent (as the SDGs prescribe), this may also increase the cost of production and thus render production in these countries somewhat less attractive. That said, it may also support the eradication of workers' exploitation.
10. We have observed that collective bargaining may be important to achieve the payment of the living wage. However, the future scale of collective bargaining agreements and collaborative negotiations between unions and management is questionable, even in the developed world. They may increase globally, but this is far from guaranteed. Thus, it is uncertain whether the current level of these negotiations will be maintained in developed countries and what impact this will have on the developments in developing countries. It is not difficult to conceive that a decrease in the developed world would also affect developments in developing countries. However, it may be that collective bargaining as we know it will be replaced by other types of collective approaches. For example, in advertising, we see a decrease of regular advertising in favour of personalised advertising and the use of influencers who promote goods or services to followers of their blogs, vlogs, Twitter or Instagram accounts. Comparable developments may occur in connection with collaborative approaches of workers. The development of web fora or other collaborative IT solutions, including the use of influencers, may (partially) replace collective bargaining. This may also have an influence on labour unions. Will they remain but use other means to achieve their objectives or will they be replaced by new networked structures? These new structures may also incentivise collective bargaining in developing countries as less infrastructure in the form of workers' unions may be required. As companies and governments sometimes resist workers' unions or (collective) bargaining formally or informally, this may be an advantage for networked structures. Obviously, this raises new issues, such as the authority of spokespeople pertaining to represent workers and capacity-building with workers about (the use of) the fora as well as their rights. Furthermore, the regulations in the developed world that allow for collective agreements to be imposed on workers who are not members of the workers' unions involved in the negotiations should be revised. Before commencing the revisions, there should be an assessment of which new ways a networked organisation would be sufficiently represented and representative.

²⁴ *Ibid.*

IV. The role of workers in enterprise management and governance

General perspective

1. It is questionable whether employees/workers will assume an enhanced role in the economic and managerial decisions of a company and whether companies will take steps to facilitate this change. This may differ across countries. For example, German employee representatives already have tools to participate, including employee participation at the supervisory board level and through works councils. That said, management may pay more attention (and invest more resources) to improve social dialogue in all departments of its organisation(s). CSR/environmental, social and governance developments may also provide incentives for management to facilitate these changes. IT tools may help in establishing effective 'dialogue', such as online chatting, meetings, conference calls and video.
2. The foregoing is based on a traditional view of the organisation of companies with a centralised structure, including a board. We may, at least partially, depart from this traditional model and move towards networked organisations. These may have a flatter structure and more dispersed decision-making processes. In such networked structures, new forms of workers' involvement may arise, especially because the divide between workers and management may disappear. Workers may become the management of such structures, their rise being assisted by IT solutions.
3. Regulations on working hours, working from home and dress codes are expected to become more flexible, which may also contribute to the rise of networked organisations. These developments are expected to enhance diversity. It is not easy to predict how these developments will materialise: we may expect more flexibility in existing regulations, less regulation and/or more self-regulation in companies.
4. Furthermore, whistleblower protection may increase in developing countries as well as developed countries, and the scope of misconduct covered by whistleblowing programmes may expand. The expansion is already noticeable in Europe and developed countries and is illustrated by the recent guide on whistleblowers published by the IBA, which includes a review of recent developments around the world.²⁵ However, it may also be conceivable that additional whistleblower protection will not emerge regarding the reporting of misconduct in the labour environment but instead media attention will become more decisive.

Social and environmental sustainability

5. We expect workers and their representatives to become more engaged in shaping companies' social and environmental sustainability. To facilitate such developments, workers and their representatives need to be supported and encouraged by legislation, company policies and international norms. We believe that companies will be motivated by younger workers who want to work with organisations that have a sufficient track record in these areas and may make this an essential factor in their choice for an employer. Beyond that, workers increasingly feel that these issues should be addressed and want to actively contribute. Several companies

²⁵ IBA, Whistleblower Protections: a Guide, April 2018.

contribute to sustainability not only in their operations and supply chains, but also provide pro bono services to charitable organisations and allow their workers who wish so to spend part of their time on such work.

6. Thus, we expect companies to increasingly engage in community, charity and/or societal projects. Collaboration with trade unions on these projects may be conceivable. Companies may also increasingly engage in philanthropic, feel-good initiatives. That said, these should not replace the demand for responsible business conduct (especially human rights due diligence) as established by the Organisation for Economic Co-operation and Development (OECD) Guidelines and UN Guiding Principles.
7. Additionally, we expect companies to increasingly improve collective agreements and management systems to implement policies on human rights, environmental protection and/or workers' rights. A company's policy may improve in line with standards and contractual arrangements and may cover a company's (downstream) supply chain, engaging all workers and employees. However, such developments may necessitate a level playing field between developed and developing countries and the possible use of bilateral investment treaties as a means to achieve the level playing field. As aforementioned, future agreements may include obligations for investors in this area to be eligible for protection.

V. Workforce diversity, globalisation and labour mobility

1. We expect the labour market participation of older/elderly workers to increase. Another increase is expected in the area of investment in workforce diversity by employers, although the current nationalistic trend in politics seems to indicate the opposite movement, to a certain extent.
2. Ongoing globalisation may incentivise employers to train more employees to operate internationally, although these efforts will most likely be limited to higher-level employees in organisations that operate globally. Future IT solutions (also for translation) may enable a meaningful exchange of ideas and views, dialogue and alignment of practices between workers, which may decrease the need for internationally trained employees and especially for international travel and sending employees abroad.
3. It is questionable whether employers will increase their efforts to hire younger workers in countries with high youth unemployment. The current efforts in that area are inconclusive. The role of self-employed persons in the labour market is also difficult to predict. One may expect an increase of self-employed persons, but this may not be the case. Outsourcing may also increase, especially when service providers will be able to perform or produce at lower cost, for example, by using new AI/IT solutions. We expect the number of nonstandard forms of employment and self-employed persons to increase. Thus, an increase in flexible, nonstandard forms of employment and a decrease in the number of traditional open-ended employment contracts seems likely. In other words, we expect the gig economy to become more prevalent over time.

4. An obvious drawback to these developments is that people who have flexible working relationships do not enjoy the same benefits as employees. Although this differs across countries, often being an employee comes with benefits, such as healthcare, paid holidays, pensions and the right to collective bargaining – not to mention a stable income. There are also benefits that society delivers to employees with a traditional form of employment, such as eligibility for a mortgage. The many cases in the US surrounding the question of whether Uber drivers are employees or independent contractors clearly exemplify the importance of defining their working relationship for individual workers.²⁶ If legislation does not adapt to the changing forms of working relationships, workers with less protection will run the risk of exploitation. For example, workers could only be engaged for short periods and specific assignments.
5. The question arises of where the responsibility lies for providing security for and the protection of the rights of employees. Should the state be responsible for caring about its citizens at risk because of the emerging gig platform economy? Should the state provide safeguards through legislation? Another idea would be a state fund, from which the state would provide the necessary benefits for gig workers. Or, of course, the widely discussed basic income.²⁷ The next question would then be how to find the budget for the fund. Would this be covered by taxpayers or by companies who make use of these new forms of employment and if so, how do we deal with foreign companies?
6. Or should we take a look at the role of the employer in these changing times? If the state does not force the employer to change its ways and exercise care towards its flexible workers through legislation or provide a different safeguard unilaterally, should employers step up and do it themselves? Would this be done via internal company policy? Or will employers sign an agreement among themselves? Or will collective bargaining agreements emerge for flexible workers?²⁸ The crucial and tricky point will be to provide workers with more security while maintaining the upsides of the flexible working relationships. This will be a hard balance to strike.
7. We also expect IT systems to adapt and evolve to cater to the new and increasingly prevalent nonstandard working forms. For example, we envision a database of people, which will determine who is free at the requested time and has the capacity to execute the requested gig. In that way, the database will function as a distribution centre for people. This and other intelligent software will increase the possibilities for companies to find workers for such assignments in a timely manner and at low cost. However, should (the organisation behind) the database be considered to be an employer or is it comparable to hiring agencies? It will not be easy to map out these platforms and properly regulate them.

26 Daniel Wiessner, 'US Judge Says Uber Drivers Are Not Company's Employees', *Reuters* (London, 13 April 2018) www.reuters.com/article/us-uber-lawsuit/u-s-judge-says-uber-drivers-are-not-companys-employees-idUSKBN1HJ31I accessed 30 January 2019; Omri Ben-Shahar, 'Are Uber Drivers Employees? The Answer Will Shape The Sharing Economy', *Forbes*, (16 November 2017) www.forbes.com/sites/omribenshahar/2017/11/15/are-uber-drivers-employees-the-answer-will-shape-the-sharing-economy/#60cadf625e55 accessed 30 January 2019; Cyrus Farivar, 'Uber Drivers "Employees" For Unemployment Purposes, NY Labor Board Says', *Ars Technica* (20 July 2018) <https://arstechnica.com/tech-policy/2018/07/uber-drivers-employees-for-unemployment-purposes-ny-labour-board-says> accessed 30 January 2019.

27 Finland is running a government backed basic income scheme as a trial experiment. The government has decided to end the trial next year. See Jon Henley, 'Finland to End Basic Income Trial After Two Years' *The Guardian* (London, 23 April 2018) www.theguardian.com/world/2018/apr/23/finland-to-end-basic-income-trial-after-two-years accessed 30 January 2019.

28 A groundbreaking collective bargaining agreement has been reached in Denmark between trade union 3F and platform hilfr.dk, ensuring a more secure working relationships for these specific gig workers. See <https://blog.hilfr.dk/en/historic-agreement-first-ever-collective-agreement-platform-economy-signed-denmark> accessed 30 January 2019.

VI. AI and the future workplace

1. The rise of AI is paired with a significant number of questions. We expect that AI will be able to perform certain jobs that are currently performed by people. If employees are replaced by machines, what will happen to them? People being replaced by machines is a story dating back to the Industrial Revolution, which drastically altered the workplace the people had once known. While the rise of machines made certain jobs redundant, it also provided an array of different jobs – many of them providing opportunities for the low or medium-skilled, therefore creating the opportunity for people who lost their jobs to find different jobs elsewhere – in this case, factories.
2. Much like the Industrial Revolution, we are facing technological developments that will drastically change the working world. The rise of AI is likely to be accompanied with an adverse impact on a significant number of jobs. This impact will affect all levels, from low-skilled to highly skilled jobs. Essentially, AI will affect all jobs that are centred on routine tasks, including our own legal profession.

That certain legal tasks can be performed as well – or perhaps even better – by AI systems is exemplified by the Case Crunch competition in October 2017.²⁹ The competition consisted of analysing case law and predicting the outcome of the case at hand. Case Crunch, a legal AI system, had an accuracy score of 86.6 per cent, while the lawyers had a meagre score of 62.3 per cent.

3. However, as aforementioned, we expect the impact of AI to be particularly relevant for jobs requiring higher levels of education, including at the academic level. Overall, it is expected that jobs that consist of tasks that complement technological systems, which require an array of skills, such as problem-solving, creativity, critical thinking and social intelligence, will expand in number. These skills are, after all, difficult for systems to learn, meaning that highly skilled workers in these areas are likely to benefit most from the digital revolution at hand.³⁰ Employment growth is likely to emerge in the digital economy, the IT sector and in sectors that use technological systems, as well as sectors where high-level skills are required.³¹ Emerging jobs are also expected in sectors/jobs where awareness and functional adaptability is required, such as hairdressers. Thus, it seems that the mid-range of skill-based roles is likely to be hit the hardest, given that routine tasks (which are now carried out by, eg, machine operators and clerical support workers) can easily be automated.³² However, the same may be true for highly educated groups performing more traditional (highly skilled) tasks.
4. The question is where the responsibility lies for guiding society through the transition to the modern world of work. This will at a minimum require the schooling of children in digital technologies, retraining of workers and the provision of a safety net for those who will prove unable to adapt to the new world of ever-expanding digitalisation and ever-developing

29 Rory Cellan-Jones, 'The Robot Lawyers Are Here – And They're Winning', *BBC* (1 November 2017) www.bbc.com/news/technology-41829534 accessed 30 January 2019. Also see www.case-crunch.com/#challenge accessed 30 January 2019.

30 World Bank Group, *World Development Report 2016: Digital Dividends* (2016), p 100 www.worldbank.org/en/publication/wdr2016 accessed 30 January 2019.

31 See n 30 above, 100 and 130.

32 See n 30 above.

technology. Will the state need to guide society through means of legislation? Or should the state change the education curriculum? Or implement a new benefits system? And what is the role of the employer? Will the employer be able to simply let go of workers because of job redundancy when automating the tasks once performed by people? Or should the employer be bound to facilitate retraining or other transitional measures if it chooses to implement new AI solutions that make workers redundant?

5. Technological advances are (therefore) accompanied with the risk that inequality will be increased when not all are able to benefit from the digital age. This is an effect likely to occur within countries, but also between developing and developed countries. Outsourcing routine tasks to developing countries is very common, providing jobs in different countries and playing an important part in the local economy (although not always while exhibiting responsible business conduct). However, it is routine tasks, such as manufacturing, that are at high risk of automation. The digital age and transition to the modern world of work is therefore accompanied with questions surrounding the outsourcing of low-level jobs to developing countries. Will developing countries be able to reap the benefits of AI? Perhaps, but it is conceivable that AI may be used to streamline production processes (also in these countries) and by performing that function, increase workers' exploitation. Therefore, it is important that companies or others deploying AI to increase efficiency in global supply chains take steps to discontinue (unsustainable) past practices. It would even be better if compliance with workers' rights was a built-in feature of the AI application. At a minimum, AI should make transparent how it has reached its proposal for increased efficiency.
6. While adopting the SDGs, Member States acknowledged that 'the spread of information and communications technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide',³³ and considered information and communications technology to be an important means of implementation for the goals regarding education, gender equality, infrastructure and partnerships. Relevantly, according to *the State of Broadband 2017* report, approximately 48 per cent of individuals globally are online,³⁴ though access varies by country/region. Most people are online in Europe, estimated at 79.6 per cent. The least amount of people are online in Africa, estimated at 21.8 per cent.³⁵ This is a clear example of the divide between developed countries and developing countries, not to mention the difference in quality of the internet available to people in different countries.
7. The level of global individual connectivity is estimated to increase by approximately two per cent each year. At the end of 2018, approximately half of the global population was connected to the internet. This also means that half of the population is not connected – and therefore not able to benefit from technological advances. The divide between the connected and the unconnected will only increase and is likely to worsen the living conditions of the unconnected. As jobs will be replaced by automated systems, people need to adapt to the modern world of work. When not connected to the internet, one cannot learn the

33 UN, *Transforming our world: The 2030 Agenda for Sustainable Development*, A/RES/70/01, para 15 <https://sustainabledevelopment.un.org/content/documents/21252030%20Agenda%20for%20Sustainable%20Development%20web.pdf> accessed 30 January 2019.

34 Broadband Commission for Sustainable Development, *The State of Broadband: Broadband catalyzing sustainable development* (September 2017), p 10.

35 *Ibid* 12.

skills necessary in the digital age. Even when connected, many will not be able to use the information and experience the benefits that the internet provides due to illiteracy.³⁶

8. Certain groups in developing countries are dependent on outsourcing and, given the aforementioned information, will most likely not be able to adapt to the modern world of work, or at least not easily and at the required pace. This will probably affect the activities connected to back office and call centre functions the hardest. How will corporations respond to these facts? Will they choose the homeland when considering that the tasks that are being outsourced can as easily and, more importantly, as cost-efficiently, be done locally with the help of AI systems? This would be in line with the political sentiment in countries such as the US, where the subject of retaining jobs in the country is at high tide and is therefore a likely scenario, albeit with a potentially significant adverse impact on developing countries. If corporations choose to do so, how will they? Will they simply pull the plug? Or will they take responsibility and facilitate a smooth transition? The transition could be facilitated by, for example, implementing a phase-out scheme, outsourcing different jobs that cannot be automated (yet) or providing retraining. If these developments occur and corporations do not feel a responsibility towards their workers in developing countries, it is likely to lead to an even bigger divide between developing and developed countries.
9. This also raises questions on the role of the international community in bridging the divide between developing and developed countries. And how should the responsibility be divided between individual states, the international community and corporations? It may be that the international community should, for example through multistakeholder collaboration with (IT) companies, try to set standards or best practices to address these issues. Otherwise, the digital transformation may create a new and deeper gap between developing countries and the developed world.
10. Whether AI will replace workers is another issue of importance. It is conceivable that AI applications are going to be developed to advise workers on their future employer and type of job, and thus profile employers. AI is likely to make better informed choices than humans and also to conduct greater comparable analysis in connection with profiling by employers in their hiring practices and by future employees to select their employer. This may result in a more homogenous workforce within (departments/functions) companies or other types of employers. This may have advantages in terms of workers being able to collaborate, but may jeopardise diversity within companies, which may be important for the proper functioning of an organisation. Therefore, it will be important to strike a balance between finding workers who fit the required profile and safeguarding diversity.

VII. Conclusion

1. In this report, we looked at the future of work from a business, human rights and CSR perspective. We built on the responses to our surveys and added our vision and questions. This approach led to the following conclusions.

36 See n 30 above.

2. With regard to outsourcing and supply chains, we expect the concept of outsourcing through supply chains to remain in the future. We do not expect a decrease of outsourcing in supply chains, though this may be sector specific. We consider the service sector most at risk. A potential decrease in outsourcing may also be reliant on the introduction of new technology in producing countries, which may make outsourcing more time-efficient but nevertheless less appealing when linked to additional costs for the supplier. We do not expect the number of suppliers to decrease.
3. As supply chains remain important, we expect worker exploitation in supply chains to be addressed more often and to be more damaging to corporations. This is connected with the issue of the living wage, which needs to be solved. Some interesting projects connected to the SDGs have emerged in this area. Furthermore, we expect an increase in OSH and the limitation of working hours in supply chains as a result of increased attention to the necessary measures. We also expect new technologies, such as blockchain and AI, to assist in mapping out supply chains and providing more transparency. Global framework agreements may become more important.
4. We predict a partial shift from the traditional corporate structure to the networked organisation. We consider the potential rise of networked organisations to be of interest for three reasons. First, we believe that networked organisations may increase the challenges in supply chains as this may enable finding a greater number of smaller producers instead of a few larger ones. This may complicate the process of mapping out and gaining control over supply chains. Second, we think that the potential increase in the number of networked organisations may be accompanied by some specific labour-related issues, such as less job and social security and an increase in the number of self-employed persons, perhaps paired with smaller assignments. Third, we find it plausible that networked organisations may provide workers with an opportunity to assume a larger role in management.
5. If IT developments continue towards a platform and IT-driven economy, we expect a significant number of jobs to disappear, including highly skilled jobs. These jobs may be replaced, but it is highly questionable whether the same workers will be able to fill them. Thus, the question is how to deal with the issue of (mass) unemployment caused by IT developments, which is mainly a question of responsibility. Is this an issue governments should deal with or do employers have a role? We would be in favour of the latter, for example, by requiring retraining or phase-out schemes through which employees will be given the opportunity to adapt to the new world of work, both in the homeland and the producing country.
6. AI is one of the IT developments that may cause many jobs to disappear. It may also increase the gap between countries that are able to deploy and develop these technologies and those that are not. Furthermore, if AI is used to screen workers and in hiring practices, this may result in less diverse organisations when the program is instilled with bias. AI screening programs may pose other challenges, in the human rights arena generally and regarding privacy specifically, which will have to be addressed. Thus, we believe it necessary to start addressing AI-related issues and not wait until technology has matured.

III. THIRD REPORT: CRIMINAL LAW AND BUSINESS CRIME

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Introduction

In February 2018, the Working Group released a questionnaire that is the basis of the findings made in this report. The survey asked questions about the role of criminal law in relation to the protection of workers' rights.

The Working Group sent the questionnaires to 80 lawyers in 80 countries and received responses from the below countries.

COUNTRY	LAW FIRM	MEMBERS
Italy	Perroni & Associati	Bruno Ando
Brazil	Tozzini Freire	Ludmila de Vasconcelos Leite Groch
Poland	Raczkowski Paruch	Domikika Stepińska-Duch
Peru	Rodrigo Elias & Medrano	Efrain Vassallo
UK	Herbert Smith Freehills	Brian Spiro
UK	Corker Binning	Jessica Parker
Argentina	ICP Abogados	Francisco Castex
Italy	Cagnola & Associati	Filippo Ferri
Poland	Wardyński i Wspólnicy	Janusz Tomczak

The Working Group is grateful for the contributions.

I. Substantive criminal law: general background

Criminal law plays a substantial role in the protection of individual rights in any democratic modern state. Above all, this must include the protection of individuals in their workplace because this is where they spend a large amount of their time, and lack of protection may have a significant impact on their quality of life.

It should be noted, however, that in a legal system based on the rule of law, criminal law should be considered as a last resort. The principle of minimum intervention for substantive criminal law limits its scope to two situations: (1) criminal law should only be used by the state to protect those legal institutions that are essential to society; and (2) criminal law should only be used in those cases in which other, less invasive, legal protective measures proved to be ineffective.

For these reasons, in general, the use of criminal law in the protection of workers' rights is limited to the most serious infringements that affect their human rights or involve the use of violence, coercion, fraud or abuse.

On the other hand, a significant number of international conventions and agreements impose the commitment to enforce criminal legislation that defines these infringements as criminal offences and imposes proportionate sanctions on various misconduct affecting workers' rights.

Keeping these principles in mind, the key areas in which criminal law plays a role in the protection of workers' rights are referred to below.

1. *Criminal protection of rights at work and fundamental principles*

I. FORCED OR COMPULSORY LABOUR

Through the UN Slavery Convention (signed at Geneva on 25 September 1926), the Member States undertook to bring about the complete abolition of slavery in all its forms.

The elimination of forced or compulsory labour is one of the core objectives of the Declaration of Fundamental Principles and Rights at Work. Therefore, criminal law should be used to prevent and penalise forced or compulsory labour. However, it should be noted that only some jurisdictions include specific criminal offences in their legislation to protect individuals against coercion in connection with labour (eg, Ireland, Italy, Peru and Spain). Other criminal legislation imposes sanctions on violent or coercive conduct in general, and therefore could also be used to prosecute such behaviour when committed in the framework of employment and occupation. However, these jurisdictions do not set out specific criminal offences in this area (eg, Mexico and Poland).

In accordance with the principle of minimum intervention, criminal law would not typically apply to infringements or abuses of the maximum number of working hours per day. Only the most serious infringements in this regard would be included in criminal legislation. In this sense, the coercive or violent imposition by the employer to work longer hours than established would be viewed as a criminal offence in a number of jurisdictions (eg, Spain). The infringement of legal provisions regarding maximum hours per day could also be categorised as a criminal offence when it results in a serious infringement of the employer's social security or tax obligations.

II. HEALTH AND SAFETY

A minimum requirement is that work should not cause injury or death. Criminal law should certainly play a role in the protection of an individual's life and health. Yet again, criminal law is reserved in most jurisdictions to penalise workplace health and safety infringements when they result in death or serious injury, or where the employees' life or health is seriously compromised (eg, Brazil, England, Italy, Peru, Poland and Spain). Otherwise, these kinds of infringements are generally penalised under administrative law through the corresponding labour inspection authorities (eg, Mexico).

Moreover, in general, the application of criminal law requires that the perpetrator acted with wilful intent to endanger the individual's life or safety or, at least, recklessly disregarding elementary rules of safety.

The protection of health and safety should also include protection against emotional abuse. For this reason, criminal legislation often characterises workplace harassment as a criminal offence, as will be addressed further below.

iii. CHILD LABOUR

The abolition of child labour is among one of the essential principles of the Declaration of Fundamental Principles and Rights at Work. Criminal legislation often penalises those who employ underage workers, infringing the requirements set out in the corresponding administrative and labour regulations (eg, Spain).

Determining the age of an individual causes significant practical difficulties in certain cases.

Although Article 7 of the UN Convention on the Rights of the Child (adopted by General Assembly resolution 44/25 of 20 November 1989) establishes that the ‘child shall be registered immediately after birth and shall have the right from birth to a name’, not all nations have an appropriate registration system for newborns. This is especially concerning when it affects migrants and, more specifically, unaccompanied minors because it could result in child exploitation or abuse.

In dealing with these situations, the best interests of the child are a primary consideration (Article 3 of the UN Convention on the Rights of the Child). The age assessment procedure, as well as the interviews conducted during the registration of the child, should be carried out in a child-friendly manner. Qualified paediatricians, psychologists, translators and the minor themselves should be included in the decision-making process.³⁷ In situations in which the age assessment procedure is not conclusive, the person should be treated as a child.

iv. DISCRIMINATION WITH REGARDS TO EMPLOYMENT AND OCCUPATION

The Declaration of Fundamental Principles and Rights at Work establishes the elimination of discrimination with regards to employment and occupation as one of the four essential principles concerning the fundamental rights declared therein.

The declaration also states that all ILO Member States have an obligation, arising from the fact of their membership in the organisation, to respect, promote and realise these principles, in good faith and in accordance with the constitution.

Any serious discrimination in employment against any person due to their ideology, religion or belief, belonging to an ethnic group, race or nation, gender, sexual preference, family situation, illness or disability, or due to their appointment as a legal representative of the workers or member of a trade union could be defined as a criminal offence, and is indeed defined as such in several consulted jurisdictions (eg, Ireland, Mexico, Poland and Spain).

v. FREEDOM OF ASSOCIATION AND THE RIGHT TO COLLECTIVE BARGAINING

Freedom of association and the right to collective bargaining is another pillar of the Declaration of Fundamental Principles and Rights at Work.

The use of deceit, fraud, abuse or coercion to restrict trade union freedom or the right to strike is defined as a criminal offence only in some of the consulted jurisdictions (eg, Brazil, France, Lithuania, Peru, Poland and Spain). Other jurisdictions participating in the case study do not seem

³⁷ European Commission, Study of clandestine migration of unaccompanied children and young people; mapping of response structures; recommendations for the development of protection mechanisms; and multi-sector exchange and networking on this issue, Brussels, 2000.

to have specific criminal provisions to protect these rights, in addition to their regulatory or labour provisions (eg, Ireland, Italy, Mexico and the UK).

On the other hand, collective bargaining requires an environment of communication and negotiation between trade unions and business. The purpose of criminal law is inconsistent with the negotiation climate, which is necessary to achieve successful collective bargaining and may jeopardise the whole process, distancing and hardening the parties' positions.

VI. OTHER RIGHTS

The use of abuse, violence, coercion or deceit by the employer to restrict or hamper the exercise of other legitimate rights of workers would be generally characterised as a criminal offence in most jurisdictions. However, as aforementioned, whereas some jurisdictions have adopted specific legal provisions aimed at protecting the rights of workers against these abuses, others have to rely on general criminal provisions against violence or coercion to address these behaviours.

2. *Workplace harassment*

There is no international standardised definition of workplace harassment. The international instruments that refer to harassment are the following:

- Council of Europe Convention No 210 on preventing and combating violence against women and domestic violence (Istanbul Convention) provides a general concept of sexual harassment in Article 40 (although not specifically referred to in the context of the workplace):

‘Parties shall take the necessary legislative or other measures to ensure that any form of unwanted verbal, non-verbal or physical conduct of a sexual nature with the purpose or effect of violating the dignity of a person, in particular when creating an intimidating, hostile, degrading, humiliating or offensive environment, is subject to criminal or other legal sanction.’

- UN Convention on the Elimination of All Forms of Discrimination against Women (18 December 1979). General Recommendation No 19 of the Convention (adopted in the 11th Session in 1992), states:

‘Equality in employment can be seriously impaired when women are subjected to gender-specific violence, such as sexual harassment in the workplace. Sexual harassment includes such unwelcome sexually determined behaviour as physical contact and advances, sexually coloured remarks, showing pornography and sexual demand, whether by words or actions. Such conduct can be humiliating and may constitute a health and safety problem; it is discriminatory when the woman has reasonable grounds to believe that her objection would disadvantage her in connection with her employment, including recruitment or promotion, or when it creates a hostile working environment.’

- In 2018, UN Women published the report *Towards an end to sexual harassment: The urgency and nature of change in the era of #MeToo*. The report dedicated a chapter to harassment at work and recommended the following strategies to prevent and eradicate workplace harassment:
 - ‘Create a culture in which women are treated as equals and there is respect between colleagues’;
 - ‘Commit to and display unequivocal and courageous leadership’;
 - ‘Encourage and support bystander interventions – to defuse a situation, remove the target from the context or address the harasser’;
 - ‘Have training that is in person, interactive and tailored for the given workplace’;
 - ‘Promote (more) women and minorities’; and
 - ‘Encourage reporting – make available many routes for reporting and people to whom to make reports’.
- EU Directive 2006/54/EC on the implementation of the principle of equal opportunities and equal treatment of men and women in matters of employment and occupation provides a definition of harassment: ‘where an unwanted conduct occurs with the purpose or effect of violating the dignity of a person, and or creating an intimidating, hostile, degrading, humiliating or offensive environment.’ The directive relates the unwanted conduct to the sex of the victim.

According to the directive:

‘Harassment and sexual harassment are contrary to the principle of equal treatment between men and women and constitute discrimination on grounds of sex for the purposes of this Directive. These forms of discrimination occur not only in the workplace, but also in the context of access to employment, vocational training and promotion. They should therefore be prohibited and should be subject to effective, proportionate and dissuasive penalties.

In this context, employers and those responsible for vocational training should be encouraged to take measures to combat all forms of discrimination on grounds of sex and, in particular, to take preventive measures against harassment and sexual harassment in the workplace and in access to employment, vocational training and promotion, in accordance with national law and practice.’

- Through EU Parliament Resolution of 11 September 2018 on measures to prevent and combat mobbing and sexual harassment at workplace, in public spaces and political life in the EU, the EU Parliament, among others, makes the following statements:

‘Regrets that some Member States have not yet ratified the Istanbul Convention and calls on all Member States that have not already done so to ratify and fully implement it without delay; calls, furthermore, on the Member States that have already ratified the Istanbul Convention to fully implement it...

Calls on the Commission to submit a proposal to combat mobbing and sexual harassment in the workplace, in public spaces and in political life, and to include in it an updated and comprehensive definition of harassment (be it sexual or otherwise) and mobbing.’

- Another instrument consists of the ILO reports *Ending violence and harassment against women and men in the world of work* (drafted in ILO 107th session in 2018) and *Violence and Harassment against Women and Men in the World of Work: Trade Union Perspectives and Action* (2017).

Sanctions imposed for harassment may also vary considerably across jurisdictions. The international instruments only establish general minimum requirements for the sanctions applicable to harassment.

In this regard, Article 45 of the Council of Europe Istanbul Convention sets out:

‘Parties shall take the necessary legislative or other measures to ensure that the offences established in accordance with this Convention are punishable by effective, proportionate and dissuasive sanctions, taking into account their seriousness. These sanctions shall include, where appropriate, sentences involving the deprivation of liberty which can give rise to extradition.

Parties may adopt other measures in relation to perpetrators, such as:

- monitoring or supervision of convicted persons;
- withdrawal of parental rights, if the best interests of the child, which may include the safety of the victim, cannot be guaranteed in any other way.’

EU Directive 2006/54/EC refers to sanctions in Article 25:

‘Member States shall lay down the rules on penalties applicable to infringements of the national provisions adopted pursuant to this Directive, and shall take all measures necessary to ensure that they are applied. The penalties, which may comprise the payment of compensation to the victim, must be effective, proportionate and dissuasive. The Member States shall notify those provisions to the Commission by 5 October 2005 at the latest and shall notify it without delay of any subsequent amendment affecting them.’

International instruments should foresee the obligation for Member States to impose sanctions for the most serious harassment offences with terms of imprisonment, which can give rise to extradition.³⁸

The regulation of workplace harassment is not consistent either in the analysed domestic legal systems:

³⁸ According to European Convention on Extradition and to most extradition treaties, extradition shall be granted in respect of offences punishable under the laws of the requesting party and of the requested party by deprivation of liberty or under a detention order for a maximum period of at least one year or by a more severe penalty.

US

An Equal Employment and Opportunity Commission report, *Facts About Sexual Harassment FSE/4* (14 December 2009), provides a definition of sexual harassment:

‘Unwelcome sexual advances, requests for sexual favours, and other verbal or physical conduct of a sexual nature constitute sexual harassment when this conduct explicitly or implicitly affects an individual’s employment, unreasonably interferes with an individual’s work performance, or creates an intimidating, hostile, or offensive work environment.’

A US Supreme Court judgment of 25 March 1979, *Meritor Savings Bank v Vinson*, stated that there are two types of harassment, both violating Title VII of the Civil Rights Act:

‘(1) harassment that involves the conditioning of employment benefits on sexual favors (“quid pro quo”), and (2) harassment that, while not affecting economic benefits, creates a hostile or offensive working environment (“hostile environment”).’

US Supreme Court judgment of 4 March 1998, *Joseph Oncale v Sundowner Offshore Services, Incorporated, et al*, stated that harassment between persons of the same sex may also constitute a violation of Title VII of the Civil Rights Act.

FRANCE

LOI No 2012-954 du 6 août 2012 relative au harcèlement sexuel (Journal officiel de la République française (JORF) No 0182 du 7 août 2012 p 12921) sanctions harassment with penalties of imprisonment up to two years and a fine of €30,000 (provided that no aggravating circumstances concur).

‘Le harcèlement sexuel est le fait d’imposer à une personne, de façon répétée, des propos ou comportements à connotation sexuelle qui soit portent atteinte à sa dignité en raison de leur caractère dégradant ou humiliant, soit créent à son encontre une situation intimidante, hostile ou offensante.

Est assimilé au harcèlement sexuel le fait, même non répété, d’user de toute forme de pression grave dans le but réel ou apparent d’obtenir un acte de nature sexuelle, que celui-ci soit recherché au profit de l’auteur des faits ou au profit d’un tiers.’

LOI No 2018-703 du 3 août 2018 renforçant la lutte contre les violences sexuelles et sexistes (JORF No 0179 du 5 août 2018), defines new harassment conduct as cyberharassment and upskirting.

ITALY

Testo del decreto-legge 23 febbraio 2009, n 11 (in Gazzetta Ufficiale n 45 del 24 febbraio 2009), coordinato con la legge di conversione 23 aprile 2009, n 38 recante: Misure urgenti in materia di sicurezza pubblica e di contrasto alla violenza sessuale, nonché in tema di atti persecutori (09A04793), defines the following criminal offence:

‘[...] e’ punito con la reclusione da sei mesi a quattro anni chiunque, con condotte reiterate, minaccia o molesta taluno in modo da cagionare un perdurante e grave stato di ansia o di paura ovvero da ingenerare un fondato timore per l’incolumità propria o di un prossimo congiunto o

di persona al medesimo legata da relazione affettiva ovvero da costringere lo stesso ad alterare le proprie abitudini di vita.’

SPAIN

The Spanish Criminal Code provides a general definition of harassment as a form of coercion (Article 172 ter):

‘Whoever harasses a person by insistently and repeatedly engaging in any of the following behaviours, without being legitimately authorised, and, in this manner, severely alters his/her daily life shall be punished with a prison sentence of three months to two years or a fine:

- Monitoring, pursuing or seeking his/her physical proximity;
- Establishing or trying to establish contact with him/her through any method of communication, or through third parties;
- Through the inappropriate use of his/her personal data to purchase products or merchandise, or to sign up to services, or having third parties contact him/her;
- Infringing upon his/her freedom or his/her property, or upon the freedom or the property of another person who is close to him/her.’

The Spanish Criminal Code defines workplace harassment (Article 173):

‘Whoever inflicts a degrading treatment on another person, seriously damaging his moral integrity, shall be punished with a sentence of imprisonment of six months to two years.

The same punishment shall be imposed on those who, within the setting of any labour relation or the civil service, availing themselves of their superior status, repeatedly perpetrate hostile or humiliating deeds against another that, while not reaching the status of degrading treatment, amount to serious harassment of the victim.’

The Spanish Criminal Code also defines sexual harassment (Article 184):

1. Whoever solicits favours of a sexual nature, for him or herself or for a third party, within the setting of a continuous or usual work relation, teaching or service provision relation, and by such conduct causes the victim a situation that is objective and seriously intimidating, hostile or humiliating, shall be convicted of sexual harassment and punished with a sentence of imprisonment of three to five months or a fine.
2. Should the party guilty of sexual harassment have committed the deed availing him or herself of a situation of labour, teaching or hierarchical superiority, or specifically or tacitly warning of harm to the victim in relation with the lawful expectations that person may have within the setting of that relation, the punishment shall be five to seven months’ imprisonment or a fine.’

Social dialogue and collective bargaining have been shown to have a positive outcome in these areas, and there are emerging good practices of how social partners have addressed psychosocial

risks and violence at work by influencing legislation or negotiating workplace measures. Trade unions have always been at the forefront of actions aimed at eliminating work-related stress and violence and harassment at work. However, most of the successful stories come from EU countries where, in the past 15 years, social partners have succeeded in concluding three major framework agreements: an agreement on work-related stress aimed at increasing awareness and understanding of the phenomenon, and providing a framework to identify and prevent stress-related problems at work; one on harassment and violence at work; and the European framework for psychosocial risk management (PRIMA-EF).³⁹

3. *Trafficking in human beings for the purposes of labour exploitation*

Shockingly and sadly, human trafficking for the purposes of labour exploitation is generally considered ‘21st century slavery’.⁴⁰ For this regrettable reason, we cannot address the impact of criminal law in the future of work without addressing the exploitation of persons and the ways to fight it and eradicate it.

The UN Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, supplementing the UN Convention against Transnational Organised Crime (the ‘UN Protocol against Trafficking’), defines trafficking in human beings as follows (Article 3):

‘The recruitment, transportation, transfer, harbouring or receipt of persons, by means of the threat or use of force or other forms of coercion, of abduction, of fraud, of deception, of the abuse of power or of a position of vulnerability or of the giving or receiving of payments or benefits to achieve the consent of a person having control over another person, for the purpose of exploitation. Exploitation shall include, at a minimum, the exploitation of the prostitution of others or other forms of sexual exploitation, forced labour or services, slavery or practices similar to slavery, servitude or the removal of organs.’

The UN Protocol against Trafficking was enacted for the following purposes:

‘To prevent and combat trafficking in persons, paying particular attention to women and children;
To protect and assist the victims of such trafficking, with full respect for their human rights; and
To promote cooperation among States Parties in order to meet those objectives.’

For the same purposes, in the framework of the Council of Europe, the Convention (No 197) on Action against Trafficking in Human Beings was also enacted in 2005.

Human trafficking is too complex and addressing all its sides exceeds the scope of this report. We will list below some of the major detected issues:

IDENTIFICATION AND COMPREHENSIVE PROTECTION OF VICTIMS

Identification of the victims of human trafficking is sometimes hampered because enforcement authorities classify the victims of trafficking as illegal migrants or, at most, victims of migrant

39 Jane Pillinger, ‘Psychosocial risks and violence in the world of work: A trade union perspective’ in International Labour Organization, *Psychosocial risks, stress and violence in the world of work* (2016) 8(1–2) International Journal of Labour Research 35–61.

40 International Labour Organisation, Forced labour, modern slavery and human trafficking, and Anti-Slavery International, What is modern slavery?

smuggling. In some countries, these victims might even be considered offenders (of prostitution or of working illegally). This could result in victims of trafficking, not identified as such, being repatriated where there is a risk that they will continue suffering exploitation.

Moreover, the process of identifying a victim of trafficking is often dynamic, depending on the information progressively obtained in the corresponding criminal investigation. In the first stage, if the assessment is not conclusive, the enforcement authorities should adopt a broad standard, favourable to the recognition of the victim's status, notwithstanding the possibility to review the first assessment once more information is gathered.

EVIDENCE GATHERING

Gathering evidence of trafficking is extremely difficult due to a variety of circumstances, among which: (1) the reluctance of the victims to report or to give testimony, aggravated if they are not provided with adequate protection; (2) the criminal offence is most frequently committed by organised mafias, which are very difficult to penetrate and investigate; and (3) most of the time, the offence is committed transnationally and the investigation requires the cooperation of enforcement authorities of different jurisdictions.

INTERNATIONAL COOPERATION

International cooperation is important not only in fighting against trafficking but also in preventing it. Community-led activities in vulnerable areas are an important prevention tool.⁴¹

4. *Smuggling of migrants*

The UN Convention on the Rights of Migrants defines a migrant worker as a 'person who is to be engaged, is engaged or has been engaged in a remunerated activity in a State of which he or she is not a national'.

From this broad definition of migrants, the term 'migrant' should be understood as covering all cases in which the decision to migrate is taken freely by the individual concerned, for reasons of personal convenience and without intervention of an external compelling factor.⁴²

The dominant forms of migration can be distinguished according to the motives (economic, family reunion and refugees) or legal status (irregular migration, controlled emigration/immigration and free emigration/immigration) of those concerned. A more common categorisation of international migrants is as follows:⁴³

- temporary labour migrants;
- highly skilled and business migrants;
- irregular migrants (or undocumented/illegal migrants);

41 UN Office on Drugs and Crime.

42 UNESCO www.unesco.org/new/en/social-and-human-sciences/themes/international-migration/glossary/migrant accessed 30 January 2019.

43 *Ibid.*

- forced migration: in a broader sense, this includes not only refugees and asylum seekers but also people forced to move due to external factors, such as environmental catastrophes or development projects; this form of migration has similar characteristics to displacement;
- family members (or family reunion/family reunification migrants); and
- return migrants.

The Protocol against the Smuggling of Migrants by Land, Sea and Air (the ‘UN Protocol against Smuggling of Migrants’), supplementing the UN Convention against Transnational Organised Crime defines smuggling of migrants as (Article 3): ‘The procurement, in order to obtain, directly or indirectly, a financial or other material benefit, of the illegal entry of a person into a State Party of which the person is not a national or a permanent resident.’

Addressing in depth all the issues related to migrant smuggling exceeds the scope of this report. One of the major issues is that migrant smuggling affects almost every country in the world. It undermines the integrity of countries and communities, and costs thousands of people their lives every year.

Currently, data is too scattered and incomplete to paint an accurate picture of numbers of people who are smuggled each year, and the routes and methods used by those who smuggle them. Still, available evidence reveals the following trends and patterns:⁴⁴

- Criminals are increasingly providing smuggling services to irregular migrants to evade national border controls, migration regulations and visa requirements.
- Migrant smuggling is a highly profitable business in which criminals enjoy a low risk of detection and punishment. As a result, the crime is becoming increasingly attractive to criminals. Migrant smugglers are becoming increasingly organised, establishing professional networks that transcend borders and regions.
- The methods of migrant smugglers are diverse. Highly sophisticated and expensive services rely on document fraud or ‘visa smuggling’. Contrasted with these are low-cost methods, which often pose a high risks for migrants, and have lead to a dramatic increase in loss of life in recent years.
- Migrant smugglers constantly change routes and methods in response to changed circumstances, often at the expense of the safety of the smuggled migrants.
- Thousands of people have lost their lives as a result of the indifferent or even deliberate actions of migrant smugglers.

These factors highlight the need for responses to combat the crime of migrant smuggling to be coordinated across and between regions, and adaptable to new methods.

In addition to migrant smuggling, once (illegal) migrants are in their destination countries, their situation is often precarious and they have to struggle to find means of living. Their uncertain situation places them in a vulnerable position subject to suffering abuse.

44 UN Office on Drugs and Crime www.unodc.org/unodc/en/human-trafficking/smuggling-of-migrants.html?ref=menu accessed 30 January 2019.

Criminal law often categorises as a criminal offence the following types of abuses:

- to unlawfully traffic with labour (eg, England and Spain); and
- to employ migrants without a work permit under conditions that negatively affect, suppress or restrict the rights they have (eg, Ireland and Spain).

Some jurisdictions also define as a criminal offence the act of employing migrants without a work permit (eg, England, Ireland and Spain under certain circumstances).

It should be noted that the law should not foresee criminal sanctions for migrants who are victims of these abuses, notwithstanding the corresponding administrative measures for their repatriation or regularisation, when applicable. In this sense, Article 5 of the UN Protocol against Smuggling of Migrants sets out: ‘Migrants shall not become liable to criminal prosecution under this Protocol for the fact of having been the object of conduct set forth in article 6 of this Protocol.’

Notwithstanding the above, some countries foresee criminal sanctions for migrants working in breach of their immigration conditions (eg, England and Ireland).

5. *Cybercrime*

Cybercrime, that is, offences committed through computer systems and enabled by technology, has proven to be difficult to investigate and prosecute through traditional law enforcement mechanisms. Despite that, there is little international regulation on cybercrime, but rather various initiatives to combat and define cybercrime related to specific offences.

The Convention on Cybercrime of the Council of Europe (CETS No 185), known as the Budapest Convention, is the only binding international instrument on this issue. It serves as a guideline for any country developing comprehensive national legislation against cybercrime and as a framework for international cooperation between State Parties to this treaty. The convention is the first international treaty on crimes committed via the internet and other computer networks, dealing particularly with infringements of copyright, computer-related fraud, child pornography and violations of network security. It also contains a series of powers and procedures, such as the search of computer networks and interception. Its main objective, set out in the preamble, is to pursue a common criminal policy aimed at the protection of society against cybercrime, especially by adopting appropriate legislation and fostering international cooperation.

In the framework of the UN, the General Assembly in its Resolution 65/230 requested the Commission on Crime Prevention and Criminal Justice to establish an open-ended intergovernmental expert group to conduct a comprehensive study of the problem of cybercrime and responses to it by Member States, the international community and the private sector, including the exchange of information on national legislation, best practices, technical assistance and international cooperation, with a view to examining options to strengthen existing and propose new national and international legal or other responses to cybercrime. The Expert Group, created in 2011, conducts a comprehensive study on cybercrime and issues periodic reports with its recommendations and conclusions.

The EU has not passed comprehensive resolution on the prevention of, and related sanctions for, cybercrime but rather refers to it in different legal instruments and reports, such as:

- Directive 2001/29/EC of the European Parliament and of the Council of 22 May 2001 on the harmonisation of certain aspects of copyright and related rights in the information society;
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on combating the sexual abuse and sexual exploitation of children and child pornography, and replacing Council Framework Decision 2004/68/JHA;
- Directive 2013/40/EU of the European Parliament and of the Council of 12 August 2013 on attacks against information systems and replacing Council Framework Decision 2005/222/JHA;
- Joint Communication to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions titled ‘Cybersecurity strategy of the EU: An open, safe and secure cyberspace’ (7 February 2013); and
- Internet Organised Crime Threat Assessment (IOCTA) 2016 – EC3 and 2018 – EC3.

II. Compliance and criminal wrongdoing prevention

1. *Criminal liability of moral persons*

Traditionally, one of the basic general principles applicable to criminal law was *societas delinquere non potest*, that is, moral persons cannot commit a crime. In recent years, however, this principle was superseded in almost every developed country and a significant number of nations have passed or are in the process of passing legislation regulating corporate criminal liability.

In those jurisdictions where corporate criminal liability is regulated, the criminal offences against the rights of workers referred to above would generally result in the legal person’s/employer’s liability.

Generally speaking, there are two major ways of establishing corporate criminal liability: vicarious criminal liability or statutory liability. In the first system, the legal person would be liable, under certain circumstances, for the criminal offences committed through actions or omissions of its directors, representatives or employees. In the second, criminal law establishes the possibility for the corporation to be the principal perpetrator of the criminal offence, alone or jointly with an individual or individuals.

In both cases, corporate criminal liability significantly depends on the ability of the company to adequately control and supervise its directors, representatives and employees. This has led companies to reinforce significantly their corporate compliance programmes and to increase the supervision over their employees. Most criminal legislation also imposes on companies the obligation to establish channels to allow employees to report wrongdoing. This has resulted in significant changes in corporate internal governance, which have had a significant impact on the relations between the employer and employees, as will be analysed below.

2. *Corporate ethics and sustainability*

In a globalised economy, companies often decide or are bound to maintain the same ethical standards in all the countries in which they operate in areas such as anti-corruption or anti-money laundering and

terrorism financing, among others.⁴⁵ This could result in a company applying controls to its employees that are not strictly set out as a requirement in local laws.

In this sense, the UN's *Anti-Corruption Ethics and Compliance Programme for Business: A Practical Guide*, recommends:

‘Companies operating in international environments may face the challenge of needing to comply with multiple legal jurisdictions when establishing a policy prohibiting corruption. A practical example where such a challenge may arise is due to the varying legal treatment of facilitation payments. A company may operate in one country where facilitation payments are strictly forbidden and in another country where facilitation payments are allowed under certain circumstances. Companies may establish a global anti-corruption policy standard. This global standard implies that it is equally and stringently applied across all of the jurisdictions in which companies are operating. This may result in a policy that goes beyond national mandatory regulations of some countries in which the company is operating.’

The Ten Principles of the UN Global Compact (the ‘Ten Principles’)⁴⁶ are derived from the Universal Declaration of Human Rights, the ILO’s Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development and the UN Convention against Corruption.⁴⁷ Adherence to the Ten Principles is voluntary for companies. However, once they do, they need to comply with a number of obligations or explain the reasons for non-compliance.

The tenth principle, on anti-corruption, was added to the list of principles in the identified core areas of human rights, labour and environment only in 2004. The reason for adding anti-corruption to the ten basic principles companies should comply with is that corruption is a barrier to development, ‘undermines business performance and diverts public resources from legitimate sustainable development’.⁴⁸

3. *Supervision of employees*

The supervision of employees, while generally accepted in labour legislation, can generate a number of problems when the employer’s control invades employees’ privacy.

45 See UN Conventions against Corruption; OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions; OECD Guidelines for Multinational Enterprises www.oecd.org/investment/mne accessed 30 January 2019; Criminal Law Convention against Corruption of the Council of Europe.

46 The Ten Principles cover four areas:

1. Human rights

Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and
Principle 2: make sure that they are not complicit in human rights abuses.

2. Labour

Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
Principle 4: the elimination of all forms of forced and compulsory labour;
Principle 5: the effective abolition of child labour; and
Principle 6: the elimination of discrimination in respect of employment and occupation.

3. Environment

Principle 7: Businesses should support a precautionary approach to environmental challenges;
Principle 8: undertake initiatives to promote greater environmental responsibility; and
Principle 9: encourage the development and diffusion of environmentally friendly technologies.

4. Anti-corruption

Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery.

47 See www.unglobalcompact.org/what-is-gc/mission/principles accessed 30 January 2019.

48 See www.unglobalcompact.org/what-is-gc/mission/principles/principle-10 accessed 30 January 2019.

Modern technology makes it easier for employers to supervise employees' performance, especially by monitoring their communications. At the same time, this could result in serious abuse and intolerable interference in employees' privacy.

The supervision of employees' compliance with the company's corporate ethics could also involve obvious difficulties in cases of telework. Technology has certainly proven to be a helpful tool to perform this supervision in these cases. Yet again, it is important that companies and states ensure that these measures are accompanied by adequate and sufficient safeguards against abuse.

The European Court of Human Rights addressed this issue in the Grand Chamber judgment dated 5 September 2017 in the case of *Barbulescu v Romania*.

The court concluded that the Romanian courts, in reviewing the decision of Barbulescu's employer to dismiss him after having monitored his electronic communications, failed to strike a fair balance between the interests at stake, namely Barbulescu's right to respect for his private life and correspondence, and his employer's right to take measures to ensure the smooth running of the company.

It does not mean that employers cannot, under any circumstances, monitor employees' communications or that they cannot dismiss employees for using the internet at work for private purposes. However, the court considers that states should ensure that, when an employer takes measures to monitor employees' communications, these measures are accompanied by adequate and sufficient safeguards against abuse.

The court specifies the criteria to be applied by national authorities when assessing whether a given measure is proportionate to the aim pursued and whether the employee concerned is protected against arbitrariness.

In particular, the authorities should determine the following:

- whether the employee has been notified of the possibility that the employer may take measures to monitor correspondence and other communications, and of the implementation of such measures. For the measures to be deemed compatible with the requirements of Article 8 of the convention, notification should be clear about the nature of the monitoring and be given in advance;
- the extent of the monitoring by the employer and the degree of intrusion into the employee's privacy. In this regard, a distinction should be made between monitoring of the flow of communications and of their content. Whether all communications or only part of them have been monitored should also be taken into account, as should the question of whether the monitoring was limited in time and the number of people who had access to the results;
- whether the employer has provided legitimate reasons to justify monitoring the communications and accessing their actual content. Since the monitoring of the content of communications is a distinctly more invasive method, it requires weightier justification;
- whether it would have been possible to establish a monitoring system based on less intrusive methods and measures than directly accessing the content of the employee's communications. There should be an assessment in the light of the particular circumstances of each case of

whether the aim pursued by the employer could have been achieved without directly accessing the full contents of the employee's communications;

- the consequences of the monitoring for the employee concerned and the use by the employer of the results of the monitoring operation, in particular, whether the results were used to achieve the declared aim of the measure; and
- whether the employee has been provided with adequate safeguards, especially when the employer's monitoring operations are of an intrusive nature. Such safeguards should, in particular, ensure that the employer cannot access the actual content of the communications concerned unless the employee has been notified in advance of that eventuality.

4. *Whistleblowing*

Implementing schemes to encourage ethics and compliance in companies, including whistleblowing incentives for reporting wrongdoing, may involve a number of challenges and is seen by some experts as controversial or even counterproductive. One of them is the risk of retaliation against the employee who, in good faith, reports wrongdoing within the organisation.

Article 33 of the UN Convention against Corruption sets forth: 'Each State Party shall consider incorporating into its domestic legal system appropriate measures to provide protection against any unjustified treatment for any person who reports in good faith and on reasonable grounds to the competent authorities any facts concerning offences established in accordance with this Convention.'

Article 22 of the Criminal Law Convention against Corruption (No 173) of the Council of Europe sets out:

'Each Party shall adopt such measures as may be necessary to provide effective and appropriate protection for:

- a. those who report the criminal offences established in accordance with Articles 2 to 14 or otherwise cooperate with the investigating or prosecuting authorities;
- b. witnesses who give testimony concerning these offences.'

Rewarding whistleblowing may also create the risk of leading employees to turn against each other by making false claims. It may also decrease the trust and morale among employees and business partners.

The UN practical guide, *An Anti-Corruption Ethics and Compliance Programme for Business*, includes the following recommendations:

'Companies need to address the risk of retaliation for those reporting misconduct by their colleagues, peers or superiors. Studies have revealed that the fear of retaliation, which could take the form of job loss, harassment by peers or restrictions on conditions and access in the work place, is the main reason why potential informants choose to stay silent. In order to alleviate the fear of retaliation, companies can encourage reporting by establishing a policy clearly stating that the reporting of violations and incidents that are witnessed is expected. Such a policy should explicitly state that no employee or business partner will suffer discrimination or dismissal due to the lawful reporting on misconduct related to corruption.'

The EU contemplates measures to protect whistleblowers in different areas, such as data protection, anti-money laundering and terrorist financing or market abuse and insider trading. In April 2018, the European Commission proposed a new law with ‘EU-wide standards that will guarantee a high level of protection for whistleblowers who report breaches of EU law’.⁴⁹

5. *Insider threat and background check of employees*

The insider threat is ‘the risk an insider will use their authorized access, wittingly or unwittingly, to do harm to their organization. This can include theft of proprietary information and technology; damage to company facilities, systems or equipment; actual or threatened harm to employees; or other actions that would prevent the company from carrying out its normal business practices’.⁵⁰

An insider is ‘any person with authorised access to an organisation’s resources to include personnel, facilities, information, equipment, networks, or systems’.⁵¹

The risk of an insider threat led several governments and international organisations to pass regulations on the detection and prevention of these threats. These regulations often regulate the possibility for employers to carry out background checks of candidates for an employment position and ongoing controls over their employees. Depending on the sector in which they operate, some companies are required by law to perform such controls.

An example of the latter is Directive 2008/114/EC on identification and designation of European critical infrastructures and assessment of the need to improve their protection, which is aimed at improving the protection of critical infrastructures against all types of threats and hazards.

According to the Directive, ‘critical infrastructure’ means an:

‘asset, system or part thereof located in Member States which is essential for the maintenance of vital societal functions, health, safety, security, economic or social wellbeing of people, and the disruption or destruction of which would have a significant impact in a Member State as a result of the failure to maintain those functions’.

‘European critical infrastructure’ (ECI) means ‘critical infrastructure located in Member States the disruption or destruction of which would have a significant impact on at least two Member States’.

In the implementation of such EU regulation, most Members States have regulated the possibility for companies managing critical infrastructures to check the criminal records and other background information regarding candidates and employees.

Similarly, the US Government Insider Threat Task Force encourages companies to perform background checks and controls over their employees to prevent the risk of an insider attack and provides them with guidelines to enforce their insider threat programmes.

The application of these regulations must balance the need to protect the company, especially those managing critical infrastructure, against an insider threat with the respect for candidates’ and

49 See https://ec.europa.eu/commission/news/whistleblower-protection-2018-apr-23_en accessed 30 January 2019

50 US Government Insider Threat Task Force, *Protect your organisation from the Inside Out: Government Best Practices Guide to Insider Threat* (2016), p 3 www.dni.gov/files/NCSC/documents/products/Govt_Best_Practices_Guide_Insider_Threat.pdf accessed 30 January 2019.

51 *Ibid.*

employees' right to privacy and a personal life. The regulations on insider threats are quite recent and should be developed to guarantee the proportionality between the potential risks that the company needs to prevent and the protection of workers' rights.

III. Government investigations

1. *Specialisation and coordination*

The specialisation and training of law enforcement officials dealing with criminal offences referred to in this report is essential for early detection, prevention and prosecution.

Some jurisdictions have special government agencies to deal with these types of criminal offences (eg, England, Italy, Peru and Spain). In some others, the investigation of these offences corresponds to the police and the public prosecutor's office without any specialisation (Argentina, Brazil, Mexico and Poland).

In this regard, the UN Protocol against Trafficking (Article 10) sets out: 'States Parties shall provide or strengthen training for law enforcement, immigration and other relevant officials in the prevention of trafficking in persons.'

Similarly, the Council of Europe Convention against Trafficking includes the following recommendations (Article 29):

'Each Party shall adopt such measures as may be necessary to ensure that persons or entities are specialised in the fight against trafficking and the protection of victims. Such persons or entities shall have the necessary independence in accordance with the fundamental principles of the legal system of the Party, in order for them to be able to carry out their functions effectively and free from any undue pressure. Such persons or the staffs of such entities shall have adequate training and financial resources for their tasks.

Each Party shall adopt such measures as may be necessary to ensure co-ordination of the policies and actions of their governments' departments and other public agencies against trafficking in human beings, where appropriate, through setting up co-ordinating bodies.

Each Party shall provide or strengthen training for relevant officials in the prevention of and fight against trafficking in human beings, including Human Rights training. The training may be agency-specific and shall, as appropriate, focus on: methods used in preventing such trafficking, prosecuting the traffickers and protecting the rights of the victims, including protecting the victims from the traffickers.

Each Party shall consider appointing National Rapporteurs or other mechanisms for monitoring the anti-trafficking activities of State institutions and the implementation of national legislation requirements.'

2. *International mutual cooperation*

International mutual cooperation between enforcement authorities is also essential to fight against most of the aforementioned criminal offences.

Article 10 of the UN Protocol against Trafficking recommends:

‘Law enforcement, immigration or other relevant authorities of States Parties shall, as appropriate, cooperate with one another by exchanging information, in accordance with their domestic law, to enable them to determine:

- (a) Whether individuals crossing or attempting to cross an international border with travel documents belonging to other persons or without travel documents are perpetrators or victims of trafficking in persons;
- (b) The types of travel document that individuals have used or attempted to use to cross an international border for the purpose of trafficking in persons; and
- (c) The means and methods used by organized criminal groups for the purpose of trafficking in persons, including the recruitment and transportation of victims, routes and links between and among individuals and groups engaged in such trafficking, and possible measures for detecting them.’

In the same sense, the UN Protocol against Migrant Smuggling urges Member States to cooperate and exchange information to prevent and suppress migrant smuggling.

IV. FOURTH REPORT: DIVERSITY AND EQUALITY LAW

Prepared by Rebecca Ford (Clyde & Co, UAE) and Tony Hyams-Parish (DMH Stallard, UK)*

I. Introduction

1. The IBA GEI was formed in early 2010. Its primary purpose is to develop a global and strategic approach to key legal issues in the HR and human capital fields for multinational and worldwide institutions. In the eight years since its formation, the GEI has published a series of reports, drawing on a range of qualitative and quantitative data. Since 2012, the GEI has produced an AGR identifying certain general international trends in HR law relevant in a particular year. The first report published in 2012 was based on the responses received by lawyers based in 36 countries; the most recent report for 2018 (currently still in draft form) was based on the responses received by lawyers from 46 countries. In addition, input from inhouse lawyers and HR directors was also obtained for each report.
2. This section of the report considers the key trends that have been identified year on year in the AGRs, supplemented by other GEI reports, in the area of discrimination and diversity. The specific reports considered are as follows:
 - *National Regulatory Trends on Human Resources law – 2012* ('AGR 2012');
 - *National Regulatory Trends on Human Resources law – 2013* ('AGR 2013');
 - *National Regulatory Trends on Human Resources law – 2014* ('AGR 2014');
 - *National Regulatory Trends on Human Resources law – 2015* ('AGR 2015');
 - *National Regulatory Trends on Human Resources law – 2016* ('AGR 2016');
 - *National Regulatory Trends on Human Resources law – 2017* ('AGR 2017');
 - *Draft GEI AGR, National Regulatory Trends on Human Resources law – 2018* ('AGR 2018');
 - *Looking into the Key Human Resources Legal Issues of the Next Decade: The 10/20 Survey*, 2010;
 - *The Balancing Report: Strategic Trends in National Laws and Multinationals' Policies on Work-Life Balance and the Implications for Human Resources Law*, 2012; and
 - *The Age Report*, 2014.
3. The key discrimination and diversity issues identified in the AGRs (and discussed further in the aforementioned GEI reports) relate to age and gender.
4. In addition to gender and age, the GEI reports identified other areas of development in anti-discrimination and diversity practices relating to disability, sexual orientation and religion.
5. This section of the report will consider the three areas of development in discrimination and diversity.

* Reports coordinated by the IBA Global Employment Institute.

II. Gender-based workplace harassment and discrimination

1. At the time of writing this report, in 2018, the spotlight on workplace harassment and discrimination caused by the #MeToo movement continues to glow brightly. This is reflected in the comments submitted for the AGR 2018. However, it is instructive to compare the comments relating to gender-based discrimination in the 2012–2018 AGRs, which, it may be argued, have moved from a level that may indicate some complacency to increased activity.

AGR 2012 reported that the majority of countries surveyed identified the existence of anti-discrimination legislation. Although it was noted that among a number of prohibited grounds of discrimination, sex/gender was the discriminatory ground in respect of which most countries had recently legislated, the report went on to comment that the new regulations focus either on eliminating the wage gap or ensuring higher representation of women on boards of directors (this latter area is discussed below).

AGR 2013 reported on the fact that a new act was introduced in India requiring employers to provide security and drop off facilities for female employees working after 1800, to address incidents involving sexual assaults. In addition, the report notes that the Indian government had approved a new act preventing sexual harassment of women in the workplace.

AGR 2014 reported that discrimination against women in the 28–40 age group remained ‘endemic in many countries including the UK’, suggesting that ‘existing laws are not providing the level of protection originally envisaged’. The report also identified that the Finnish government had proposed that sexual harassment be criminalised, ‘in an attempt to limit the scope of abuse’, but went on to query whether this would be a ‘solution to a serious social problem’. The comments in the 2014 report indicated an awareness that existing laws may not be sufficient to protect against workplace harassment and discrimination on the grounds of gender, and contrast with those contained in the 2012 report.

AGR 2015 picked up the thread from the previous year, reporting that a number of countries had enacted legislation to bolster existing discrimination, particularly in relation to gender, sexual orientation and disability. AGR 2015 also noted that a number of countries focused on new laws penalising harassment and bullying in the workplace, including Singapore, India and Japan. The ongoing development of regulation in India was also identified, and AGR 2015 noted that ‘[i]n response to a serious cultural problem, Indian companies are now required to hold workshops and seminars’ for their employees on harassment and bullying. South Africa and Israel reported on new equal pay legislation.

AGR 2015 identified an interesting topic, which has continued to be a point of discussion in the present day. AGR 2015 reported on two sex discrimination claims, drawing attention to the lack of diversity in venture capital firms in California and among social media companies in Silicon Valley. The report’s concluding comments noted that: ‘One of the great mysteries of modern business life is why many of the world’s leading technology and social media companies based in California have indifferent diversity records. Business leaders in that state are beginning to recognise the importance of that issue and are acting accordingly.’

AGR 2016 reported that there was a continuing evolution of anti-discrimination legislation in many countries, although apparently fewer high-profile discrimination claims than the previous year. The report noted that in the US, certain states (California, Connecticut and Maine) had enacted compulsory manager training in countering discrimination for companies with more than 50 employees, and that there were similar rules in place in some Canadian provinces, including Ontario. The report also noted a trend in anti-discrimination training programmes by medium and large-scale companies that were voluntarily implemented in the absence of regulation requiring such programmes. The report commented that this trend was ‘much more pronounced than in recent years’.

AGR 2017 continued the discussion regarding non-discrimination training, noting that the existence of such programmes varied greatly from country to country. Reports from Australia, Finland and Germany indicated that such training was generally provided, and South Korea confirmed that employee discrimination training was legally required. However, many countries indicated that there was no formal training. The report also noted that there was little in the way of reports of recent expansion of non-discrimination laws.

AGR 2018 is significant, as a number of developments were reported, in heavy contrast to 2017, as follows:

- Many countries reported that the #MeToo movement had resulted in growing social and legal awareness, and occupied considerable space in news and social media, particularly in Canada, Denmark, Norway, Sweden and the US.
- In Bulgaria, it was reported that a Gender Mainstreaming Action Plan for 2018 had been published, with the aims of establishing a unified policy for equality between men and women and raising awareness for gender equality.
- In Canada, the government had proposed additional money to expand Canada’s Strategy to Address Gender-Based Violence.
- In Belgium, a new law allowed a ‘mystery shopper/caller’ whistleblowing technique to reveal discriminatory practices.
- In the Czech Republic, legislation was introduced to list the most common forms of discrimination.
- Canada, Denmark and Finland reported proposals for new legislation regarding sexual harassment.
- It was reported that South Korea had amended its employment law to require employers to investigate any claims of sexual harassment and to protect victims and witnesses from suffering any reprisal as a result.
- Finally, it was reported that the US had implemented a new law prohibiting the inclusion of confidentiality provisions in harassment settlement agreements.

2. The development in the reporting of gender-based workplace harassment and discrimination in the AGRs would indicate that public awareness and discourse in this area has grown and

with that there has been increased legislative activity. In addition, even where legislation may be light, for example, in the case of workplace training, multinational organisations have adopted schemes voluntarily, indicating that the corporate pain of expensive litigation or poor public opinion is a motivating factor in the absence of legal obligations.

III. Representation of women in the workplace

1. In addition to legislation addressing gender-based workplace harassment and discrimination, the AGRs have frequently discussed the attempts made by a number of countries to encourage diversity and inclusion in the workplace, including with respect to women. These have largely (although not exclusively) focused on the representation of women on boards of directors.

As aforementioned, the trend identified in 2012 was new regulations that focused on eliminating the wage gap or ensuring higher representation of women on the board of directors. In particular, AGR 2012 reported that various countries experienced a growing political debate around gender balance in employment, although, in most cases, no specific legal developments had occurred. With the exception of France, which it was reported had legislation that requires specific balanced gender representation on boards, most countries reported that codes of practice operating in their jurisdictions that were designed to promote gender balance were primarily voluntary and aspirational in nature.

AGR 2013 reported that the government in Denmark had passed a new model to increase the number of women on boards and to encourage representation of women within management in the largest private and state-owned companies. It was also reported that the number of women on boards had increased significantly in recent years in Finland. South Africa also reported that the Women Empowerment and Gender Equality Bill had been published, whose aim was to ensure women's equal participation in social, political and economic structures. It was also reported that organisations in South Africa were being encouraged to try and achieve 50 per cent representation and participation of women in decision-making structures. AGR 2013 also reported on a project involving Sweden's ten largest companies, in which each participating company was asked to select ten female employees to act as experts to identify criteria to help women progress in business. Finally, it was reported that listed companies in the UK were being encouraged to report board gender diversity opportunities and to set targets for female representation on boards.

AGR 2014 reported quite extensively on the ongoing diversity developments. In particular:

- The Ontario Securities Commission was reported as following the example of a number of EU countries in considering voluntary steps that listed companies could take in order to improve gender diversity on boards and in senior management.
- The UK government was reported as continuing to press the issue of female representation on boards. It was noted that the number of female chief executives in the FTSE list of 100 companies remained at no more than five per cent, even though progress had been made in increasing the number of female non-executive directors.

- The German and Hong Kong governments were reported as having adopted voluntary target figures similar to the UK.
- In the US, the Office of Federal Contract Compliance Programs (OECCP) was reported as focusing on forms of systematic discrimination, including gender pay equity.
- The report noted that an increasing number of EU countries had adopted voluntary targets for increasing the proportion of women board members of listed companies.

AGR 2015 continued to report on the development of diversity programmes, noting that in March of that year, the European Commission had announced proposals to raise the number of women non-executive directors to 40 per cent, and to 33 per cent for all types of directors, by 2020. In addition, it was reported that there would be a requirement on listed companies to make appointments based on an assessment of candidates applying clear, gender-neutral and unambiguous criteria, with priority given to candidates of an under-represented sex. Numerous countries were reported to be planning quota or gender legislation, including Australia, Greece, Japan, Kenya, Nigeria, Portugal and Sweden. Finally, the report considered the extent to which stress played a part in creating or increasing the gap between men and women. A number of companies were highlighted in the report where steps had been and were being taken to increase gender balance, including in senior positions.

AGR 2016 reported on the efforts of a number of jurisdictions, as follows:

- A new law in India required all public companies with five or more directors to appoint at least one woman director.
- The Spanish government was reported as formally recognising and rewarding companies who successfully adopt and implement diversity measures.
- China and France were reported as having enacted legislation requiring women to be represented in union collective bargaining procedures, with court-imposed sanctions for breaches.
- It was reported that the governments of Hungary and Japan had introduced legislation requiring larger companies in both the public and private sectors to formulate equal treatment plans supported by statistical information.
- South Africa was identified as a particularly proactive country, with new legislation imposing affirmative action programmes on larger companies to reflect the country's gender, as well as race and disability demographics.

AGR 2017 confirmed that most country reports indicated that diversity laws, particularly with respect to gender, were already on the statute books. However, it was felt that compliance was greater among Northern European countries than in other jurisdictions. Nevertheless, it was noted that a number of multinational companies may go beyond the diversity and discrimination laws of the countries in which they operate.

Notwithstanding the fact that the representation of women on corporate boards has been an issue of focus for some time (as outlined in the reports above), nevertheless, in AGR 2018,

it was felt that women continued to be ‘significantly underrepresented’. It was noted that Germany, the Netherlands and Portugal had all enacted laws setting a minimum quota for the representation of women on the boards of public companies, and similar legislation was being considered in Finland and Switzerland. Finally, it was reported that, in the UK, employers with more than 250 employees are required to investigate and report information on the gender pay gap. Legislation relating to the reporting of any gender pay gap is also being considered in Canada and Ireland.

2. It is clear that there have been developments since the GEI started to issue annual reports in 2012. Nevertheless, the fact that the most recent report concludes that women continue to be significantly underrepresented on corporate boards indicates that progress in this area is slow.

IV. Age discrimination

1. In 2014, the GEI published a report that specifically considered the topic of age. Interestingly, most companies who responded to the survey conducted for the purposes of the *Age Report* reported that they have between three and four generations working together. Age-related issues were reported throughout the AGRs, although legal developments in this area appear mainly to be driven by economic considerations, as outlined below.

In 2012, the AGR reported that retirement was an issue that was being considered by a number of countries. In particular, EU Member States were looking to extend the age of retirement. Where retirement had not previously been regulated, such as in Malaysia, this was being addressed by law.

AGR 2013 noted that there were a number of reports regarding retirement from various countries. In 2012, these were broadly split into those countries that were extending existing retirement ages and those introducing retirement ages. In addition, AGR 2013 noted that, in the US, the Equal Employment Opportunity Commission amended its regulations concerning age discrimination in 2012 by listing criteria for employers to take into account when drafting policies that have a disproportionate impact on older workers. Finally, AGR 2013 commented that age discrimination claims in the UK have increased significantly, particularly in financial services, where bonuses for senior workers are less generous and retirement has been postponed as a result.

AGR 2014 also reported a growing trend in age-related issues, largely picking up on the developments reported in previous years. An interesting approach was reported in Finland, where legislation has been implemented that is aimed at promoting employment by older workers by increasing the costs related to the termination of the employment relationship.

AGR 2015 reported on a potential trend in the UK, where employers are perceived to be treating older workers more favourably than younger workers on the basis that younger workers, who are newer recruits, may be considered to have fewer employment rights (eg, the two-year qualifying period for unfair dismissal rights).

AGR 2016 noted that there appeared to be fewer high-profile discrimination claims than the year before, with the exception of age-related class actions becoming more common in the US, as wealthy baby-boomers reach retirement age.

Both AGR 2017 and AGR 2018 reported on the continuing trend among a number of countries to require employees to remain in the workforce for longer, considered as necessary to support ageing populations. In addition, a number of countries are reported as having adopted laws limiting the ability of employers to force employees into normal or early retirement.

2. Although the developments reported in the AGRs appeared to focus on extending or delaying retirement ages, the *Age Report* identified different concerns raised by employers. In particular, most companies who replied to the GEI survey indicated that they were aware that there were differing interests and needs in the workplace, depending upon the age group of the employee. Of concern, it was felt that these needs could not always be satisfied due to discrimination laws, which prohibited different treatment based on age. In addition, while most companies recognised the need to take measures in their organisation to respond to the needs of a multigenerational workplace, few companies had developed practical strategic measures to address these issues.

V. Other areas of discrimination and diversity

1. A number of the AGRs list developments in disability discrimination. AGR 2014 reported on a number of government initiatives to promote the employment of employees with a disability. For example, Japan imposed an obligation on listed companies to employ one disabled employee in every 50 workers. In addition, it was reported that US government contractors were given targets to employ veterans and those with a disability. Significant activity was reported in AGR 2015, which noted that a number of countries had enacted legislation providing protection, opportunities and benefits for employees with a disability and that other countries were embracing diversity and equal opportunity policies, even in the absence of legal regulation. Finally, an interesting development was reported in AGR 2016, which noted that rules in Chile were introduced to prevent disability discrimination, including restrictions on employers using genetic testing reports to determine whether employees might suffer from a disability.
2. A number of the AGRs list developments in sexual orientation discrimination, although, as noted in AGR 2017, while numerous countries' laws prohibit gender-based discrimination, relatively few prohibit discrimination on the basis of sexual orientation. Further, relatively few prohibit discrimination on gender identity and gender expression, although Canada and several Scandinavian countries do.
3. AGR 2018 looked at workplace accommodations for religious practices or beliefs. More than half of the countries surveyed reported little or no such accommodations for religious practices or beliefs beyond public holidays for the predominate religion in the country. Many such countries cited either relatively homogenous workforces or a social norm of not discussing religion in the workplace to explain the lack of accommodations. Religious accommodations, either as a legal requirement or a business norm, appeared to be most common in western Europe.

VI. Conclusion

1. The GEI reports identify that a number of developments have been made to address discrimination in the workforce and to encourage diversity. However, it is clear that development has often been slow. In some instances, positive developments have been led by organisations taking voluntary steps rather than led by governments through the implementation of legislation. In some instances, organisations may be failing to focus on issues, for example, in managing a multigenerational workforce. Swifter change may therefore require more concerted government intervention.
2. Looking forward, while there will continue to be a strengthening of discrimination laws in those jurisdictions where certain groups remain unprotected, it is unlikely that the range of protected groups (or characteristics) will extend beyond those that exist Europe and the US. What is likely is that current laws will be used in different ways to test the legality of working practices, such as those seen with the gig economy and with potential situations faced by employers employing increasing numbers of generations at one time, thereby raising issues of age discrimination.
3. Notwithstanding the slow progress to date, there is likely to be a continued drive to improve diversity in the workplace, whether by using legislation or quotas to force change, or by introducing legislation that requires organisations to publish statistics relating to diversity, thereby indirectly and softly naming and shaming employers with a poor record and lack of acceptable improvement in these areas. It is hoped that employers will respond by proactively bringing about further change and by embracing diversity and inclusion in a way that has only been seen by a relatively small number of employers.

V. FIFTH REPORT: EMPLOYMENT AND INDUSTRIAL RELATIONS LAW

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I. Introduction

The aim of this report is to consider how employment and industrial relations laws in various countries are equipped to handle the changes that are anticipated in the working world, and what changes in law, if any, are planned or anticipated to address the myriad changes that the future will bring to the workforce, working life and employer–employee relationships, as a result of advancement in technology and changing work cultures. A survey with 30 questions was sent to employment lawyers in several countries from different regions of the world. This report seeks to distil the responses received. Possibly due to the depth of the questions posed, we did not receive as many answers as we wished. This report nevertheless will deal with the responses in a way that will hopefully provide a representation of what the future of work holds for various important and quite diverse jurisdictions.

II. Changes in the law

The first question in the survey required the respondents to set out the changes they anticipated to the laws of their jurisdiction, in particular, in respect of working from home, flexible/temporary work, shared jobs, part-time versus full-time work and the right to disconnect (ie, to not engage in work-related electronic communications outside work), with particular emphasis on laws to protect the self-employed, caregiver or other leave and wage structures for flexible workers.

The European states of Finland and Spain anticipate changes such as the new Working Hours Act and laws to address flexible and part-time work in Finland. Finland also expects to see legislative changes relating to the right to disconnect. However, in Finland, the concept of shared jobs is not widely known and, although the rate of self-employed or independent workers is expected to increase, the social benefit laws provide protection and benefit only to a limited extent, with no change in sight. Nor is any change in legislation on leave expected. Changes seen thus far are created by the expectations of employees and response by employers without the benefit of legislation to shape or control such benefits. Flexible forms of remuneration are seen as beneficial, but opposition by trade unions prevents their development. In Spain, the changes have been limited to discussions on the need for legislation to address the right to disconnect. This is despite an increase in flexible work and part-time work.

Austria does not expect to see any changes in laws relating to those areas. Austria and Spain already have adequate protection in terms of social security and pension for self-employed and independent workers. Collective bargaining, which covers about 90 per cent of the workforce, is also seen as an adequate mechanism to protect workers. As such, no change is seen as necessary to cope with the increase of such workers. Like Finland, Austria does not see any changes in laws relating to leave but expects some flexibility in the relation between employers and employees in this area. Spain expects

* Reports coordinated by the IBA Global Employment Institute.

to see an increase in paternity leave benefits, but despite much discussion on work-life balance, no other changes are foreseen.

In South America, there are no anticipated changes to laws, but it is noted that, in countries such as Argentina, working from home and temporary work are on the rise. It is therefore possible that in the near future, changes to laws and to regulate self-employed and independent workers may become necessary. Presently, the law restricts flexible forms of remuneration. The laws on leave, however, are expected to change in reaction to the work–life balance demands of employees. In Chile, no changes or demands from the workforce for better leave benefits are expected. Self-employed and independent workers are presently covered by social security regulations.

Asia also does not see any impending changes to laws. None of the countries, whether China with its vast industries and workforce, Japan with its focus on technology, Malaysia with the large presence of foreign workers or Singapore, which sees itself as a leader in the region, see any real changes on the horizon. China acknowledges an increase in self-employed and independent workers, but does not foresee regulations to protect them. Similarly, employees may expect and even demand flexible working time/conditions, but no changes to laws are expected, although minimum wages may be on the increase. Japan anticipates some slight change, with an increase in the timeframe within which employees are given flexibility of work hours (termed ‘clearance period’) from one month to three months and sees the need to legislate to deal with the advent of AI, but has yet to see any proposals towards protecting self-employed or independent workers. There is some move towards paternity leave, but it is still very much in the early stages of discussion. Japan is also awaiting a Supreme Court ruling on the disparity of wages between full-time workers and others. It is expected that the Court will rule that such disparity is unlawful. Malaysia recently introduced the Self-Employment Social Security Act to protect the self-employed. There is also a slow but sure change towards achieving better work–life balance, with the first expected change to be the increase of maternity leave from 60 to 90 days. In Singapore, the laws relating to maternity, paternity and childcare leave were recently revised upwards, so no further changes are anticipated.

Finally, respondents were asked to comment on whether they foresee any difficulties in the application of current legislation to new business models and frameworks created by the collaborative economy and the erasing of limits between industries. Interestingly, even in Europe, difficulties are anticipated, possibly, as stated by the Austrian respondent, due to the nature of unionism and/or collective bargaining. Spain would like to see legislation deal with the classification issue, particularly concerning independent workers. Argentina sees the need for new legislation to deal with the challenges, and Chile sees a specific need to adapt a very inflexible labour statute to a flexible gig economy. In China, working hours law may need to be rejigged. In Japan, the concern is over the protection of independent workers. In Malaysia, no specific challenges are anticipated.

III. Skills and training

1. A couple of questions were asked about skills mismatch and the obligation to retrain employees and whether the latter is a priority, as well as what policies, if any, could be effective.

2. In most countries, there is a severe mismatch between skill sets and the needs of jobs. Retraining is also not a legal requirement, except in countries like Finland where it is required in cases of collective redundancies. Singapore stands out as a jurisdiction where grants are made available to promote the training of employees. In Malaysia certain employers are required to contribute to an HR fund that finances training or reskilling for the employees of organisations who contributed. None of the jurisdictions see the likelihood of educational institutions being able to address the problem successfully.

IV. Basic income/economic rights for all

1. It appears that, in Europe, there is no common approach to the concept of ‘basic income’ or an extension of economic and social rights for all employees. In Austria, even left-wing political parties do not see it as a solution. In Finland, there have been discussions at the governmental level on a ‘basic income’ or an extension of economic and social rights for all employees; and in Spain discussions exist, but not at governmental level.
2. In Argentina, due to the high inflation rate and the existence of non-registered labour relationships, discussions surrounding this issue are robust. Chile has some similar discussions.
3. China maintains interest in this discussion by publishing the minimum monthly salary each year. In Japan, Singapore and Malaysia, this issue has yet to gain sufficient interest.

V. Business reorganisation

1. In Europe, it appears that no changes are expected in the laws relating to how employees would be affected in the event of M&A and business reorganisations. This is possibly because the laws in this region are already well developed.
2. South America and Asia are also not expecting any changes in this area. In Malaysia, the Employment Insurance System Act was introduced on 1 January 2018 to provide protection for employees who lose their jobs.

VI. Right to fire

General

1. No changes are anticipated in the laws related to the ability to dismiss employees, including in terms of providing protection against dismissal for self-employed workers, save in Japan, where the law will presumably change towards protecting employees who are engaged under the guise of independent contractors and self-employed workers from dismissals.

Due to the introduction of new technology

2. In most jurisdictions, the introduction of new technology is deemed a legitimate, fair or just reason or cause to dismiss employees. In Finland, there are legal obligations imposed or

incentives provided to retrain employees in such circumstances, and it is indeed the practice to do so.

There are also legal provisions for labour protection and social security for redundancy dismissals in specified circumstances, including in relation to the introduction of new technology. This is the same in Spain. However, these safeguards do not exist in Austria, with the only support available to such dismissed employees being retraining provided by social security for those who face difficulty in finding another job.

3. In South America, the position is not consistent across the continent. In Argentina, it is not legitimate to dismiss employees on the ground of the introduction of new technology. There are legal provisions for labour protection and social security in place, and it is the practice to retrain employees who are affected. In Chile, such dismissals are permissible and there are no safeguards for employees and no obligation or practice to retrain.
4. In Asia, with the exception of Japan, which prohibits dismissals on such grounds, the other respondent countries allow it and have no requirement in law to retrain. Nor does there seem to be a practice or custom of retraining or any labour or social security protections, save in Malaysia, where the law requires termination benefits to be paid to lower-level employees and there is access to an insurance scheme for employees who lose their jobs.
5. No further development of law in this area is foreseen in any of the countries that responded.

VII. International labour standards

1. In Europe, international labour standards, in terms of adopting them or complying with them, are expected to become more important to some extent during the next few years, although no specifics were shared. However, some views were expressed that, within the EU, there is already a high level of convergence of labour standards.
2. In Argentina, international labour standards are already applied by the local labour courts. Whereas, in Chile, they have yet to gain any traction.
3. In China, the international labour standards may be utilised to regulate the termination at will of senior managers, but these standards are not expected to affect other Asian jurisdictions.

VIII. Collective rights

1. Collective rights, collective bargaining and the right to join trade unions is an important part of the equation for workers around the globe and continues to affect the employer–employee relationship. Questions were posed to assess if there will be a change in this trend.
2. In some European states, such as Finland and Austria, where the number of workers for whom working conditions are negotiated through collective bargaining is high, a decrease in this number is foreseen. Naturally, unions are expected to resist any changes that could reduce their participation or effectiveness since the trend in recent years has been for a decrease in union influence. In Finland, there could be a shift to stand alone or local agreements within

corporations. A shift is anticipated from national unions to local representative bodies within corporations, and it is hoped that fewer strikes will occur, with most disputes being resolved by way of discussions or negotiation. In some countries, such as Austria, there is no culture of strikes. In Spain, no real changes are anticipated, with strikes expected to remain the main form of collective action.

3. In South America, collective bargaining and trade unionism is expected to increase. The only way in which unions' influence or impact could decrease is by way of new legislation and this is highly improbable. Strikes are seen as the main type of collective action and it is expected to remain so. In fact, in Chile, recent labour reforms that have been implemented will see an increase in collective bargaining and possibly further changes will be introduced to regulate even non-unionised bargaining groups. Strikes would likely be more widely resorted to as a form of collective action as the recent labour reforms prohibit employers from replacing workers during strikes, which has the effect of imposing tremendous pressure on employers that seek to maintain operations.
4. In China, Japan, Singapore and Malaysia, no changes are expected.
5. Across the world, no changes are expected in terms of the involvement of union officers in corporate bodies such as the board of directors.

IX. Bribery and corruption

1. The heavy price paid by corporations around the world as a result of bribery and corruption committed by its employees, both monetarily and reputationally, has prompted corporations to introduce or enhance internal mechanisms to prevent, identify and punish such behaviour. Whether new whistleblowing procedures, cross-border investigations, confidentiality and legal privilege will develop is an interesting question.
2. In Europe, the GDPR was implemented in 2018, which affects confidentiality, including during investigations. No other changes are expected to affect this area, although Spain expects some additional changes.
3. In South America, changes are under way. Argentina approved a new law on this matter in November 2017. Chile expects to see voluntarily changes being made by companies.
4. Likewise, China does not see any changes in the law coming soon, but expects internal regulations within industries to increase. In Japan, the Bill of the Amendments to the Unfair Competition Prevention Act is being discussed by the Japanese Congress. The bill concerns unfair acquisition, utilisation and transfer of data, which are protected by IDs and passwords., Singapore similarly sees no changes in the near future. Malaysia has recently passed an amendment to the Malaysian Anti-Corruption Commission Act 2009, which provides that an offence committed by a company may be deemed to have been committed by its shareholders, board of directors or management. Furthermore, the amendment broadens liability to include any person who may be a partner or employee of a firm or provides services to it. This amendment is expected to come into force in 2020.

X. Post-employment covenants

1. Other than Finland, which will likely see some restrictions on the use of restrictive covenants, all other countries that responded do not foresee any changes in relation to enforcement by employers of restrictive covenants and obligations of confidentiality by employees.

XI. Dispute resolution

1. None of the countries expect significant changes in the law regarding the resolution of labour conflicts, except for Singapore, where there is a new procedure for mediation of employment claims prior to the submission of claims to an employment claims tribunal.

XII. Challenges in HR law

1. Respondents were asked to state the main three challenges in the area of HR law that their countries will face in the next decade, and whether their governments are considering or implementing any solutions regarding those challenges. The responses were varied, but had the common theme that the present laws are not adequate for the fast-changing workplace and work culture, as well as a concern that certain dangers inherent in the workplace are not adequately addressed.
2. Even in developed states such as Finland, legislation is mainly drafted for the factory workers of the past in mind. It does not take the new and more flexible forms of work into account. Although some solutions are being considered, changes seem to be very difficult to implement and this is seen as mainly due to the opposition of the powerful labour unions. Austria says that challenges exist in areas related to the flexibility of work, education and global competition. Certain changes are being considered, but the direction the changes will take is not known yet. In Spain, digitalisation and how this will affect the workforce; compliance and accountability for employees' actions, including the right to monitor employees versus the privacy of employees; and the public pension system are seen to be the main challenges, with frustration expressed that, at governmental level, discussion is limited to the last issue.
3. Argentina sees the remunerative nature of certain benefits granted to employees, and mobbing, harassment, stress and addiction in the workplace as the challenges that will be faced. Chile sees improvements to retirement, flexibility in the workplace and replacement of employees by AI as the issues to look out for. Chile, like Spain, sees governmental involvement limited to pension improvement.
4. In China, termination costs and the legal liability of employers are seen as needing interventions. In Japan, the challenges are related to employee welfare, such as bullying (where the government is trying to pass a law to prevent bullying); overly long working hours (where the Japanese Congress is discussing a bill to amend the Employment Standards Act); and a shortage in the labour force (with the government trying to encourage companies to use senior citizens and people with disabilities). Further, the Japanese government is discussing the hiring of more non-Japanese nationals. Malaysia needs its workforce to upskill and sees loss of employment due to automation and other factors, as

well as the demands by employees to have better work–life balance as the main challenges. The Malaysian government has recently implemented the Employment Insurance System Act 2017 as a safety net for unemployment.

XIII. Retirement

1. No significant changes to the law and practice of retirement are anticipated in most of the countries that responded. In some countries, such as Finland, Argentina and Malaysia, changes have been made in recent years, which makes further change unlikely in the near future. Only Austria and Chile are anticipating some changes, with both likely to see an increase in the retirement age, and Chile also likely to see an improvement in pension laws.

XIV. New categories of workers

1. Respondents were asked to describe the categories of workers (eg, employee, independent contractor, job share employees, dependent contractor, independent worker, contingent worker and other hybrid/third-category worker) that exist or are emerging in their jurisdictions. They were also asked if there are recent developments in the law in their jurisdictions, whether in terms of court decisions (including misclassification cases) or legislation (including proposed ones) that address the issue of alternative working arrangements in the gig economy or new/emerging worker categories.
2. Austria sees new categories emerging, such as independent employees/contractors and self-employed worker, in almost all industries. This trend was seen in the 1980s and 1990s, stopped after some legislative intervention and may now rise again, as international companies try to implement flexibility that is not always possible with all level of employees, especially ‘common’ employees. The distinctions and applicable criteria to determine those categories of workers remain one of the most complicated questions of Austrian labour law, with the basic questions being the level of dependency and integration into the business. There has been no recent development in law in this area, with any discussions limited to the academic sphere. In Spain, every category of worker exists in platform-driven industries because there is a need for it, although it is difficult to categorise them as they exhibit different features of relationships. This has given rise to some cases dealing with disputes over the classification of workers.
3. Argentina also sees new categories of workers emerging, but no development in the law to address this. Chile sees contingent workers rising, especially in the technology industry because there is a need for it, but Chilean regulations have no provisions to deal with it.
4. China allows for only part-time or full-time dispatched employees under its labour laws, and there has been no development in this respect. Japan recognises the concept of independent contractors, but has also seen no development in the law. Independent contractors exist as a category because there is a need for them in all industries, with the defining factor being the control exercised over the worker, although other factors, such as the ‘package’ paid, also determine the issue. The law has remained unchanged in recent years.

XV. AI

1. The advent of AI is expected to cause major upheavals in the workplace, with fears that jobs will be lost or working conditions could drastically change for human workers and over how the welfare of human workers could be affected. Questions were posed to assess the extent to which existing laws will serve to protect employees.
2. In most countries, there seem to be no specific laws in place or even planned to address large-scale unemployment that could result from the introduction of AI in the workplace. Argentina seems to lead the way with some potential development.
3. In Europe, current laws, even if not specific to AI, are seen as adequate to ensure workers' conditions of work are not adversely affected by reason of accommodating automation or robotics, for example, in terms of lighting, space, employee privacy and inequality between humans and non-humans; to safeguard against the risk of, or provide support to workers, suffering stress, anxiety or mental disorders because of working with robots or the fear of being replaced by automation/AI; and to ensure that employers take responsibility for their machines' conduct. If at all, some countries, such as Austria, think that enforcement agencies may have to adapt to apply existing laws to new situations and possibly, new laws may be needed for 'thinking machines'. In South America and Asia, the opposite situation exists, with no laws available to deal with those issues other than in respect of taking responsibility for the machine's conduct, but even then it is not known if it will deal adequately with machines powered by AI.
4. In Finland, current laws may be interpreted in a way to cause employers to pay a contribution or taxes for robots or machines. This is not the case in Austria, where a 'machine tax' was discussed but not developed, or Spain. Current laws in South American countries, such as Argentina and Chile, or Asian countries, such as China, Japan and Singapore, also do not support this concept.
5. There are proposals to bridge the competency gap due to the introduction or implementation of technology, AI, robotics and digitalisation in the workplace in Finland, but not in Austria or Spain. In Argentina, such proposals are being talked about proactively by unions and employers, with no development yet on the legislative front, but there is no such discussion yet in Chile. Similarly, in Asia, this issue has yet to garner enough attention to push forward any such proposals.
6. Most respondents' organisations in Europe have considered the ways in which the organisation or work will be affected because of technology or new forms of working, whereas in other regions, it is less common, with only the respondent's organisation in Argentina having done so. Again, Asia seems to be lagging behind with organisations that the respondents are from not having ventured into this area.

XVI. Future developments

1. Respondents were asked to comment on whether they foresee any difficulties in the application of current legislation to new business models and frameworks created by the collaborative economy and the erasing of limits between industries.
2. Interestingly, even in Europe, difficulties are anticipated, possibly as stated by the Austrian respondent, due to the nature of unionism and/or collective bargaining. Spain would like to see legislation deal with the classification issue, particularly concerning independent workers.
3. Argentina sees the need for new legislation to deal with the challenges and Chile sees a specific need to adapt a very inflexible labour statute to a flexible gig economy.
4. In China, the working hours law may need to be rejigged. In Japan, the concern is over the protection of independent workers. In Malaysia, no specific challenges are anticipated.

VI. SIXTH REPORT: GLOBAL IMMIGRATION AND NATIONALITY LAWS

Prepared by Tom Brett Young (Veale Wasbrough Vizards, Birmingham) (coordinator); Gunther Mävers (Michels.pmks, Cologne); Michèle Stutz (MME Legal, Zurich); Catherine Sas QC (Sas & Ing Immigration Law Centre, Vancouver); Bram van Melle (Everaert Advocaten, Amsterdam)

I. Findings on issues of immigration and nationality law

1. The aim of this report is to consider how immigration policies in different countries take into account and allow for changes in the workplace and the impact on the future of work. A survey was sent to lawyers from jurisdictions around the world who were asked to respond to questions about how immigration policies were used to address skill shortages in the labour market, how immigration policies take into account issues around flexible working, the extent to which migrant workers are permitted to integrate in different countries, immigration schemes that encourage entrepreneurs and high-net-worth investors into the jurisdiction, and how immigration policies are used to assist (or hinder) multinationals.
2. In compiling this report, two themes emerged in relation to the interaction between immigration laws and technology: how immigration laws and policies respond to and reflect technological advances in the workplace and society in general; and how technology is used in the enforcement of immigration controls imposed by governments. The survey questions that focused on technology primarily drew out views from international immigration lawyers on how the immigration laws in their own jurisdictions will adapt to changes in the workplace, including technological advances, and how local immigration laws will facilitate and encourage entry by technology workers. These developments are drawn out below. The theme of technology in the enforcement of immigration laws has emerged subsequently, and an assessment of this is set out in the additional findings section below, along with a summary of relevant findings from the GEI AGRs.
3. One thing that became apparent to the team analysing the survey responses and compiling this report was that the breadth of the topic and the qualitative design of the survey meant that fewer responses than had been hoped for were received. Additionally, some of the responses lacked sufficient detail to draw any firm conclusions. Ideally, the authors of this report would have wanted more time to return to responders to seek clarification and additional detail in relation to many of the answers. There were also instances of multiple responses being received from the same jurisdiction that were directly contradictory.
4. Despite these concerns, it is hoped that the following report nevertheless provides some insight into how current immigration policies around the world might affect the future of work and what changes might be introduced to accommodate changes to labour markets.

II. Skills shortages

1. *Compatibility with forthcoming changes in working patterns*

- i. The first question in the section of the survey looking at skills shortages asked respondents to comment on the extent to which their country's current immigration laws and policies are compatible with anticipated changes in working patterns over the next ten years.
- ii. In South American states, such as Argentina, Chile and Mexico, immigration laws are relatively compatible with anticipated changes, but the laws are older and therefore need to be adapted.
- iii. The US is unprepared for such changes and the law needs some changes. However, with current migration politics, it does not seem that there will be changes soon. Canada's immigration laws have been recently modified as of 1 January 2015 to be quite responsive to anticipated working changes.
- iv. The current immigration law in Japan does not allow many foreign people to migrate into the country. This immigration law needs a change since the Japanese population is plunging. Ghana wants to change the immigration law as well to bring it in line with current trends.

In Europe, immigration laws are generally not compatible (as regards non-EU nationals) and need to be improved, but there are some differences. The UK government has recently consulted on developing a new immigration system to take account of Brexit and align the UK labour market with a modern industrial economy. The Austrian immigration laws are getting more restricted and because of this, foreign specialists do not see Austria as an attractive place to work. Swiss immigration law is fair and usually companies get permits for the specialists required. However, there is still room for improvement for third-country nationals (ie, non-EU nationals), where the process could be faster. In Germany, the last major immigration law reform took place in 2004. Since then, a couple of amendments have been made to facilitate the hiring of, first, highly skilled and skilled migrants and, second, lower-skilled migrants to take account of the ageing population and general skills shortages. Currently, there are no specific plans to address changes in working patterns; however, the topic is very much discussed at all levels (eg, politically, lobbyists, the legal profession and corporate) so there are probably changes to be expected during the years to come.

- v. It can therefore be said that countries all over the world need adjustments to be compatible with the changes in working patterns.
- vi. A further issue to be considered is that, with technological advances, the need for more specialist workers will increase. Often, these new technologies can be operated, maintained, repaired and so on remotely, meaning that immigration controls are no barrier to the operation of these technologies. Sometimes, physical access to technology will be required, and where the technology is so specialist that a worker with

specialist knowledge from another jurisdiction is the only person who can carry out that function, immigration controls may be a barrier to the continued operation of that technology.

Organisations relying on such technology therefore need to give consideration to whether the immigration laws of the jurisdiction in which the technology is located will easily permit specialist workers from overseas to enter the jurisdiction to inspect, service, install, repair and/or maintain specialist equipment.

2. *Filling labour market skill shortages*

- i. Next, the survey asked respondents whether the immigration laws and policies in their jurisdiction incorporate mechanisms for filling labour market skill shortages. Where such mechanisms are incorporated in the country's immigration laws, respondents were asked to explain how shortages are identified and whether any quotas and/or minimum skill or education level thresholds are in place.
- ii. The South American states (Argentina, Chile and Mexico) do not have a mechanism for filling labour market skill shortages.
- iii. The US has some visa categories with a labour market test. Some fields are 'pre-certified' as having shortages, with an easier immigration process, but the application is rare.
- iv. In Europe, including Switzerland, there are different rules with respect to third-country nationals (ie, non-EU/Swiss nationals). Finland has some mechanism, for example, for experts who possess higher university degrees and earn a sufficient amount. In Austria, the government identifies shortages resulting in certain quotas for work permits for certain sectors. Furthermore, foreign students who obtain an Austrian university degree can stay in Austria if they find a job that pays an income above a certain minimum. The UK has some sponsored work visas, which can be more streamlined where the role is on a specified list of shortage roles, although that list is updated very infrequently. If an employer in Switzerland can prove that no employee from Switzerland or the EU can be found to perform the work, a third-country national can be employed. There is a limited quota for third-country nationals and employees must have a master's degree or many years of professional experience, that is, they must be highly qualified.
- v. As regards EU and Swiss nationals, the principle of free movement applies within the EU. In Germany, there is a trend to facilitate the hiring of third-country nationals by implementing lower salary thresholds for the group of mathematics, information technology, natural sciences and technology (MINT) occupations (mathematicians, IT consultants, natural scientists, engineers and doctors). If the conditions for the EU blue card category are met, the immigration authorities do not require consent from the labour authorities (except for shortage occupations) and can grant residence for the purpose of employment without the need for a labour market test. Another trend is to facilitate the hiring of third-country nationals without an academic degree for certain

occupations that are to be listed by the labour authorities on a regular basis as being shortage occupations.

- vi. Canada had a broad range of processes for bringing in skilled workers. Recently, it has introduced the global skills strategy for filling shortages in specific occupations. There is no minimum education or experience level; however, applicants must demonstrate that they are highly skilled and remuneration must reflect that skill level. Canada has also a job bank where employers and prospective employees can register to fill labour shortages. Additionally, in Canada, the Provincial Nominee Program, which is part of the federal immigration programme, allows for the regional identification of labour market needs and provides another means of addressing labour market shortages.
- vii. Most of the countries surveyed adopt a specific mechanism to fill skill shortages. However, the solutions look very different.
- viii. The survey then asked the extent to which mechanisms for addressing labour market shortages anticipate changes in the composition of the labour market over the next ten years, for example, changes caused by an ageing population or 'brain drain'. Respondents were asked to comment on whether their countries are seeking to appeal to any specific sectors or specialisms to address labour market shortages (eg, AI specialists).
- ix. In the US, some immigration programmes exist to encourage foreign university graduates to stay (eg, the H-1B visa and the O-1 visa categories). There are also some visas for entrepreneurs.
- x. In Austria, there are no expectations that the government will change anything in the next ten years. At the moment, the approach is to minimise immigration in general. In Switzerland, however, the mechanism for filling labour market shortages is very general and rather flexible. In Germany, salary thresholds and the list of shortage occupations are updated annually to meet the needs of the business.

3. *Recognition of the skills of migrant workers*

- i. The survey asked for comments on the extent to which skills of migrant workers are recognised.
- ii. In Finland and Sweden, a university degree is not mandatory to obtain a work permit. However, the migrant workers' education is often not recognised and highly skilled labour is therefore evicted.
- iii. The US immigration prioritises those with a university degree, particularly in science, technology, engineering and mathematics (STEM) fields. Degrees from US institutions are prioritised.
- iv. In Canada, a variety of work permit options exist, several of which have no skill requirement. However, for the foreign worker and global skills strategy programmes, proof of skills is essential.

- v. In Ghana, work permits are generally only available for skill sets not readily available in the country. Beyond these skilled workers, migrants working in Ghana are required to transfer knowledge and skills to the local workforce over time as a condition for the granting of work permits.
- vi. In Austria, the granting of work permits is dependent on the origin of the worker. As in other EU countries, citizens of EU member countries and Switzerland get a work permit easily; for other countries, a person's education may be recognised as equal to a certain Austrian education. Switzerland has a similar system: employees from the EU don't need specific skills and will get a work permit for any employment easily. Employees from third countries, on the other hand, must have many years of professional experience or a master's degree. In the Netherlands, skills are usually more or less objectified by salary thresholds (the idea being that high salaries reflect high qualifications or experience). For the approval of a sponsored work visa in the UK, employees must meet a minimum skills threshold. In Germany, a residence permit for the purpose of employment in a category that requires academic qualifications will be granted if the degree is from a German university or recognised as equivalent to a German degree.
- vii. In most countries, people from a third country coming to work must have been educated to degree level or have several years of professional experience.

4. *Free movement of labour agreements*

- i. Finally, on skill shortages, the survey asked about membership or access to supranational bodies or other agreements that permit freedom of movement for workers generally or in specific sectors/skill levels. For countries with membership or access to such agreements, respondents were asked to comment on whether any changes were anticipated over the coming years.
- ii. Most European states are part of the EU or European Economic Area (EEA). Within this zone, including Switzerland, there is free movement of labour for all citizens of the EEA and Switzerland. There are no changes anticipated in the basic principles in the near future. However, in Switzerland, a referendum on the termination of the free movement of persons is pending. The UK is also set to go through a big change. Whether it retains all or only part of the EU's rules of freedom of movement of people remains to be seen.
- iii. Ghana is a member of the Economic Community of West African States (ECOWAS) and the African Union (AU). The former is a regional grouping of 15 West African states that have signed on to protocols to ensure free movement of persons, goods and services. Although common residency has not been achieved yet, there is hope this will happen over the next ten years. Once this happens, workers from any of these countries may be allowed to work in other countries of ECOWAS without restriction. Recent commitments and similar trends by AU Member States towards trade among

each other may lead to similar commitments to free movement of workers in the next decade and beyond.

- iv. India has agreements with Nepal and Bhutan allowing their nationals to work in India without work permits. Other Asian countries, such as China and Japan, are not members of an agreement on the free movement of workers.

III. Flexible working

1. Besides skills shortages, the issue of immigration policies affecting flexible working was identified as a key issue with regard to the future of work given the increasing prevalence of employers introducing more flexibility (eg, home office and mobile working, flexible working time schemes and cloud working) while many of these developments are as yet not sufficiently dealt with by legislation or case law. The survey therefore endeavoured to find out whether this issue has an impact on migration laws and policies currently in place from country to country, and whether there are changes to be expected over the next decade.

2. Availability of flexible working for different categories of migrant workers

- i. The survey asked respondents if migrant workers in their country are permitted to engage in flexible working patterns (to include family-friendly policies and freedom to take other/multiple roles) by distinguishing between migrants who have entered the country primarily for specific employment, those entering to join or accompany family and those entering for humanitarian or other reasons.
- ii. The answers to the question ranged from a simple yes (eg, Finland, India, Japan and Mexico) or no (eg, Argentina, China and Spain) to more complex answers taking various aspects into consideration. In most countries, there are no differences between local workers or migrant workers with regard to the right to engage in flexible working patterns. This is the position regardless of whether the migrant worker has entered the country primarily for specific employment, those entering to join or accompany family and those entering for humanitarian or other reasons.
- iii. However, some say that the immigration laws in place do not facilitate the employment of migrant workers (eg, in Sweden, it takes in average of up to nine years to enter the labour market in any capacity) and therefore migrant workers do have fewer rights as a matter of fact because it simply takes them longer to get into the position to be able to claim the right.
- iv. In some countries, the reason for migration makes a difference. For instance, in the UK, those on family visas or those granted leave for humanitarian reasons have no work restrictions, whereas those on work visas are generally restricted to the job and role they have been sponsored to. In Ghana, those entering for humanitarian reasons engaged by non-governmental organisations (NGOs) will still require permission to engage in the relevant activity.

- v. Moreover, in some countries, full-time employment is, in principle, mandatory for foreign workers (Switzerland) and in others, working part-time may only result in not meeting salary thresholds for a certain work permit category (the Netherlands).
- vi. Finally, in Germany, the laws have been amended in a way to make the hiring of migrant workers that have entered the country legally or whose stay is legal easier to integrate those migrant workers as effectively as possible.

3. *Hours of work*

- i. The survey asked respondents if migrants who have entered the country primarily for economic reasons are guaranteed or required to work a minimum number of hours and if the industry/sector they are working in has any bearing on this (eg, those employed in agriculture).
- ii. In most countries, the clear answer to the question was no (eg, Argentina, Finland, Mexico, Ghana, Chile, China, Japan, the Netherlands and Germany) whereas others would rather say generally yes (the UK).
- iii. Moreover, it is stressed that the migrant has to comply with the working time as set forth by the laws or the employment contract, and non-compliance may have an impact on the work permit (eg, if it affects the salary threshold prescribed by the relevant work permit category, as in the Netherlands and US). In some other countries, to work full-time is a mandatory requirement for a work permit (eg, China).
- iv. Finally, many also mention the minimum wage requirement (eg, Sweden) or the general obligation to have sufficient funds for living (eg, Austria and Switzerland). It is also mentioned that the authorities do check compliance with the working time legislation and how overtime is paid (eg, Germany).

4. *Changes in career and adapting to changes in the workplace/business*

- i. The survey asked respondents if migrant workers are permitted to change career path or their role to allow them to adapt to changes in the workplace/business by (again) distinguishing between migrants who have entered the country primarily for specific employment, those entering to join or accompany family and those entering for humanitarian or other reasons.
- ii. The answers to the question vary significantly. Whereas some say simply yes (eg, China, Finland, Japan and Mexico) or no (eg, Chile, India and Ghana) or yes and no (Argentina), other answers are more distinguished.
- iii. Many respondents do say that, whereas it is in principle possible for migrant workers to change career path or their role, this turns out to be quite difficult (eg, Sweden and the UK), if not even impossible (eg, Israel).
- iv. Others do stress that as long as the requirements for the work permit are met after the change of career or the change of role, such a change would be possible to the same extent as for local workers. However, it is stressed that migrant workers are dependent

on the companies sponsoring their applications (eg, Austria, Canada, Germany, the Netherlands and Switzerland).

- v. Finally, there seems to be more flexibility for those being in the country on what is referred to as ‘an open work permit’ – that is, for migrant workers that are spouses of workers, international or youth mobility workers, students and/or post graduates (Canada and the US)

5. *Anticipated changes*

- i. Finally, the survey asked respondents if they anticipate any changes to the aforementioned over the next ten years.
- ii. Again, the answers to the questions differ, covering the range of possible responses, such as no (eg, Argentina, Ghana, China and Switzerland), yes (eg, Finland, Mexico, China and Japan) and more nuanced responses, such as ‘not really’ (eg, India), ‘too long to tell’ (Israel) or responses including a personal opinion expressing hope for a change for the better (eg, Canada and Sweden) or fear with regard to the migration crisis (eg, Germany and the Netherlands) or Brexit (the UK).

IV. Integration

1. *Availability of permanent residence to migrant workers*

- i. On the question of integration, respondents were asked to describe the extent to which migrants are permitted to remain permanently in their country, distinguishing between those coming primarily for work, those coming to join family and those coming for humanitarian reasons. Respondents were also asked to describe whether there are any barriers to citizenship for these groups.
- ii. In Argentina and Chile, migrants are able to enter on employment-based work permits and then obtain permanent residence. Laws apply to all types of migrants and permanent residence and citizenship is readily obtained.
- iii. In Europe, there are options to obtain permanent residence, generally after working in the country for a period of four to ten years or more. In Germany, this can be reduced to as little as 21 months, with sufficient proficiency of the German language. There is no mention of any restriction towards obtaining citizenship. The UK permits multiple citizenships.
- iv. In Israel, workers can remain in the country for a maximum of 63 months and then must depart. There are no options for obtaining permanent residence or citizenship.
- v. In India, workers can work indefinitely, but must extend their status every five years. After 12 continuous years as a worker, they may qualify for citizenship.
- vi. Ghana’s immigration laws provide for an indefinite residence permit for principal applicants and their dependents as long as certain conditions are met by the principal

worker. There are no barriers to obtaining citizenship as long as the eligibility requirements are satisfied.

- vii. Migrants in the US can pursue permanent residency based upon employment, family, lottery and asylum status; however, country quotas are a factor, which creates long waiting times overall.
- viii. Canada has numerous options for migrant workers to obtain permanent residence status both at the federal and provincial/territorial level. Generally, workers must possess advanced skills, education, language proficiency and work experience. Applicants joining family members may qualify on their own or be included in a qualifying family member's application. Humanitarian applicants can apply, but it is a purely discretionary process. There is no bar to obtaining citizenship other than meeting the residency requirement of three years of physical presence in Canada.
- ix. Most respondents indicated that they did not think that any changes to these policies were likely in the next ten years.
- x. In Sweden, it is anticipated that the government will want to keep workers and expel those with residence permit denials. It is possible that there will be changes in Austria with a restriction on the option of permanent residence for refugee applicants.
- xi. China, the Netherlands and the US all reported that changes were likely. In Canada, there are possible minor changes given that significant changes were introduced only a few years ago.
- xii. In the UK, it was reported that Brexit is creating uncertainty for the future of the economy as a whole, which makes the immigration system also uncertain.

2. *Accompanying family members*

- i. The survey asked respondents to describe the extent to which the partners of migrants can accompany the main applicant and work in the jurisdiction, also distinguishing between those coming primarily for work, those coming to join family and those coming for humanitarian or other reasons. Respondents were also asked to address whether unmarried partnerships were recognised and whether the immigration laws recognise partners of applicants in lesbian, gay, bisexual, transgender and queer (LGBTQ+) relationships.
- ii. Virtually all jurisdictions permit spouses of workers to obtain work permits, except for Chile, and virtually all allow for work permits for LGBTQ+ partners, with the exception of India and Ghana.
- iii. Chile permits married spouses, including those in same-sex civil unions, to apply as dependents to remain in the country, but not to work. Unmarried partners are not allowed as dependents.

- iv. In India, only heterosexual spouses are eligible for dependent work permits and, in Ghana, immigration laws don't recognise LGBTQ+ relationships and, in some cases, criminal laws prohibit such unions.
- v. In the UK, there are no prohibitions on the nature of the relationship; however, couples must demonstrate that they have been married or cohabiting in a spousal relationship for two or more years and in Canada, cohabitation must be for at least one year. Canada also permits work permits for humanitarian cases, but only once the application has been assessed and accepted in principle.
- vi. Virtually all jurisdictions reported that they did not anticipate any changes, other than Austria, Chile, Germany and Sweden. In Sweden, changes are anticipated and in Austria, it is reported that these policies might become more restricted. In Germany, it is anticipated that spousal employment will become more important given the lack of skilled workers and the global race for talent. Changes in Chile are dependent on the progress of same-sex marriages which, if permitted, would also permit visas to be granted.

3. *Refugees*

- i. The survey asked whether each country is a common destination for foreign populations seeking refugee status and, if so, to explain whether integration of refugees into society and the workforce is encouraged.
- ii. Virtually all jurisdictions indicated that they were common destinations for refugees, with the exception of Chile, China, India, Israel, Japan and Spain. Most countries identifying as common refugee destinations are supportive of integration into society and the workforce, except for Sweden, where refugees are rarely offered jobs and the skills of refugees are considered of little need. In the UK, refugees are permitted to work on the grant of asylum/humanitarian protection, but prohibited from working while their claim is still pending, and given little opportunity to work even if the claim is pending after 12 months.
- iii. The majority of jurisdictions reported not anticipating any changes to their country's refugee policies, with the exception of Austria, Canada, China, Germany, Mexico, Sweden, the UK and the US. Germany, Mexico, Sweden and the US identified as anticipating changes to their refugee policies. In the UK, it is likely that there will be changes.

In Austria, refugee policies might be more restricted. In China, refugee policies may change and in Canada, it is probable that refugee policy will change given the extreme increase, relatively, in refugees arriving from the US.

4. *Exploitation of migrant workers*

- i. Respondents were asked whether their country's immigration laws address the issue of exploitation of foreign workers, either before or after arrival in the country.
- ii. Virtually all countries reported having immigration laws to address the exploitation of workers, with the exception of Israel and Japan. In Ghana, there are no specific

immigration laws; however, the Labour Act applies to all foreign workers and guarantees basic work rights to foreign workers and Ghanaians. In Canada, there are severe penalties for employers engaging in the exploitation of workers, including large fines and criminal sanction, including incarceration. Canadian immigration officers also have discretion to provide relief to workers who have been exploited, including issuing or renewing work permits.

- iii. Most jurisdictions reported that they did not anticipate any changes to their policies regarding the exploitation of workers. However, Japan, Mexico and Sweden anticipate changes. Changes are likely in the US and possible in the UK. Chile is currently engaged in discussions on their migration laws and may introduce changes.

V. Entrepreneurs and investors

1. The survey asked respondents to comment on whether there were immigration laws and policies in each country that are aimed at encouraging entrepreneurs/job creators, whether there are laws/policies aimed at encouraging high-net-worth investors/wealth creators and whether any changes to these policies were envisaged in the next decade.
2. *Visa schemes for entrepreneurs*
 - i. Many countries run immigration schemes aimed at encouraging entrepreneurs, with the objective of encouraging business growth and employment. These may take the form of a dedicated immigration scheme encouraging migrant workers to the jurisdiction with the intention of starting a business (eg, Ghana, India, Israel, Switzerland, the UK and the US), or more general schemes permitting self-employed migrant workers to enter the country (eg, Austria, Japan (highly desirable non-Japanese people) and the Netherlands). Germany offers no investor or entrepreneur category, so investors and freelancers from third countries must comply with the immigration laws related to self-employment, requiring them to demonstrate that there is an economic interest or a local requirement, the activity is expected to have positive effects on the economy and the financing of the enterprise is assured by equity or promised credit.
 - ii. The level of scrutiny applied to entrepreneur visa schemes varies wildly. Both the UK and Switzerland's respondents reported that detailed business plans need to be submitted in support of the visa application. In the UK, scrutiny applied to these plans and the bona fides of applicants has led to very high refusal rates, leading to the conclusion that the scheme is not at all fit for purpose. Israel's scheme is reported to provide an easy path to a work permit.
 - iii. One notable exception was Sweden, about which the survey respondent noted that, in general, government policies were of a socialist nature and offer little encouragement to entrepreneurs or wealthy people.
 - iv. The majority of respondents were not terribly optimistic that their governments would be making positive improvements to their entrepreneurial visa schemes in the coming decade. In Chile, a new temporary visa is being introduced for entrepreneurs and job

creators, the government clearly recognising that foreign nationals can have a positive contribution in terms of creating jobs and benefiting the wider economy.

- v. It is thought that a startup visa is likely to be introduced in the US, while the UK introduced its own startup visa scheme in March 2019. The respondent from Ghana expressed the view that reforms to the routes for entrepreneurs and investors are very likely if the country is to remain competitive.

3. *Visa schemes for high-net-worth investors*

- i. Schemes aimed at encouraging high-net-worth investors and wealth creators appear to be less common among respondents, although are still available in many countries. In addition to the widely publicised citizenship or residence-by-investment schemes operated by countries such as Cyprus, Malta, Portugal and Saint Kitts and Nevis, respondents referred to schemes encouraging high-net-worth individuals in Chile, Ghana, Mexico, the Netherlands, Spain, the UK and the US (through an active investment programme).
- ii. In Ghana, legislation has been passed that includes tax incentives and is subject to quotas based on levels of investment and repatriation of profits in an effort to encourage maximum value to Ghana from investment.
- iii. The scheme in the Netherlands is reported to be unpopular and very rarely used. It is speculated that ideally the scheme should be amended to make it more user-friendly, but the fears are that it is more likely to be scrapped altogether. The UK has also reported a low take-up of its investor programme, particularly since the doubling of the required investment amount and availability of competing schemes from other EU countries, but this trend appears to have reversed since the Brexit vote, with interest in the scheme increasing once again.

4. *Future developments to visa schemes for entrepreneurs and high-net-worth investors*

- i. As a general rule, it would appear that while many countries offer schemes to encourage investors to take up residence in the jurisdiction, respondents were concerned at the ability of their governments to adapt those schemes to changes in the workplace over the coming decade. The UK is likely to require a radical overhaul of its immigration system in response to the cessation of free movement from the EU. Currently there are no restrictions on entrepreneurs and the independently wealthy from the EU relocating to the UK, so decisions will need to be made about the extent to which that can continue post-Brexit.
- ii. In Japan, it is thought that more flexibility will be introduced to their schemes encouraging entrepreneurs and high-net-worth investors, perhaps as part of a wider programme liberalising the country's strict immigration laws to deal with issues arising from its ageing population.
- iii. At the other end of the spectrum, and perhaps surprisingly given the its historically positive view of immigration, Canada offers no federal investor or entrepreneurial categories. Instead, the government's focus is on job creation by Canadian employers.

VI. Multinationals

1. The survey asked respondents for their views on whether existing immigration laws and policies facilitate or encourage multinational corporations within each jurisdiction. In particular, the survey asked about the transfer of skilled and senior employees from related entities overseas, the hiring of skilled foreign-national workers who had not previously worked for the business, immigration routes facilitating the establishment of new branches or subsidiaries in the jurisdiction and the extent to which respondents envisaged any changes to these policies in the next decade.
2. *Intra-company transfers*
 - i. Most countries have in place immigration schemes permitting employees from overseas branches/related companies of establishments in the jurisdiction to be granted permission to come to the country and work. In many countries, these schemes are restricted to senior and highly skilled employees of the overseas branch/related company.
 - ii. In other jurisdictions, while there is no specific scheme in place for intra-company transfers (eg, Chile and Ghana), other immigration schemes exist that permit such a transfer. For example, in Ghana, foreign nationals needing to work in the country must apply for a work permit, with short-term permits available for assignments of up to six months.
 - iii. Many countries report restrictions in terms of skill-level, seniority, minimum salary and/or prior experience with the corporate group. For example, in Switzerland, managers, specialists and other highly qualified employees who have worked for a related company overseas for at least 12 months can qualify for an intra-company transfer visa. The schemes available in Germany are mostly based on qualifications and salary thresholds. In Canada, these arrangements are based on the country's bilateral trade agreements, whereby executives, managers or specialised knowledge workers can be transferred; the arrangements do not extend to low or semi-skilled workers. In the US, these transfers are covered by a dedicated immigration category: L-1.
3. *Work visas for new hires*
 - i. Similarly, most jurisdictions offer work visas to skilled workers from overseas with no prior experience of working for the hiring company or its related companies overseas.
 - ii. Some countries put in place additional requirements where there is no intra-company transfer element to the hire. Canada, the UK and the US all require the hiring company to demonstrate that there are no resident qualified candidates who can take the position. In India, the immigration regime is said to be welcoming of skilled workers while in Israel, the hiring company would need to demonstrate that there is a local project requiring the new hire.

- iii. Many countries also impose a minimum skill level requirement for visas issued in these circumstances, with the most commonly reported minimum being jobs skilled at graduate level.

4. *Establishment of branches/subsidiaries by new entrants to the jurisdiction*

- i. As for immigration schemes granting visas to migrant workers to assist in the establishment of subsidiaries or branches of overseas businesses, responses were a little more mixed.
- ii. In Sweden, for example, the process is reported to be very long-winded, with restrictions on bringing in staff for at least a year. In Chile, Ghana, Japan and the US, for example, there are no specific immigration categories, but such transfers are still possible under other routes. In China, it was reported that the immigration regime discourages this approach and instead prefers a Chinese legal entity to directly hire any foreign nationals who need to work in China.
- iii. In the Netherlands, sponsorship of foreign national employees is generally reserved for existing companies, but the Netherlands Foreign Investment Agency can support the establishment of a branch or subsidiary after which sponsorship will be possible. In the UK, there is a specific immigration category designed for ‘sole representatives’ of overseas businesses, and immigration permission is certainly available in these circumstances in other countries, such as Argentina, Canada, Germany, India and Mexico.

5. *Anticipated changes*

- i. Respondents were again concerned that the immigration arrangements for multinationals are unlikely to change in the next ten years. Respondents from South American countries, such as Argentina and Chile, did not envisage any changes to the current immigration laws for multinational transfers and hires; US-led changes to the North American Free Trade Agreement (NAFTA) may affect the regimes in Canada, Mexico and the US. Reports from China also indicate that no changes are likely in the coming decade. Ghana is reviewing its immigration laws, with promises to introduce changes that reflect global trends. In Japan, it is expected that more flexibility will be required in the future and, as reported elsewhere, the UK’s immigration regime will probably have to change quite radically to make allowance of its decision to leave the EU. In other European countries, radical changes to immigration requirements involving multinational companies are not envisaged.

VII. Additional findings

- 1. In addition to reviewing the responses to this joint ILO–IBA survey, we considered the AGRs prepared by the IBA GEI and their findings in relation to trends in global immigration policies. Those reports, which have been published annually since 2012, draw on surveys completed by lawyers from private practice and working in-house for multinationals and highlight many of the trends identified in this report.

2. The GEI's reports confirm that it has become harder for businesses to recruit domestically and internationally due to increasing competition for talent coupled with government restrictions on immigration, many of which have been implemented in response to populist sentiment and pronouncements of extremist politicians.
3. Further, the GEI's reports identify that many countries face particular issues with lack of skills in the science and technology fields. To counter this, multinational companies try to widen the available talent pool by recruiting globally, but restrictive immigration policies mean that this is not always possible, or do not allow them the flexibility that they need.
4. Finally, a theme not drawn out from the survey but which has emerged in the compilation of this report is around the use of technology in the implementation and enforcement of immigration controls. Security is one factor driving this: reducing fraud in relation to identity documents and passports and sharing information between governments in relation to criminal and immigration histories. Another factor is the ability of technology to make travel for certain classes of traveller more straightforward, the increasing prevalence of e-passport gates being one. However, while ease of travel might be possible for many travellers, those from supposedly 'high risk' jurisdictions (typically low and middle-income countries) are unlikely to benefit from such advantages, with governments opening access to those facilities to certain nationalities only. Further, as information sharing becomes more prevalent so the possibility increases that bad but unappealable immigration decisions made by other jurisdictions will hinder the ability of many people to travel overseas.
5. AI is also finding its way into decision-making in immigration applications, most notably in Australia, Canada and the UK. AI is used to augment decisions made by humans by highlighting more risky applications (based on risk factors, such as the applicant's nationality, their location and their immigration history) so that decision-makers can apply more scrutiny to those applications that are identified as posing a higher risk. The risk, of course, is that such an approach perpetuates, or even accentuates, existing prejudices around certain types of immigration applicant.

VIII. Conclusion

1. The analysis of the responses, coupled with the previous AGRs of the IBA GEI, lead to the following conclusions on the relationship between global immigration and nationality laws and the future of work:
 - i. **Skills shortages:** The ability of governments, through their immigration policies, to recognise and adapt to skill shortages leaves much to be desired, with many having no formal mechanism for adapting immigration policies to skill shortages, while others do not respond quickly enough.
 - ii. **Flexible working:** While many employers throughout the world are looking to introduce flexibility to their workforces, most reported immigration regimes take very little account of this, particularly in relation to migrants moving primarily for work.

- iii. Integration: Most reporting countries allow certain categories of migrant to acquire permanent residence and will also permit accompanying family members; however, the extent to which non-traditional relationships are recognised varies considerably. Issues of integration, including welcoming refugees, are likely to be most closely bound up in each country's attitudes to immigration, which is jeopardised by the rise of populist sentiment in many jurisdictions.
- iv. Entrepreneurs and investors: Many countries have schemes for encouraging and welcoming entrepreneurs (or job creators) and investors (or wealth creators), although there was much negativity from respondents as to whether governments would be able to adapt those schemes to changes in the workplace over the next decade.
- v. Multinationals: Most jurisdictions have immigration schemes in place that assist established and establishing multinationals, with very few changes to the current arrangements anticipated.
- vi. Technological advancements will act as a driver in the development of immigration policy as governments seek to encourage technology workers to their jurisdiction. Governments must also consider whether immigration laws need to be amended to reflect the need for workers to enter the jurisdiction to work with specialist technologies and perform activities that may be prohibited by laws drafted long before such technologies existed. Technology also acts as a force for change in the implementation of immigration controls, being used for security, facilitating easier entry to a country and even in the decision-making process.

VII. SEVENTH REPORT: INTELLECTUAL PROPERTY LAW

Prepared by John Wilson (John Wilson Partners, Attorneys-at-Law & Notaries Public, Sri Lanka)

Executive summary

It is generally understood that innovation is key for the survival of businesses and will be even more so in the future. Evidence for this exists in the context of the exponential growth of innovative companies such as Amazon. The increasing adoption of AI in the workplace will likely have a significant impact on the future of work.

Therefore, it is important to consider whether the human workforce or AI will be the main source of innovation. Considerable effort and study will be required to consider what changes, if any, to rules in IP laws are required when it comes to allocation of rights to IP/know-how originating from employees and associated economic benefits, so as to promote and ensure innovation.

New rules will need to evolve when it comes to ownership of and benefit from innovation/know-how originating from AI.

Further, in an increasingly interconnected and highly networked business world, questions will need to be answered, such as whether independent contractors will innovate and license their innovations to organisations or innovation will occur within an organisation and what changes, if any, to IP laws would be needed.

In the context of the future of work, it is important to examine how the laws governing IP creation and protection need to evolve from the perspective of employees and more generally.

Presently, with regard to copyright and authorship, patents and inventorship, and industrial designs and creatorship, the norm is that there has to be a natural person, and innovation generated by AI stands outside this scope. Therefore, it is clear that most countries will have to look into new interpretations of their IP laws to see if they can accommodate IP generated through AI regarding ownership and protection of economic and moral rights. Increased innovation through AI will undoubtedly affect the workplace and roles of employees, though it is difficult to predict how.

As innovation is critical for the survival of businesses, consideration may be given to the development of some form of shared model of ownership, leading to more sharing of ownership and economic benefits of IP/know-how between the employer and employee, the developer of the AI and the employer, and the independent contractor and the person commissioning the work. However, it appears that contractual provisions may soon become the default way of dealing with these issues until policy directions and accompanying legal changes can be established to ensure that innovation and generation of IP and know-how is fostered and promoted.

The survey

Innovation is key to businesses and their survival in the future, as is evidenced by the massive growth of innovative companies such as Amazon. New smartphone technology and the increasing use of apps can mean that a previously successful business model through a new innovative platform is suddenly replaced by a new business model or an app, which gains massive customer uptake in a short period of time.

At the same time, the increasing adoption of AI in the workplace has the potential to significantly affect the future of work.

Who will innovate in the future? Will AI become the main source of innovation on which the future profitability of businesses will depend, or will it be employees? Or will it be individuals who aren't employed but commissioned to come up with new ideas and processes – that is, independent contractors? Or will it, in an increasingly networked world, be individuals working for themselves who enter a new digital marketplace for the licensing of innovations to corporations.

Will there be a new model of crowdsourcing for innovation and ideas?

How will the law governing IP protection and creation need to evolve?

What will be the rights of the creators of AI? Should and will employees who innovate be entitled to ownership of the IP and greater rewards?

The future scope of IP and the impact on traditional employer/employee legal frameworks in regard to rights to IP generated by IP, employee-generated IP and IP generated by others are likely to be affected in the long term due to the incorporation of AI in the workplace and the increasing importance of innovation.

An assessment of the likely direction of these IP-related aspects of the future of work broadly involved assessing what the current position is in countries and seeking the views of the respondents as to what is likely to happen, and was considered opportune in 2018 in the context of the ILO–IBA agreement.

Earlier that year, the Intellectual Property and Entertainment Law Committee prepared a survey and sought answers to the questions therein. The survey, together with a survey from the Technology Committee, posed a total of 62 questions relating to the areas of IP and technology. A limited number of respondents responded and so the views expressed herein are not so much based on the empirical gathering and collation of responses from the survey (although the answers received have been helpful), but rather the content of this report reflects the ideas of the author.

The IP-related questions included inquiries about the state of the law in terms of ownership and remuneration for employee inventions and innovation; the impact of AI and what further changes to law are considered to be necessary; the law and practice relating to the implementation and use of technology in the workplace; and the changes that have been made to the law as a result of the increased use of technology.⁵²

⁵² The Intellectual Property and Entertainment Law Committee is grateful to the participants in this survey.

The questions

I. AI

1. Does your jurisdiction require:
 - (a) an author of a work attracting copyright protection to be a natural person;
 - (b) an inventor of a patent to be a natural person; and
 - (c) the creator of an industrial design to be a natural person?
2. If so, in a case in which such IP has been authored/invented or copyrighted by means of AI, who would be entitled to the IP and are any changes to these provisions needed?
3. Having regard to the changing nature of work, and in particular the use of AI in the workplace, are any changes to the terms of protection of IP rights necessary?
4. Having regard to the changing nature of work, and in particular the use of AI in the workplace, are any changes to the scope of protection of IP rights necessary?
5. Having regard to the changing nature of work, and in particular the use of AI in the workplace, are any changes to the concept of protection of IP rights necessary?

COUNTRY	LAW FIRM	MEMBERS
Brazil	Demarest Advogados	Tatiana Campello
Morocco	Cabinet hhh Avocats	Ahmad Hussein
Paraguay	Berkemeyer	Marta Berkemeyer
Philippines	Quisumbing Torres	Bienvenido A. Marquez III Neonette E. Pascual
Russia	ALRUD Law Firm	Maria Otashenko
Russia	Pepeliacy Group	Alexandra Starostina
Singapore	WongPartnership LLP	LAM Chung Nian
Sri Lanka	John Wilson Partners	John Wilson Sameendra Perera
Turkey	Firat-Izgi – Attorney Partnership	Sevi Firat

II. *Rights of employees and independent contractors*

6. Does your jurisdiction have any provisions in regard to:
 - (a) the rights, if any, of employees to IP developed during the course of the employment relationship; and
 - (b) the rights, if any, of independent contractors to IP developed during the course of the independent contractor relationship?
7. If the answer to question 6(a) is yes, please summarise the position in your jurisdiction.
8. If the answer to question 6(b) is yes, please summarise the position in your jurisdiction.

9. What are the most important reported judgments, if any, in regard to the rights (eg, ownership, exploitation, compulsory licensing and royalties), if any, of employees/independent contractors to such IP?
10. Is the increasing incidence of disruptive technologies leading to new models of work in the future world of work likely to lead to a need for change in the concepts of ownership, exploitation and so on of IP and the categorisation of employees/independent contractors? If so, what changes do you consider would be needed in your jurisdiction?

III. Know-how issues in the context of the future world of work

11. Does your jurisdiction protect know-how? If so, please summarise the key rules/principles – both from the perspective of any applicable legislation, if any, as well as any reported judgments, if any.
12. If know-how is not expressly protected in your jurisdiction, do you consider, having regard to the future world of work (disruptive technologies, new collaborative working models, AI etc) that know-how should receive legal protections and/or enhanced legal protection?

IV. Novelty and disclosure issues in the context of the future world of work

13. Are the existing legal provisions adequate to cope with novelty and disclosure issues in the context of patenting where multiple persons (whether employees or independent contractors or a mix of such categories) engage in innovation?
14. What are the most important reported judgments in your jurisdiction about this issue (if any)?
15. What are the changes, if any, needed having regard to the future world of work?

V. IP rights and jurisdiction allocation in the context of the future world of work

16. Having regard to the increasing prevalence of working models across multiple jurisdictions, do you consider that the existing legal provisions in regard to ownership of IP rights in your jurisdiction need to be changed?
17. Having regard to multijurisdictional collaborative inputs in the process of the generation of IP, does your jurisdiction have any legal provisions in regard to how the governing law applicable to that IP should be determined?
18. What are the most important reported judgments in your jurisdiction about this issue (if any)?
19. If not, should your jurisdiction have any such legal provisions?
20. Do you consider that change or reform to the law governing your jurisdiction is necessary having regard to the future of the world of work?

VI. *Confidentiality obligations and restrictive covenants in the context of the future world of work*

21. How will new relationships in the world of work affect confidentiality obligations of employees/independent contractors in the context of IP-related information?

Key findings

A. AI

I. *Jurisdictional prerequisite for a 'natural person' in relation to:*

i. COPYRIGHT AND AUTHORSHIP

There are two broad approaches. The 'traditional' approach would be that an author must be a human (natural) person. This is obvious since it is the case that, in bygone times when concepts of authorship and IP were conceived, there was no such thing as AI.⁵³ The new approach would be that a human (natural) person is not required.

The requirement that there should be a natural person is of course not invariable and there are countries in which this requirement is not explicitly stated in IP legislation. Given the slow pace of legislative reform in most countries, it seems likely that the requirement that there be a natural person for copyright protection to be available will not change in most jurisdictions in the immediate future. Changes to the default rule are only likely to occur as and when there is a court decision that leads to a change or results in pressure/momentum for a change leading to statutory reform.

It is therefore possible that, in the event of works capable of attracting copyright being created through AI, protection would not accrue unless courts were minded to ascribe the right to protection to the person that created the platform providing the AI, or perhaps to the entity that devised/made available the AI. It is unlikely that most statutory provisions governing copyright could be so broadly interpreted.

Given the complexities, the only possible way forward may be through contractual provisions.

When it comes to the world of work, the question of ownership of IP, such as copyrightable works generated through AI, remains somewhat outside the scope of the discussion of the future of work, since it is difficult to conceive that an algorithm or robot could be considered to be an employee.

ii. PATENT AND INVENTORSHIP

In the field of inventions and patents for inventions, it appears to be the case that most countries require an inventor of a patent to be a natural person. In the past when concepts of inventorship and IP were conceived, there was no such thing as AI.⁵⁴

⁵³ Eg, Brazil, Paraguay, the Philippines, Russia and Singapore, and require the author to be a natural person. Singapore, in particular, has noted the importance of needing human authorship for the flow of legal rights subsequent to the transfer of rights from one party to another. Case law in these jurisdictions dealing with situations in which a high degree of automation is involved highlights the necessity of an identifiable human author or authors to classify a work as original (thereby attracting the protection provided by copyright protection legal regimes).

⁵⁴ *Ibid.* The case law surrounding Singapore's Patent Act is said to construe the definition of an inventor to mean a natural person who has formulated or contributed to the formulation of the inventive concept.

The requirement that there should be a natural person is of course not invariable and there are countries in which this requirement is not explicitly stated in IP legislation. Given the slow pace of legislative reform in most countries, it seems likely that the requirement that there be a natural person for there to be an ‘inventor’ for whom patent protection could be available will not change in most jurisdictions in the immediate future. Changes to the default rule are only likely to occur as and when there is a court decision that leads to a change or results in pressure/momentum for a change leading to statutory reform.

It is therefore possibly the case that in the event of inventions being created through AI, protection would not accrue unless courts were minded to ascribe the right to protection to the person that created the platform providing the AI, or perhaps to the entity that devised/made available the AI. It is unlikely that most statutory provisions governing patents could be so broadly interpreted.

Given the complexities, the only possible way forward may be through contractual provisions.

When it comes to the world of work, the question of ownership of IP, such as patentable inventions generated through AI, remain somewhat outside the scope of the discussion of the future of work, since it is difficult to conceive when an algorithm or robot would be considered to be an employee.

The responses to the survey revealed coherence between the requirement for an inventor to be a natural person across a variety of jurisdictions, with little prospect of any amendments being undertaken to accommodate inventions arising by means of AI in the immediate future.

III. INDUSTRIAL DESIGNS AND CREATORSHIP

In the field of industrial designs, it appears to be the case that most countries require a creator of an industrial design to be a natural person. In bygone times when concepts of creatorship and IP were conceived, there was no such thing as AI.⁵⁵

The requirement that there should be a natural person is of course not invariable and there are countries in which this requirement is not explicitly stated in IP legislation. Given the slow pace of legislative reform in most countries, it seems likely that the requirement that there be a natural person for there to be an ‘creator’ for whom industrial protection could be available will not change in most jurisdictions in the immediate future. Changes to the default rule are only likely to occur as and when there is a court decision that leads to a change or results in pressure/momentum for a change leading to statutory reform.

It is therefore possibly the case that in the event of industrial designs being created through AI, protection would not accrue unless courts were minded to ascribe the right to protection to the person that created the platform providing the AI, or perhaps the entity that made available the AI. It is unlikely that most statutory provisions governing patents could be so broadly interpreted.

Given the complexities, perhaps the only possible clarity achievable may be through contractual provisions.

55 *Ibid.*

When it comes to the world of work, the question of ownership of IP, such as protectable industrial designs generated through AI, remain somewhat outside the scope of the discussion of the future of work, since it is difficult to conceive when an algorithm or robot would be considered to be an employee.

The responses to the survey revealed coherence between the requirement for a creator to be a natural person across a variety of jurisdictions, with little prospect of any amendments being undertaken to accommodate industrial designs arising by means of AI in the immediate future.

The responses for the necessity of a creator of an industrial design to be a natural person are reflective of the position in the answers to question 1(b). Although the survey conducted covered (as regards responses received) a limited number of countries, the finding accords with the view of the author that, in most cases, it is necessary that there be a natural person.

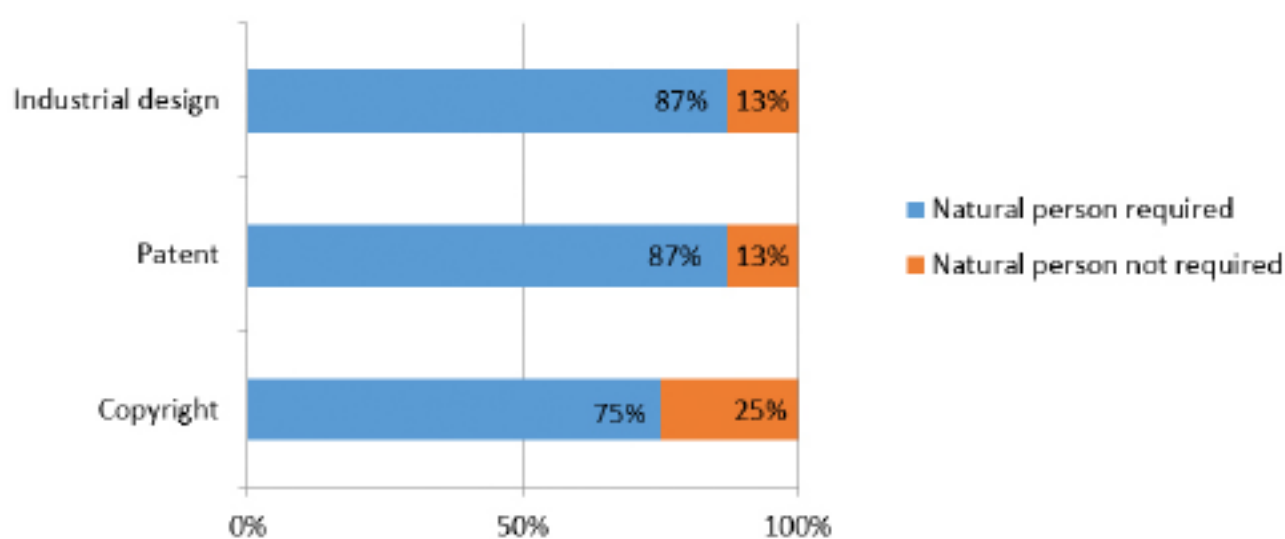


Figure 1: The definitional requirement of a natural person

II. Changes necessary to integrate AI into IP

It is clear that all countries will have to look into the issue of whether new interpretations of their respective local IP laws would suffice such that, in time, they would accommodate IP generated through AI receiving protection, and at what the relationship between AI originators and the entity that uses such AI is and whether any form of employment relationship would be implicated.

One possible solution would be to separate authorship/inventorship/creatorship from ownership. This separation would eliminate the potential problem of indefinite and perpetual copyright to the work being retained by AI, bearing in mind, for example, in the case of copyright, that the duration of copyright protection has long been based on the life of the author.

It should be noted that, at present, companies cannot qualify as authors in most cases. Since there are no legislative initiatives in relation to AI and the life expectancy of copyright, it is unlikely that AI would be integrated into IP law, as it is currently conceived, in the immediate future. However, if legislative change did occur, and a timeframe of protection were established in respect to each jurisdiction, it would be likely that, for example, a *sui generis* version of protection

for AI-generated copyright would enable one major problematical aspect of authorship (or inventorship/creatorship) to be resolved.

When it comes to the world of work, it appears clear that once it has been accepted that IP generated by AI does attract protection, the scope for AI to replace human thought in the workplace will expand as long as appropriate rules can be worked out as to who is to benefit from the rights attached to such IP. It seems clear that any governments wishing to provide a statutory framework that encourages innovation will have to experiment with new approaches so that persons who devise or provide AI (whether being persons in the traditional category of employees or otherwise) can benefit and be encouraged. This may well result in increased protections for and benefits to all categories of persons – whether employees or not – who devise and provide/enable AI and IP resulting therefrom to persons falling to be considered ‘employers’.

III. Necessary changes to the term of protection of IP, consequent to the use of AI in the workplace

Given the relative homogeneity in the terms of IP protection and conceptualisation of IP throughout the world, it is likely that changes will take a considerable period of time to happen.

Parallels may be drawn to the situation in which IT employees who had provided data input into software did not end up as authors entitled to copyright protection in respect of the final software. In some countries, data aggregation and input of data are not encapsulated in the definition of creativity for literary works and so cannot benefit from copyright protection.

Governments wishing to provide statutory frameworks that encourage innovation and AI will have to experiment with new approaches so that persons who devise or provide AI (whether being persons in the traditional category of employees or otherwise) can benefit and be encouraged. This may well result in increased protection for and benefits to all categories of persons (whether employees or not) who devise and provide/enable AI and IP resulting therefrom to persons falling to be considered ‘employers’.

IV. Necessary changes to the scope of protection of IP, consequent to the use of AI in the workplace and elsewhere

One of the dilemmas faced by most of the respondents is that it is generally accepted that the author of IP would have economic and moral rights. Arguably, AI does not implicate such moral rights, and therefore, which could lead to complications when the scope of the protection of IP rights of AI is considered. A possible approach is for this to be dealt with by recognising AI as an author of such IP, but with a limited scope of moral rights and for an exclusive right to be held by the developer of the AI.

B. Rights of employees and independent contractors

1. The current jurisdictional IP rights possessed by:

i. EMPLOYEES IN THE COURSE OF THEIR EMPLOYMENT RELATIONSHIP

It is clear that most of the states define the scope of the rights of employees in regard to IP generated during the course of the employment relationship, as per the attendant circumstances.

One approach focuses on whether the IP created by the employee was generated as part of their regular duties. If so, the employer would own the IP, while the employee would own IP not created in connection with their regular duties, even if they use the time or resources of the employer.

It is abundantly clear, and this is borne out also from the responses received, that there is, broadly speaking, a common approach, namely that the employer acquires the rights of the IP developed during the period of the employer-employee relationship, subject to any provision contained in any agreements made in the contract of employment that may state the contrary.

In the context of the importance of innovation for the survival of businesses, it is suggested that there will need to be a radical overhaul of these concepts. A shared model of ownership with economic benefits depending on the use of employer resources and time, or other criteria is likely to develop. This may lead to many in employment becoming ‘employee-contributors’ or ‘employee-stakeholders’ and a shift away from the traditional concept of a mere employee. Such a shift would be necessary to encourage the generation of IP and innovation in the workplace.

ii. INDEPENDENT CONTRACTORS IN THE COURSE OF THEIR INDEPENDENT CONTRACTOR RELATIONSHIP

It is also generally the case that, in the context of the relationship between a person and an independent contractor, any IP generated would belong to the person who commissioned the work. For example, in the field of patents, the person who commissioned it would own the patent, unless there is an agreement to the contrary.⁵⁶ It is similar in the case of copyright.

In the view of the author, the law will have to become much more nuanced in the case of allocating ownership rights and benefits from IP generated by independent contractors.

This is since it is anticipated that, going forward, the future of work will see more and more businesses enter into relationships with persons who are not employees. New criteria will have to be developed that provide the persons participating in economic life who are not part of the workforce with an adequate stake or interest in the outcome of such innovations.

2. Reported judgments in regard to these IP rights

It will take a considerable period of time before courts have to grapple with issues of ownership of and the entitlement to economic benefits of IP developed through IP. The judgments of courts are

⁵⁶ Eg, in the Philippines. In terms of Paraguay’s Patent Law, when an invention has been made during the fulfilment or execution of a contract for service/work, the person contracting for the work or service shall have the right to obtain the patent, unless the contract specifies otherwise.

not the best means for wholesale policy and legislative reform, case law generally being incremental and very fact-specific and therefore often restricted in applicability (at least in common law systems).

For the foreseeable future, it seems likely that contractual provisions would be the only way to deal with these issues, but given the general inequality of bargaining power, this is an area that merits much detailed study and review by organisations, such as the ILO, with a view to creating an appropriate space for the discussion of future directions and reforms so that innovation and IP developments are encouraged, not stifled; and that there is an equitable sharing of ownership and/or benefits between employers (persons who commission independent contractors) and employees/independent contractees.

3. *Changes to accommodate disruptive technologies*

The increasing incidence of disruptive technologies will lead to new models of work, all of which will result in the increasing need for innovation and, as a result, changes to existing frameworks so that necessary changes to concepts of ownership and enjoyment of economic benefits of IP occur, all in support of increasing innovation and IP.

The expansion of the concepts of co-ownership of IP are likely. In the context of the world of work, radical new approaches will be needed to ensure that innovation and generation of IP are fostered and promoted.

C. **The future world of work**

1. *Know-how issues*

i. CURRENT PROTECTION OF KNOW-HOW

The approaches to the protection of know-how are diverse. In some jurisdictions, unfair competition may assist in the protection of know-how. In other jurisdictions, protection may only be available in certain circumstances, such as where the know-how is confidential. In some jurisdictions, protection is not expressly provided for.

ii. THE LEGAL PROTECTION OF KNOW-HOW REQUIRED IN THE FUTURE WORLD OF WORK

It seems likely that know-how will become increasingly important in the world of work. Whole new areas of debate will arise. In what circumstances does know-how merit protection? Who is entitled to use know-how?

Given the vast scope of current human endeavour, and the likelihood that the notion of the employee/employer is going to blur into other concepts, it seems likely that there will be limited scope for the protection of know-how, except in very narrow confines.

One scenario is a world in which employees/independent contractors/innovation providers are the owners of know-how and no one in the general creative commons has the possibility to stifle innovation though claiming exclusive rights to know-how.

On the other hand, there are many who would argue that the legal protection of know-how, given its commercial value, is necessary. For the present, it seems that until new policy directions and reforms are adopted, contractual mechanisms will play an increasingly important role.

2. *Novelty and disclosure issues*

I. CAPABILITY OF EXISTING PROVISIONS FOR PATENTING WHERE MULTIPLE PERSONS ENGAGE IN INNOVATION

The existing legal landscape is fragmented. Some systems allow for joint ownership of rights to exist and each of the owners is considered as the owner of the part they created. Thus, where multiple parties join the creative process, they will have ownership together and be protected by relevant legal provisions of the law.

In some systems, however, multiple inventors have joint rights to the patent without concerning their individual contributions.

Given the complexities, for the moment, it seems likely that contractual provisions will be the only way to deal with these situations and that it is therefore inevitable that employers/persons who commission will benefit since they will be likely to have greater resources to provide appropriate contractual provisions in their interest.

In the long term, however, it will be necessary that bodies such as the ILO and World Intellectual Property Organization (WIPO) commission studies and analyses with a view to determine paths that encourage and do not stifle innovation in the workplace/independent contractor/inventorship provider space.

II. IMPORTANT JURISDICTIONAL JUDGMENTS

There appear to be a dearth of reported judgments that address the issue at a broad level and, as aforementioned, the development of law through incremental case law would not be the best approach. The judgments of courts are not the best means for wholesale policy and legislative reform, case law generally being incremental and very fact-specific and therefore often restricted in applicability, at least in common law systems.

3. *IP rights and jurisdiction allocation*

I. ADEQUACY OF EXISTING PROVISIONS IN REGARD TO IP RIGHTS ACROSS JURISDICTIONS

There was no commonality in the responses to the survey as to whether any improvements were needed in existing legal provisions in regard to the ownership of IP rights.

It is clear that, in the interest of encouraging innovation and IP in the future world of work, studies and analyses should be conducted sector by sector to determine where changes and reforms are necessary.

II. MULTIJURISDICTIONAL COLLABORATIVE INPUTS IN THE PROCESS OF GENERATING IP

It is likely that most countries do not have legal provisions on how the law governing the situation of multijurisdictional collaborative inputs in the process of generating IP should be determined.

With a view to promoting and fostering innovation and IP, it is suggested that consideration should be given to a multilateral agreement being negotiated, where one of the aims of such agreement would be that countries accord such ownership rights and benefits that are the most advantageous for all the jurisdictions concerned.

III. IMPORTANT REPORTED JUDGMENTS REGARDING THIS ISSUE

Given the complexities, for the moment it seems likely that contractual provisions will be the only way to deal with these situations and that it is therefore inevitable that employers/persons who commission will benefit since they are likely to have greater resources to provide appropriate contractual provisions in their interest.

In the long term, however, it will be necessary that bodies such as the ILO and WIPO commission studies and analyses with a view to determine paths that encourage and do not stifle innovation in the workplace/independent contractor/inventorship provider spaces.

IV. REFORMS NEEDED FOR GOVERNING LAWS IN EACH JURISDICTION

It appears to be the case (and indeed the limited results of the survey support this conclusion) that most jurisdictions have not embarked on a process of debate/discussion/analysis in the context of possible reform to governing law in the context of the future of the world of work.

4. *Confidentiality obligations and restrictive covenants*

There can be no doubt that the commercial value of information is increasing rapidly, including IP-related information, like know-how, databases and information on patents.

The increasing value of IP developed or disclosed in the workplace is likely to result, in the near to medium term, in greater onerous confidentiality obligations and/or harsher penalties for violation.

A commonly held view, at least on the part of employers in the context of the employee–employer relationship, is that employees are generally expected to act in good faith to further their employer’s interests. This covers the obligation to not disclose or use confidential information belonging to the employer for their own personal profit during the period of their employment and thereafter.

Where the frequency, quality and quantity of workplace innovation increases in the future, the issue of how innovation may be dealt with after the cessation of the employee’s contract of service may become more acute.

In the future world of work, new concepts of employees being ‘employee-contributors’ or ‘employee-stakeholders’ (a shift away from the traditional concept of a mere employee) may well result in the relaxation of rules governing confidentiality and restrictive covenants.

Given increased mobility in the future world of work and the new focus on where innovation generation happens, such relaxations, although anathema to many employers today may well be necessary and inevitable in the future. For the short to medium term, it is likely that, until comprehensive legislation providing for new paradigms and concepts are developed, employers will try to protect their positions through contractual provisions. It is the view of the author that a radical shift will be necessary to encourage the generation of IP and innovation in the workplace, taking into account new models of the future of work as and when they arise and become clear.

VIII. EIGHTH REPORT: LITIGATION LAW

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I. Introduction

New technologies have been changing the world we live in and the legal system has to be increasingly flexible and responsive to face new realities. The reasonable allocation of the liability arising from the actions carried out by new technological tools is an area in which legal scholars and legislators are struggling to find an appropriate approach.

Liability law and the development of technologies influence each other. Indeed, the allocation of the liability arising out of the use of certain products may foster or hinder the development of those products, depending on how the allocation of the liability is determined. Effectively, if the liability is deemed too high, manufacturers may delay the introduction of the product in the market or be forced to reflect the liability in the price of the product, which then may become too expensive for widespread commercialisation and adoption.

One of the new technologies with higher disruptive potential is AI. AI is a sub-field of computer science and is defined, in simple terms, as the ‘science of making computers do things that require intelligence when done by humans’.⁵⁷ Therefore, AI is developed to simulate human thinking and create an autonomous self-trained computer. According to various experts in this field, AI will ‘likely have far-reaching effects on human life in the years to come’.⁵⁸ The potential of AI will only increase over the years.⁵⁹

AI technology is already recruiting employees, piloting aircrafts, performing surgery, studying the landscape of Mars and soon will be able to target medicines to the currently unreachable regions of the human body.⁶⁰ Furthermore, with remarkable progresses, AI is also allowing the development of fully autonomous vehicles.

We will start by briefly demonstrating the potential for AI to cause damage before dedicating special attention to what some commentators have written on the liability arising from accidents with autonomous vehicles. This specific analysis on driverless cars may then be extrapolated to other products or services that are using (or will use) AI technology.

This work will not take into consideration any particular legal system. The adopted approach contemplates different rules and concepts from different legal traditions, without any specific focus on their specificities and differences. The goal is to raise some important questions which will, naturally, need to be developed and further problematised.

57 Jack Copeland, *What is Artificial Intelligence?*

58 Avneet Pannu, ‘Artificial Intelligence and its Application in Different Areas’ (2015), 4 *International Journal of Engineering and Innovative Technology* 79, 84.

59 Nils J Nilsson, *The Quest for Artificial Intelligence. A History of Ideas and Achievements* (Cambridge University Press 2009) 589.

60 David C Vladeck, ‘Machines Without Principals: Liability Rules and Artificial Intelligence’ (2014) 89 *Washington Law Review* 118; Sha Jin and Kaiming Ye, ‘Nanoparticle-Mediated Drug Delivery and Gene Therapy’ (2007) 23 *Biotechnology Progress* 32.

II. Is AI capable of causing damage?

AI systems with harmless goals may behave in harmful ways. Stephen M Omohundro stated that even AI with the ability to play chess may be dangerous.⁶¹ Indeed, insofar as AI can accumulate experience and train itself, it can make unpredictable decisions independently of the will of its developer and eventually cause damage in the pursuit of its goals.

Regardless of how well designed and programmed AI products or services are, extrinsic factors beyond the machine's control may take place and trigger an incident, causing injury or damage to third parties. This will certainly be the case with, for example, automated cars, where there is no possibility to control all the surrounding environment of the car.

In fact, for several years, machines have been behaving unpredictably and causing damage or injury to humans.

In 2002, the Magna Science Centre in England witnessed a robot named Gaak escaping from an experiment with learning robots.⁶² The project consisted of putting several robots in an arena and assigning some of them the role of prey and the others the role of predator.⁶³ During the experiment, Gaak was left unattended for 15 minutes and managed to navigate along the barrier, finding its way to the street. Gakk reached a car park, where it was almost hit by a car.⁶⁴

Over the past 25 years, 61 robot-related injuries and deaths have been reported in the US.⁶⁵ The majority of the incidents were caused by industrial robots. This was the case, for instance, with a Japanese worker in a motorcycle factory who was killed by an AI robot.⁶⁶ The robot identified the employee as a threat to its mission and considered that the most efficient way to eliminate the threat and pursue its programmed goal was by pushing the employee into an adjacent machine.⁶⁷

In a different context, some companies have recently realised that their AI systems used in the recruitment process could become biased when selecting or rating job applicants. This was the case with AI software created by a company to automatically sort through CVs, which ended up being biased against women.⁶⁸

This tool was developed in 2014 by machine learning specialists at a company and was supposed to give the applicants a score ranging from one to five stars. However, even though the hiring tool was diligently rating the job applicants, it was not operating in a gender-neutral way. The machine's misogyny was a consequence of the data used to train it. Indeed, the company's computer model was trained by analysing patterns in CVs submitted to the company over the previous decade. Considering

61 Stephen M Omohundro, 'The Basic AI Drives – Self-Aware Systems' (2008) Proceedings of the 2008 Conference on Artificial General Intelligence 483, 492.

62 Martin Wainwright, 'Robot Fails to Find a Place in the Sun' *The Guardian* (London, 20 June 2002) www.theguardian.com/uk/2002/jun/20/engineering.highereducation accessed 21 December 2018.

63 *Ibid.*

64 *Ibid.*

65 Centres for Disease Control and Prevention www.cdc.gov/niosh/about/strategicplan/traumanuf.html accessed 21 December 2018.

66 John KC Kingston, 'Artificial Intelligence and Legal Liability' in Max Bramer and Miltos Petridis (eds) *Research and Development in Intelligent Systems XXXIII* (2016) *Specialist Group on Artificial Intelligence* (SGAI) 2.

67 *Ibid.*

68 Jeffrey Dastin, 'Amazon Scraps Secret AI Recruiting Tool that Showed Bias against Women', *Reuters* (10 October 2018) www.reuters.com/article/us-amazon-com-jobs-automation-insight/amazon-scraps-secret-ai-recruiting-tool-that-showed-bias-against-women-idUSKCN1MK08G accessed 21 December 2018.

that most of those had come from men, the machine taught itself that men's CVs would be more desirable, penalising CVs with references to women.

Naturally, the company and its team had no intention to create such a machine. Nevertheless, given the capacity these systems have to learn, the company's hiring tool autonomously assumed a biased character. However, we would eventually expect that, if responsibilities were to be allocated, the company and its team would probably be the target. Notwithstanding, in this case, apparently, this was only an experiment duly monitored by the company's team, which detected the anomaly before trusting and fully implementing the newly created tool.⁶⁹

This is an example of how machines may operate in a way that was not programmed or expected by their developers. Furthermore, cases such as this one should be used as examples for employers and employees to take special care when using AI tools. In fact, in theory, they may be held liable for having elected a particular AI machine (*culpa in eligendo*) or for having a special duty of vigilance over the machine (*culpa in vigilando*). Companies and their employees must be aware that when creating these machines, they may have a duty to train the machine correctly to avoid any eventual wrongdoing by the computer itself, and they may be responsible for some kind of monitoring of the operation of the machine. More recently, in March 2018, an Uber self-driving car killed a pedestrian in Arizona, US.⁷⁰ An autonomous car operated by Uber, with an emergency backup driver behind the steering wheel, struck a woman who was crossing the street at night with very limited visibility.⁷¹ According to the videos of the accident released by the police, the backup driver behind the steering wheel was distracted, looking down at her mobile phone and not paying attention to the road.⁷² The autonomous car failed to detect the woman who was tragically killed by the impact.

Also in March 2018, a Tesla driving in autopilot crashed in California, killing its driver. According to Tesla, the driver 'had received several visual and one audible hands-on warning earlier in the drive and the driver's hands were not detected on the wheel for six seconds prior to the collision'.⁷³

These recent episodes involving autonomous cars have given rise to several questions regarding the safety standards of this type of vehicle and its underlying technology. The question of who should be liable for damage remains with no clear answer.

Moreover, one may predict circumstances still to occur where issues concerning the determination of the liability will increase. For instance, in a situation in which the vehicle is between hitting a family of two parents and three kids who are crossing the street, putting their life in danger, or suddenly turning right, hitting a tree and putting the driver's life in danger, the computer might be programmed to perform the latter option and jeopardise the driver's life instead of the life of an entire family. In such a scenario, the damage caused by the vehicle is a consequence of a decision made by the engineer when they programmed the software underlying the operation of the vehicle. However, the previously determined decision was virtually the most ethical one.

69 *Ibid.*

70 Daisuke Wakabayashi, 'Self-Driving Uber Car Kills Pedestrian in Arizona, Where Robots Roam' *New York Times* (New York, 19 March 2018) www.nytimes.com/2018/03/19/technology/uber-driverless-fatality.html accessed 20 December 2018.

71 *Ibid.*

72 Sam Levin, 'Video Released of Uber Self-Driving Crash that Killed Woman in Arizona' *The Guardian* (London, 22 March 2018) www.theguardian.com/technology/2018/mar/22/video-released-of-uber-self-driving-crash-that-killed-woman-in-arizona accessed 20 December 2018.

73 Tesla, 'An Update on Last Week's Accident' www.tesla.com/blog/update-last-week%E2%80%99s-accident accessed 21 December 2018.

Likewise, one may foresee an identical situation in which the decision of the vehicle to diverge and hit the tree was not predetermined by an engineer but rather autonomously carried out by the AI software itself using its intelligent abilities to perform the appropriate action in accordance with what it was trained to do and what it has learned.

Therefore, the origin of the damage may be, in the first scenario, the engineer who programmed the software of the vehicle (but with no apparent wrongdoing) or, in the second scenario, a computer deciding autonomously.

Apart from the issues regarding allocating liability in these contexts, which will be addressed below, other questions may arise. For example, could a program that is malfunctioning claim ‘insanity’? Or if the program is affected by a virus, could it claim that it was under ‘coercion’?

III. Who is liable for the AI’s actions?

1. General considerations

In 1996, Tom Allen and Robin Widdison claimed that ‘[a]t this point we must inquire whether existing contract law doctrine can cope with the new technology, and if so, how’.⁷⁴ More than two decades after, this question remains with no clear answer. Effectively, AI technology has considerably developed, making us question whether existing contract law and liability law are capable of coping with new technology.⁷⁵

In a broad sense, the concept of liability is common to different legal traditions. Whoever injures or damages the life, body, property or any right of another person illegally is liable for the injury or damage caused. It is a general principle both in civil law and common law that damages are compensated by the offender or by a person responsible for the actions of the offender.

Computers have no legal personhood, that is, computers cannot be the object of rights and duties. Therefore, computers cannot be held liable for any damage they may have caused. As argued by a US court, ‘robots cannot be sued’, even though ‘they can cause devastating damage’.⁷⁶ A similar conclusion can be drawn, for instance, from the explanatory note by the UN Commission on International Trade Law (UNCITRAL) secretariat on the UN Convention on the Use of Electronic Communications in International Contracts: ‘Article 12 is an enabling provision and should not be misinterpreted as allowing for an automated message system or a computer to be made the subject of rights and obligations.’⁷⁷

However, the development of intelligent and autonomous machines may give rise to reconsiderations. Effectively, there is no *a priori* reason to prevent autonomous AI machines from being granted with a legal status, as there was no reason to, in principle, prevent corporations and other legal fictions from acquiring their legal status. This possibility will be addressed further in this report.

74 Tom Allen and Robin Widdison, ‘Can Computers Make Contracts?’ (1996) 9(1) *Harvard Journal of Law & Technology* 25, 28–29.

75 Paulius Cerka, Jurgita Grigien and Gintare Sirbikyte, ‘Liability for damages caused by artificial intelligence’ (2015) *Computer Law & Security Review*, 8.

76 *United States v Athlone Indus Inc*, 746 F 2d 977, 979 (3d Cir 1984).

77 Explanatory Note by the UNCITRAL secretariat on the UN Convention on the Use of Electronic Communications in International Contracts, s 213 of Art 12.

Hence, assuming the lack of legal status of AI systems, who will be held liable for their tortious actions? Is there any distinction in a case in which there is human involvement determining the course of events, that is, where the machine is not deciding autonomously?

In one scenario, even though damage has occurred due to actions performed by an AI system, there was human action influencing the decision-making process of the machine – as per the example, where the machine was programmed to hit the tree in such a situation. In another scenario, the machine decided fully autonomously, that is, the machine used its capacity to learn and accumulate experience to make a decision that was not previously programmed, which ended up injuring or causing damage to someone. Probably, as far as the allocation of liability is concerned, the level of automation of the machine may be relevant.

In the former case, there might be no need for a re-examination of the set of rules available to determine liability. However, in the latter case, the automaticity of the machine and the inexistence of human wrongdoing will probably require a different and innovative approach to reach a fair solution.

We will briefly analyse the different possibilities and different theories that may be applied in both scenarios. For this purpose, special attention will be given to the theories around the use of driverless vehicles. Effectively, the automotive sector has been investing large sums on the development of automotive vehicles and it is expected that, in the following years, regulations will start preparing the commercial release of vehicles with greater automation capacities (see Figure 1).

This commercial release will eventually culminate in the market diffusion of automated vehicles. For this analysis, one should bear in mind that driverless cars have different levels of automation (Figure 2):

- Level 0: the driver performs all operating tasks, like steering, braking, accelerating or slowing down.
- Level 1: the vehicle can assist with some functions, but the driver still handles all accelerating, braking and monitoring of the driving environment. For instance, the car may assist the driver on braking a little harder when getting too close to another car on the road.
- Level 2: the vehicle can assist with steering or acceleration functions and allow the driver to disengage from some of their tasks. However, the driver must always be ready to take control with their hand on the steering wheel.
- Level 3: the vehicle itself controls all monitoring of the environment using sensors. However, the driver's attention is still critical.
- Levels 4 and 5: the vehicle is capable of steering, braking, accelerating and monitoring the vehicle and roadway, as well as responding to events and determining when to change lanes, turn and use signals. At level 5, the vehicle is completely autonomous, fully monitoring the environment. There is no need for pedals, brakes or a steering wheel.

Impact	Needs	Requirements	Time Period
Become legal	Demonstrated functionality and safety	Define performance, testing and data collection requirements for automated driving on public roads.	2018-25
Address new conflicts and risks	Develop policies to address increased curb and road congestion risks.	Develop efficient curb and roadway management policies, such as curb regulations, congestion pricing and high-occupant vehicle priority policies.	2020-2040
Increase traffic density by vehicle coordination	Road lanes dedicated to vehicles with coordinated platooning capability	Evaluate impacts. Define requirements. Identify lanes to be dedicated to vehicles capable of coordinated operation.	2020-40
Independent mobility for non-drivers	Fully autonomous vehicles available for sale	Allows affluent non-drivers to enjoy independent mobility.	2020-30s
Automated carsharing/taxi	Moderate price premium. Successful business model.	May provide demand response services in affluent areas. Supports carsharing.	2030-40s
Independent mobility for lower-income	Affordable autonomous vehicles for sale	Reduced need for conventional public transit services in some areas.	2040-50s
Reduced parking demand	Major share of vehicles are autonomous	Reduced parking requirements.	2040-50s
Reduced traffic congestion	Major share of urban peak vehicle travel is autonomous.	Reduced road supply.	2050-60s
Increased safety	Major share of vehicle travel is autonomous	Reduced traffic risk. Possibly increased walking and cycling activity.	2040-60s
Energy conservation and emission reductions	Major share of vehicle travel is autonomous. Walking and cycling become safer.	Supports energy conservation and emission reduction efforts.	2040-60s
Improved vehicle control	Most or all vehicles are autonomous	Allows narrower lanes and interactive traffic controls.	2050-70s
Need to plan for mixed traffic	Major share of vehicles are autonomous.	More complex traffic. May justify restrictions on human-driven vehicles.	2040-60s
Mandated autonomous vehicles	Most vehicles are autonomous and large benefits are proven.	Allows advanced traffic management.	2060-80s

Figure 1: Todd Litman – Victoria Transport Policy Institute, Autonomous Vehicle Implementation Predictions – Implications for Transport Planning, 24 July 2018

THE 5 LEVELS OF DRIVING AUTOMATION

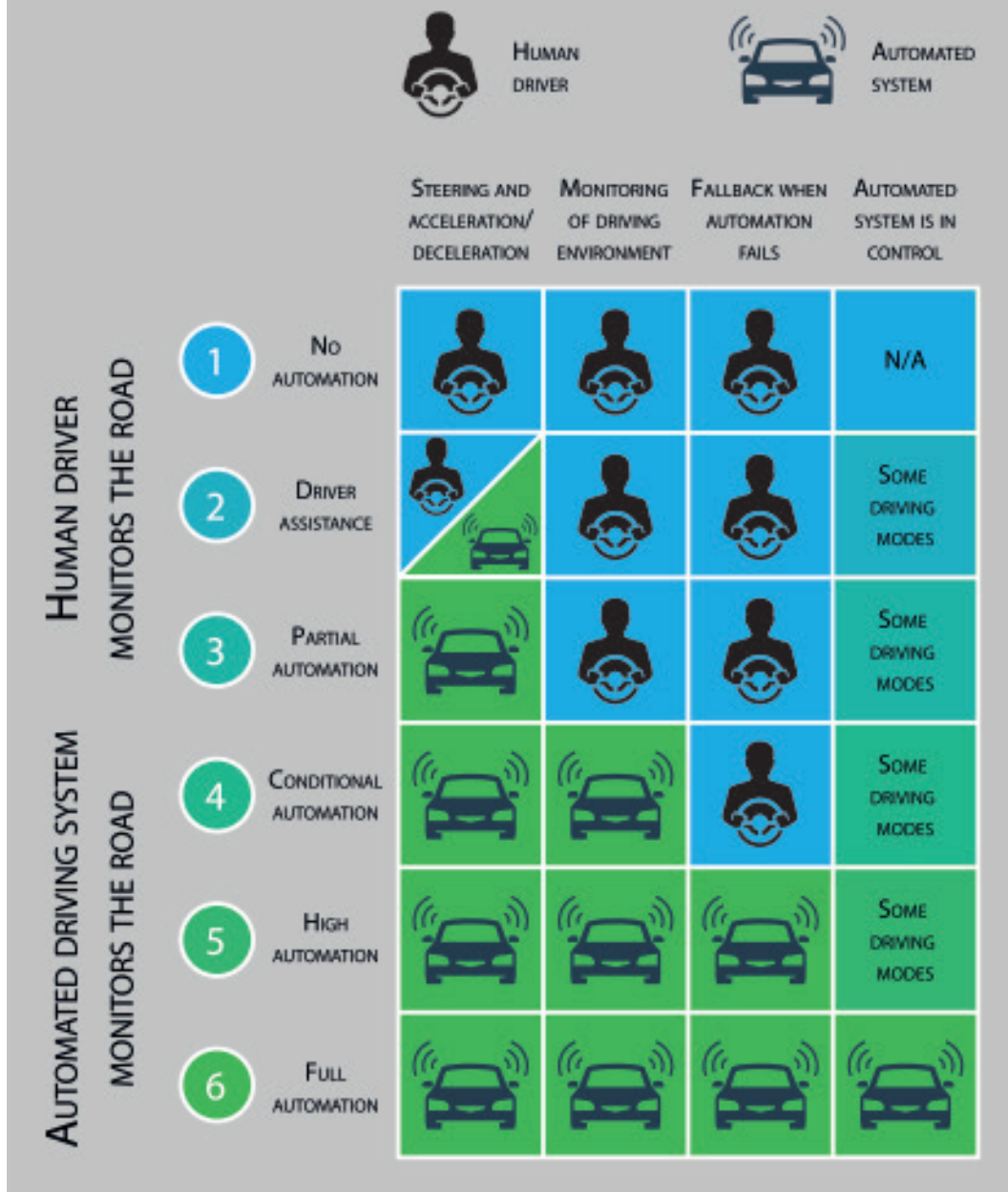


Figure 2: Society of Automotive Engineers

2. Potential solutions

Any human or corporation ‘that has a role in the development of the machine and helps map out its decision-making is potentially responsible for wrongful acts – negligent or intentional – committed by, or involving, the machine’.⁷⁸

The sophistication of new AI-based technologies may give rise to serious struggles for the aggrieved party to prove, under the legal doctrines available, the liability of someone involved

⁷⁸ David C Vladeck, ‘Machines without Principals: Liability Rules and Artificial Intelligence’ (2014) 89 *Washington Law Review*, 120, 121.

in the creation or use of the machine. The factual patterns arising out of, for instance, an accident with a driverless car, when the vehicle has autonomously and independently opted to provoke the damage that actually occurred (which may have helped to avoid more serious damage), may be extremely complex. To determine if there was some fault regarding the operation of the AI system, some technological knowledge and expertise is required that will not only make the proof of any wrongdoing extremely difficult but also make litigation much more expensive. The application of conventional product liability principles may not be adequate in a fault-based legal system.

The scenario in which an autonomous machine is entirely responsible for the damage is more complex and probably requires a more innovative solution than just applying traditional liability principles or rules. In a case in which no wrongdoing can be established and it is proved that the action was carried out autonomously by a machine, it may be unreasonable to blame any other person rather than the machine itself. However, as explained, machines have no legal status and cannot be sued and sentenced. Therefore, if machines keep their lack of legal status, an unreasonable or unfair solution may well be the only solution. The quest may be to reach a fair solution that fulfils basic principles related to the right of the injured party to be compensated.

Autonomous vehicles may be one of the most advanced AI technologies being developed and one of the innovations that has been receiving more attention by powerful companies, the media and the population in general. Moreover, autonomous vehicles may well be among the AI innovations that will be first put into the market. Therefore, several authors have been addressing the specific liability issues resulting from the use of autonomous vehicles. The number of solutions offered and the differences between them clearly indicate the difficulties of integrating autonomous vehicles and other AI products or services into the market. Some of these solutions, despite being more focused on autonomous vehicles, may be extrapolated to other AI innovations.

Vladeck claims that when the incident results from human error (but not the driver) product liability rules should be applied as they would be to non-autonomous cars.⁷⁹ When there is a design error, manufacturing error or lack of information, traditional product liability principles are as applicable as if this error occurred in a non-autonomous vehicle.⁸⁰ Interestingly, the author considers that the only change could consist of the standard of care applied. Indeed, the author claims the application of a higher standard of care to AI machines.⁸¹ In fact, this theory follows a decision of an intermediate court in Louisiana, where it was questioned whether autonomous cars would be held liable to a higher standard of care than cars driven by humans.⁸²

According to Vladeck, considering that no legal personhood is assigned to AI systems, the burden should be placed on the parties involved in the development of the vehicle by the application of a strict liability regime. The author sustains the application of a strict liability regime in, essentially, four policy reasons:⁸³

79 *Ibid*, 117.

80 *Ibid*.

81 *Ibid*, 127.

82 *Arnold v Reuther*, 92 So 2d 593, 596.

83 See n 78 above, 146 *et seq*.

1. Basic notions of fairness, compensatory justice and allocation of risk determine that individuals must be compensated when damaged by third parties and without their fault.⁸⁴
2. The parties involved in the creation of the vehicle are in a better position to absorb the cost because, on the one hand, they benefit from the risk associated with those innovative products and, on the other, they may include that eventual cost in pricing decisions, spreading that burden to all the consumers.⁸⁵
3. A strict liability regime would avoid the significant transaction costs that would have to be expended if parties had to litigate in these circumstances, where fault cannot be determined.⁸⁶ This regime would certainly be more efficient.
4. Predictability and stability of the law is better achieved with this regime.⁸⁷ It is crucial for the elected liability regime not to stifle the innovation process (when there is a consensus that the innovation is positive), but rather boost that innovation by creating a safe and predictable environment to operate. A strict liability regime would spur innovation.⁸⁸

Under product liability principles, a defect could be inferred and the manufacturer could emerge as the target of choice. However, in the case of autonomous vehicles, it is far from clear that the manufacturer of the car should absorb the entire cost when the risk associated with the use of AI software occurs. Indeed, software that is crucial in such cases is not provided by the manufacturer of the vehicle, but probably supplied by a different technological company. Furthermore, in cases in which damage would occur as a consequence of a truly autonomous decision of the AI system (ie, the offence was not due to a human action), the manufacturer would not be able to provide any evidence against its software supplier to seek some kind of compensation. In conclusion, the manufacturer would end up bearing all the costs.

This would probably make cars equipped with this type of technology too pricey for market diffusion. Indeed, the unreasonable allocation of risk to the manufacturer would be reflected in the price and, ultimately, it would affect the development of technology and the widespread use of autonomous cars.

Furthermore, in cases in which there is no actual product (cars, drones, surgical equipment and household appliances) but only software, product liability rules may not even be applicable. Software designed for a customer is generally deemed as a service. Some courts make the distinction between software, which is not a product, and the thing containing software, which is a product. For instance, this would distinguish the car – the product – from the AI system installed therein – the software.

Therefore, Vladeck offers another solution by applying a variation on the doctrine of ‘common enterprise’ liability for those situations in which the machine has acted autonomously and there is no human wrongdoing.⁸⁹ Under this theory, ‘each entity within a set of interrelated companies may be held jointly and severally liable for the actions of other entities that are part of the group’.⁹⁰ The

84 *Ibid.*, 146.

85 *Ibid.*, 146, 147.

86 *Ibid.*, 147.

87 *Ibid.*

88 *Ibid.*

89 *Ibid.*, 149.

90 *FTC v Tax Club Inc*, F Supp 2d, 2014 WL 199514 (SDNY, 17 January 2014).

key trait of this theory to be used here would be the fact that several distinct companies are held responsible for having contributed to a common end. In our scenario, as stated by the same author, it would not be required for the different companies to function jointly, but only that they have worked towards a common end, that is, the creation of software, the vehicle or other product.⁹¹

Other authors advocate a strict liability test adapted to autonomous vehicles.⁹² According to this theory, the manufacturer would only be held liable if the car would not behave as another reasonable car would behave. This approach would avoid the cost sustained by the parties associated with the need to prove ‘whether a safer alternative design would be implemented by comparing lines of computer code’.⁹³

Other authors claim that the strict liability regime applied to animals, children, employees or ultra-hazardous activities should be applicable in cases in which the damage derives from AI software (vicarious liability). Effectively, using Article 12 of the UNCITRAL secretariat on the UN Convention on the Use of Electronic Communications in International Contracts, some commentators argue that AI software is a tool for the use of human beings and their treatment by the law should, therefore, be equated to the treatment received by children, employees or ultra-hazardous activities.⁹⁴ This means that the ‘liability for the actions of AI should rest with their owners or the users’.⁹⁵

A common example of vicarious liability is in a workplace environment where the employer might be held liable for wrongful acts or omissions of the employee if those same actions or omissions were carried out in the course of their employment.⁹⁶ The underlying theory is to impose liability on a third party who, despite not contributing with its fault for the tortious event, has a relationship with the tortfeasor that justifies this burden.⁹⁷ However, if the similitudes between AI systems and human actions justify the application of this doctrine, the differences in the decision-making process between one entity and the other may pose some difficulties regarding its application.

For example, in general, the employer is only liable when the employee acts according to the employer’s instructions and within the scope of their job. A deviation from the standard of conduct of a human employee is easily assessed. On the contrary, determining what is a deviation in the conduct of an AI system may be rather difficult. In fact, technology may be necessary to determine the process followed by the AI system to decide.⁹⁸

Some authors equate AI systems to dangerous activities. Therefore, as provided for ultra-hazardous activities, ‘a person engaged in dangerous activities that are profitable and useful to the society should compensate for damage caused to society from the profit gained’.⁹⁹ This would, presumably, render the manufacturer of an autonomous vehicle liable for profiting from the dangerous activity. Once

91 See n 78 above, 149.

92 KC Webb, ‘Products Liability and Autonomous Vehicles: Who’s Driving Whom’ (2017) 23 *Richmond Journal of Law and Technology*.

93 *Ibid*, 1.

94 Bruyne and Tangué, ‘Liability for Damage Caused by Autonomous Vehicles: A Belgian Perspective’ (2017) 8 *Journal of European Tort Law* 386.

95 *Ibid* 385.

96 Paula Giliker, *Vicarious Liability in Tort: A Comparative Perspective* (Cambridge University Press 2010) and see n 75 above, 10.

97 See n 94 above, 387.

98 Giovanni Comandé, ‘Multilayered (Accountable) Liability for Artificial Intelligence’ in Sebastian Lohsse, Reiner Schulze and Dirk Staudenmayer (eds), *Liability for Artificial Intelligence and the Internet of Things*, Münster Colloquia on EU Law and the Digital Economy IV (Nomos Hart 2018) 180.

99 See n 94 above, 386.

again, this burden over the manufacturer would probably have a reflection on the price of the product and the adoption of this new technology.

Other solution could be, as advocated by Zohn, to treat autonomous vehicles as non-car products with similar features, such as autopilot technologies under which ships and aeroplanes operate.¹⁰⁰ In the case of autopilot technology, the liability is allocated to the manufacturer, except in cases of misuse.¹⁰¹ However, this theory would be hardly applicable in the case of a fully autonomous machine, such as a level 4 autonomous vehicle.

Indeed, the application of this theory to truly autonomous vehicles may not be appropriate considering the unpredictability of their decisions.¹⁰² Furthermore, it should be highlighted – yet again – that the legal system should be very careful when regulating new technologies to guarantee that is not obstructing the development process of these innovations. In this case, allocating the liability arising from autonomous vehicles to the manufacturer, even in the absence of fault, may make the adoption of AI technology and the full automation of vehicles too expensive for manufacturers.

Likewise, the allocation of liability for working accidents caused by AI machines between employers and employees may also influence the level of adoption of AI systems by companies. Indeed, if employers are deemed liable for the actions autonomously performed by AI machines, they will certainly offer more resistance against their adoption. On the contrary, if, for instance, AI systems end up having some sort of legal personhood, employers may become much more comfortable when developing and adopting AI systems.

Finally, the potential importance of insurance law on the regulation of this type of liability should not be ignored. As advocated in the Guidelines on Regulating Robotics in the RoboLaw project, the EU could adopt the Swedish traffic insurance system to put on top of a liability system for automated vehicles.¹⁰³ This means that Swedish-type first-party insurance would be mandatory for automated cars. In other words, the victim of a traffic accident would be compensated by the insurance of their motor vehicle or, if they were not travelling in a motor vehicle, they would typically claim on the insurance of the motor vehicle that was involved in the accident. The insurer may then reclaim the damages from the person or entity responsible for the accident.

Regardless of the eventual adoption of this proposal in particular, the point that should be emphasised is the key role that insurers will most likely have under this new context. Indeed, the mitigation of the risk of using AI systems is essential to allow companies to keep on investing and adopting new technologies, and this mitigation will probably be achieved through insurance.

100 Jeffrey R Zohn, 'When Robots Attack: How Should the Law Handle Self-Driving Cars that Cause Damages?' (2015) 2 *Journal of Law, Technology and Policy* 461.

101 *Ibid.*, 481.

102 See n 98 above, 173.

103 Robolaw, Regulating emerging robotic technologies in Europe: Robotics facing law and ethics project, www.robolaw.eu accessed 21 December 2018.

IV. Can AI become a legal entity?

The question of whether computers may assume legal personhood has been discussed in the literature for almost three decades.¹⁰⁴ Lawrence Solum set the stage in 1992 in a very comprehensive analysis, in which he concluded that an AI system may be employed as a trustee, assigning a type of legal personhood, and questioned the extent to which AI systems can be held accountable for moral wrongs and the object of rights and duties.¹⁰⁵

In 1996, Curtis EA Karnow investigated the questions arising from the harm caused by AI.¹⁰⁶ Effectively, more than 20 years ago, this author discussed the fact that emergent AI systems were operating in the real world, making ‘decisions unforeseeable by humans’ capable of causing damage or injury leading to ‘insuperable difficulties... posed by the traditional tort system’s reliance on the essential element of causation’.¹⁰⁷

In 2006, Gunther Teubner explained that the personification of other non-humans is a social reality and political necessity.¹⁰⁸ According to this author, non-humans can be treated as persons if there is ‘a resistance, a “recalcitrance” which they exert and which cannot be overcome by existing scientific knowledge’.¹⁰⁹ Indeed, AI systems may be unpredictable. They do not follow an algorithm because they learn how to act autonomously and, thereby, unpredictably.

In line with this, in 2007, Andreas Matthias identified an ‘accountability gap’: ‘[T]here exists a growing class of accidents caused by machines, where the traditional ways of attributing responsibility are no longer compatible with our feeling of justice and the moral preconditions of society, since no one has sufficient control over the actions of the machine, to be able to take responsibility.’¹¹⁰

The best example of this legal status is the one assigned to corporations. Thus, what might seem far-fetched nowadays may be a given fact in a few decades. Corporations have a set of tailor-made rights and obligations. They can have a name, buy and sell property and commit crime, but they cannot vote or be married. In principle, the law may attribute legal personhood to any type of entity.

In 2010, Bert-Jaap Koops, Mireille Hildebrandt and David-Olivier Jaquet-Chiffelle predicted that the legal system would have three courses of action in time.¹¹¹ A short-term stage, in which ‘the actions of computer agents can be dealt with by interpreting and extending existing law, incorporating the new technical developments in the existing legal system’¹¹² would be followed by a medium-term stage, where strict liability is provided for electronic agents capable of carrying out risky and unpredictable actions for businesses and consumers.¹¹³

104 Lawrence B Solum, ‘Legal Personhood for Artificial Intelligence’ (1992) 70 *North Carolina Law Review*, 1231.

105 *Ibid*, 1,282.

106 Curtis EA Karnow, ‘Liability for Distributed Artificial Intelligences’ (1996) 11 *Berkeley Technology Law Journal* 147.

107 *Ibid*, 148, 149.

108 Gunther Teubner, ‘Rights of Non-Humans? Electronic Agents and Animals as New Actors in Politics and Law’ (2006) 33 *Journal of Law and Society* 497, 502.

109 *Ibid*, 510.

110 Andreas Matthias, *Automaten als Trager von Rechten, Pladoyer fureine Gesetzanderung*, (2007) dissertation, Humboldt Universitat, 22, as mentioned in Bert-Japp Koops, Mireille Hildebrandt and David-Olivier Jaquet-Chiffelle, ‘Bridging the Accountability Gap: Rights for New Entities in the Information Society?’ (2010) *Minnesota Journal of Law, Science & Technology*, 545 *et seq*.

111 See n 110 above, 554 *et seq*.

112 *Ibid*, 554.

113 *Ibid*, 555.

The authors contemplated a public register for electric agents and a limited type of legal personhood, that is, ‘the electronic agent itself will be responsible for its contracts and potential mishaps (outside of the moral and criminal sphere), based on strict liability’.¹¹⁴ The AI system would have, under this theory, capacity to have patrimony, which could then be used to pay insurance, civil damages and fines.¹¹⁵ Finally, there would be a long-term stage where this limited personhood acquired in the last term would evolve to the attribution of full personhood to new autonomous entities. In particular, this would ‘concern both liability on the basis of wrongful action and culpability and a lawful claim to post human rights’.¹¹⁶ According to the authors, this legal status would be dependent on the capacity of the machine to make moral self-conscious decisions.¹¹⁷

Having said that, legal scholars have to continue studying this subject to determine whether the assignment of legal personhood to AI entities is a more adequate solution in comparison with other legal solutions.

V. Conclusion

Ray Kurzweil, a Google engineer, claims that AI will become superior to humans in 2045 through the creation of superintelligence capable of self-improvement.¹¹⁸ Considering the Law of Accelerating Returns and Moore’s law,¹¹⁹ Kurzweil notes that faster and smarter chips will themselves accelerate the growth of the power of computers.¹²⁰

Indeed, if AI becomes what it is planned to become, the legal system will have to be adapted to incorporate AI systems and robots in our society.¹²¹ Law-makers may have to review the legal framework and adapt it according to the new context. As famously stated by Alfred Korzybski, ‘the map is not the territory’.¹²² The model of the reality should not be confused with the reality itself. Therefore, if the reality changes, the model should be adapted accordingly.

Among other more creative solutions,¹²³ most authors are generally inclined to agree with one of two solutions. There are those who argue that a type of legal personhood should be attributed to AI entities,¹²⁴ and those who claim that the interpretation of the existing principles and rules of our legal system is enough.¹²⁵ The acceptance of one of those theories will depend on the position that one adopts towards law and technology and what are the conditions to be considered as a ‘person’, and on the actual effects of the use of truly autonomous entities and their impact in our society.

To face the uncertainty resulting from the absence of regulation and the lack of knowledge as to the

114 *Ibid.*

115 *Ibid.*, 556.

116 *Ibid.*, 558.

117 *Ibid.*

118 Ray Kurzweil, *The Singularity Is Near: When Humans Transcend Biology* (Penguin Group 2005) 98.

119 According to Moore’s law, which is a technological trend identified by Intel cofounder Gordon E Moore in 1965, the number of transistors that can be fit into a computer double every 18 months to two years.

120 Ray Kurzweil, *The Age of Spiritual Machines* (Penguin Books 1999); see n 118 above, 85.

121 Richard C Sherman, *The Surge of Artificial Intelligence: Time to Re-examine Ourselves. Implications: Why Create Artificial Intelligence?* (1998) www.units.miamioh.edu/psybersite/cyberspace/aisurge/implications.shtml accessed 21 December 2018.

122 Alfred Korzybski, *A Non-Aristotelian System and its Necessity for Rigour in Mathematics and Physics* (American Association for the Advancement of Science 1931).

123 See n 106 above.

124 See n 104 above.

125 See n 106 above.

future impact of AI, insurance law will most likely have a crucial role. Those who may be deemed as part of the liability chain for the actions of certain machines will eventually need insurances to mitigate that risk.

Legal scholars, legislators and tech experts must endeavour their best efforts to collaborate on determining the solution which, on the one hand, will not obstruct the technological progress and, on the other, will respect the fundamental principles of liability law.

IX. NINTH REPORT: TAX LAW

Prepared by Joseph Duffy (Matheson, Ireland)

I. The survey

The IBA–ILO joint Working Group published a survey focusing on the challenges and opportunities for tax systems posed by the changing nature of work. The following report is based on the results of that survey and additional research into how various tax systems are dealing with these challenges and opportunities.

II. Substantive questions

Impact of tax policy on the nature of the working relationship

- In what country do you work?
- To what extent does tax policy shape or drive the nature of the working relationship in your country? Is there a tax advantage from an employer or individual perspective to being classified as employed or self-employed? Are the employer and worker aligned in this regard?
- How does your tax system identify and treat alternative and new forms of worker engagement (eg, the sharing or gig economy)? Is there proactive guidance from taxation or other authorities? Is this addressed on a case-by-case basis? To what extent is tax policy used to proactively shape the nature of new forms of engagement?
- To what extent does tax policy affect the nature of remuneration? Does tax policy affect remuneration in cash, benefits and share-based remuneration? In circumstances where there are significant changes to the nature of work, to what extent does tax policy promote flexible wage policies linked to factors other than the work of that employee (stock options, restricted stock units (RSU) and compensation by performance)?
- To what extent does tax policy affect the terms of employment engagement (eg, entitlement to a tax-free termination payment depending on length of service)? Can tax policy be used to shape, improve or protect the terms available to workers in the labour market (eg, full-time, indefinite contracts, and flexible time and place)?
- To what extent does tax policy in relation to the taxation of work affect the practices of corporations? Is there a preference within corporates to hire versus outsource? Does the analysis change for cross-border matters?

Sharing the tax contribution

- Would tax receipts in your country be affected significantly by changes in the amount that people earn and how people earn? To what extent would the national exchequer be able to cope with future changes in working structures? How progressive is your income tax system? How broad is the tax base? To what extent is it reliant on lower, middle or upper-income earners?

- To what extent does direct personal taxation contribute to the national exchequer in comparison with other forms of taxation (VAT, excise, capital, corporate, wealth etc)? Does national tax policy in any way seek to reduce the reliance on income tax, particularly income tax on earned income?
- To what extent are alternative and innovative forms of taxation considered to increase tax, and reduce the direct taxation burden on employees and the reliance on direct taxation of earned income?

Taxation of work and technological developments

- To what extent does your tax system consider the taxation of robots or automated processes? Are there tax incentives to encourage automation or, conversely, to protect against automation? To what extent is the impact on employment considered relevant in setting this policy? Should tax policy be used to encourage or discourage automation?
- What tax policies are being followed or considered to protect against a possible fall in exchequer revenues as a result of the automation of work processes, particularly routine activities and services? Are there examples of how this was addressed by tax policy in the past?
- To what extent should countries move away from a direct tax on labour and instead tax indirectly on consumption or other forms of taxation (financial gains)?
- To what extent would the taxation of robots (or other automated processes that replace jobs) affect the uptake of new technology? Could a possible taxation of robots be used to help the workforce adapt to the increasing speed of technological change (ie, invest in education or skills upgrading)? Would such a measure be effective in shortening transition periods?
- To what extent does your tax system reflect changes in work practices as a result of technological advances. For example, are there special rules providing for the taxation of remote workers?

Taxation of work and economic policy

- To what extent is the taxation of workers considered in shaping economic policy and tackling unemployment? To what extent are regional and sectoral tax incentives used? To what extent is the policy focus on direct incentive (eg, grant aid) versus indirect incentive (eg, tax rebate)?
- To what extent does the tax-benefit infrastructure reduce the rising inequality in disposable income? Are there changes made to the tax-benefit infrastructure to react to rises in income inequality?
- To what extent is income tax policy and the quantum of income tax on workers seen as a barrier to employment or tool to generate employment and investment?
- To what extent does tax policy encourage forms of generating income other than traditional employment (eg, encouraging entrepreneurship)?
- To what extent can income tax policy and incentives influence the location of globally mobile employees? To what extent is this desirable?

Taxation of work and social policy

- To what extent is tax policy used for re-education and training within and outside the workforce? How does a tax-based incentive approach compare with direct intervention?
- To what extent is tax policy used to support pension policy? Is there equal support for public and private pensions? With an ageing population, how can tax policy be used to address the increasing difficulties in financing pension commitments?
- To what extent can tax policy be used to economically support an adequate universal minimum income for all persons?
- To what extent can tax policy address the issues of longer-term unemployment due to (but not exclusively so) technological change?
- To what extent can tax policy be used to promote CSR and other socially desirable programmes within the workplace or in communities without undermining companies contributions to public policies (eg, pro bono, community work, and health and safety policies)?

III. Key findings

The survey and our analysis have highlighted challenges and opportunities for national tax systems and potential significant effects on national tax receipts because of the changing nature of work.

- The survey and our analysis have highlighted challenges and opportunities for national tax systems and potential significant effects on national tax receipts because of the changing nature of work.
- The nature of the employment relationship is changing. There appears to be a shift towards non-employee relationships, self-employed individuals and workers operating in the gig economy. Traditional tax systems have been designed to reflect self-employment as an indicator of entrepreneurship. This may no longer be the case and tax policy may need to change to protect the new breed of workers, remove the distinctions between traditional employees and the self-employed and incentivise true entrepreneurship within the economy.
- The primary revenue source for national exchequers comprises tax receipts on current earnings and value added tax (VAT) receipts (which ultimately falls to be paid by end-consumers out of after-tax earnings). This results in a potentially unstable tax base and puts particular pressure on pension payments in an era of ageing populations. There is significant uncertainty about the sustainability of this model, particularly considering the impact that technological development may have on employment levels. Given the exponential rate of change in technological development, the redundancy of certain jobs across huge sectors of the global economy could happen quickly. Falling employment levels would dramatically affect the level of income tax receipts and VAT receipts.
- It is possible that jobs will be created to replace the jobs made redundant by technological development. But it is not clear how quickly this would happen. There would need to be significant investment in education and training, and tax policy can play an important role in encouraging such education. In addition, governments can consider how to reduce the direct tax costs associated with the employment of individuals and how to reduce the tax burden on corporates so as to encourage investment in individuals.

- In the meantime, how national exchequers can plug any tax gap caused by falling employment levels and how tax disincentives on employment can be removed must be determined. There is not an alternative obvious income source for national exchequers.
- There has been a significant focus in recent years on the international base erosion and profit shifting (BEPS) project. Essentially, this was a project aimed at eliminating mismatches in international tax laws and ensuring that multinational corporations paid more tax. While the BEPS project has driven a lot of changes in international tax rules and changes in corporate behaviour, it is clear that there are likely to be further changes in international tax laws, ultimately resulting in higher corporate taxes. We have yet to see what impact a higher corporate tax rate will have on corporate investment and job creation, or indeed consumer prices. While certain corporate tax problems need to be addressed, a focus on corporate taxation, as a tax on the year's profits, seems to be fraught with the risk of being inherently unstable and ultimately borne by the consumer.
- Consumption taxes, such as VAT and sales tax, while relatively easy to adjust, are highly regressive as they are ultimately borne by the end-consumer and affect the poorer to a much greater degree. Innovative taxes, such as a digital tax, have been proposed, but ultimately they seem to be another form of consumption tax or simply a new means of allocating taxing rights.
- There have been international discussions on new forms of taxation, such as a tax on data or taxation based on market intangibles. The BEPS project has successfully closed the door on many forms of 'nowhere income' (ie, income allocated to no jurisdiction that as a result is taxed nowhere). However, it is difficult to see how many of the new proposals do anything other than reallocate global tax receipts among countries and fail to increase global tax receipts. In such circumstances, history shows that large developed countries tend to do better when it comes to designing rules around the allocation of resources.
- Perhaps there needs to be a greater focus on new types of taxation, such as wealth and property taxes, which recognise the large, stable base of inherited wealth accumulated in the world's most developed countries over many centuries instead of simply looking at current year profits or income taxes.
- Technology is changing how and where people work and equally how corporations connect and sell to customers. This creates challenges for tax systems designed in a different era. Greater employee mobility raises important questions as to where value is created within organisations. This creates significant uncertainty around the appropriate nexus for corporate taxation. The BEPS project, the European Common Consolidated Corporate Tax Base proposals and other follow-up international initiatives continue to focus on dividing the taxation rights of corporate profits. It is clear that the old rules of corporate taxation need to be adapted to suit the modern world, but whether any of the proposed rules will benefit countries other than the large traditional powers is not clear.
- The rapidly changing nature of work in today's technologically advanced and globalised world poses many challenges for national tax systems. In some instances, countries seek to adapt traditional tax rules to cater for these unforeseen changes. In others, proposals such as the taxation of robots, the establishment of permanent establishment (PE) rules and the development of a digital tax represent innovative ways in which systems seek to deal with these challenges.

IV. The changing nature of employment

The traditional structures of the labour market are undergoing profound change and secure employment positions are being replaced with independent contractor relationships that are more entrepreneurial, but come with intermittent and less secure income streams. Tax systems are adapting and will need to adapt further to deal with these changes.

The question of whether a worker is an employee or self-employed is a question of fact based on the circumstances of each case – the designation is not a choice made at the election of the employer or individual. In Ireland, a multifactor test that looks at indicators such as whether the employer controls all aspects of the employees work; whether the worker is employed as part of the business and whether the work done is integral to the business; and the level of entrepreneurship employed by the worker, is used to determine whether there is an effective employment relationship. The Irish Revenue Commissioners (the ‘Irish Revenue’) issued guidelines to assist in determining whether an individual is employed or self-employed. When considering the guidelines, the job as a whole must be looked at, including the working conditions and the reality of the relationship between the parties involved.

Whether an individual is determined to be an employee or self-employed will affect how they are assessed for tax, the amount of tax they pay and how they pay it. It will also affect their employment rights and entitlement to certain benefits.

1. *Impact of employee/self-employed classification on tax treatment*

The tax treatment of new forms of worker engagement is generally determined by understanding the nature of the working relationship and applying the principles of taxation to that relationship. In the context of the nature of the working relationship, tax will generally follow the nature of the legal relationship.

In Ireland, self-employed taxpayers pay income tax under the self-assessment system once a year. Self-assessment means that the taxpayer is responsible for making their own assessment of tax payable. Employees whose only income is employment income are generally taxed at source by their employer by operation of the pay as you earn (PAYE) system. In recent years, efforts have been made to equalise the tax treatment of employed and self-employed taxpayers. The year 2017 saw the introduction of the earned income tax credit (currently €1,150, increased from €550 in 2016 and €950 in 2017); PAYE workers are entitled to a tax credit of €1,650 (in addition to their personal tax credit of €1,650, to which every taxpayer is entitled), but there had been no additional credit available for self-employed taxpayers until its introduction. Historically, self-employed taxpayers were not entitled to the same level of benefits from the social welfare system as employees. While self-employed taxpayers had been entitled to a contributory pension and maternity benefit, access to a wider number of benefits from the pay related social insurance (PRSI) contribution fund, such as eye tests and dental treatments, which had been previously unavailable to self-employed taxpayers, was introduced this year.

However, a number of differences persist. While all taxpayers are liable to pay the universal social charge (USC) if their gross income is more than €13,000 in a year, an extra charge of three per cent applies to any income from self-employment (ie, non-PAYE income) more than €100,000. This means that self-employed people pay a total of 11 per

cent USC on any income more than €100,000. Self-employed taxpayers are, however, entitled to claim certain business expenses, including the purchase of goods for resale, rent of their premises, employee wages, rates, repairs, lighting and heating costs, running costs of vehicles or machinery used in the business, accountancy fees, interest paid on loans for the purpose of the business, leasing payments on vehicles or machinery used in the business, to the extent that these expenses are incurred wholly and exclusively for the purposes of the trade carried on by the taxpayer.

In the US, from an employer perspective, there was a historical tax advantage to a worker being classified as self-employed, while for a worker, there was a tax advantage to being treated as an employee, in both cases because the employer would bear the burden of certain employment taxes if the worker was treated as an employee. Under the new Tax Cuts and Jobs Act, there may be incentives for workers to be treated as self-employed to take advantage of a new business tax deduction resulting in a lower effective tax rate for certain services income that is not received as an employee.

2. The gig economy and how to tax it

The gig or sharing economy is the name given to the workforce made up of independent contractors who provide a service on an ad hoc basis. Instead of a regular wage, workers get paid for the gigs they do, such as a food delivery or a car journey. It is an environment in which temporary positions are common and organisations contract with independent workers for short-term engagements.

The impact of the gig economy on overall employment quality appears to be relatively limited at present, with less than one per cent of total US employment, for example, accounting for this new form of employment, according to a 2017 report titled *Making US Labour and Social Protections Fit for the 21st Century*.¹²⁶ However, as noted by the ILO in its 2016 report, *Non-Standard Employment Around the World*, as digital platforms providing this work are often set up with the explicit purpose of circumventing existing regulation and taxation, new forms of informal employment have the potential to grow quickly, in advanced and developing countries.¹²⁷ On the one hand, these technological changes have the potential to strengthen formal employment and lower entry barriers for currently informal workers and companies. On the other hand, there is ‘a risk that policy inaction and lack of appropriate regulatory frameworks may result in greater fragmentation of labour markets and an increase in the incidence of informal employment arrangements’, as noted by the UN in its report on *The Impact of the Technological Revolution on Labour Markets and Income Distribution*.¹²⁸

The key concern is whether some individuals are choosing self-employment and gig economy work because they lack alternative employment opportunities. In this respect, rather than demonstrating entrepreneurial freedom and creativity, the growth in self-employment more likely marks the denouement of a more precarious and less secure way of working. In this context, an important question to be raised relates to the reason why the market favours individuals working for their own business rather than as employees of large companies; large companies exist because it is typically more efficient for individuals to come together as part of a large company than to operate lots of small, individual businesses, due to the economies of scale and scope.

126 Sandra Polaski, *Making US Labour and Social Protections Fit for the 21st Century* (ILO, RDW 2017).

127 ILO, *Non-Standard Employment around the World: Understanding Challenges, Shaping Prospects* (2016).

128 UN Department of Economic and Social Affairs, *Frontier Issues: The Impact of the Technological Revolution on Labour Markets and Income Distribution* (Development Policy Seminar 2017).

The question is how to tax employees and the self-employed with the backdrop of a changing labour market landscape. A pragmatic argument for taxing the self-employed at lower rates than employees is that the former group is more responsive to tax (in the sense that their taxable incomes are more ‘elastic’). The more a tax reduces taxable income, the lower the revenue yield from the tax and the greater the loss of taxpayer welfare overall. So it can be efficient to set lower tax rates for more responsive groups.

The position of employees and the self-employed can be heavily contrasted in terms of the level of risk taken and whether there is personal investment in the enterprise. It is axiomatic that this risk-taking should be reflected in taxation policy, with concessions being made in respect of self-employed individuals. One fundamental difference is that, unlike employees’ wages, the income of the self-employed often represents a return to capital invested (as well as labour input).

Preferential tax treatment may be justified if markets fail to provide the appropriate incentives for entrepreneurship. In some cases, the tax system itself distorts the market rewards that attach to different economic choices. Marginal tax rates that are higher for high incomes, for example, mean that above-average returns are taxed more than below-average returns are cushioned. As Adam, Miller and Pope note in *Tax, legal form and the gig economy*, the tax system does not currently match taxation of profits with symmetrically generous rebates for losses: losses can only be set against other income (there are no cash refunds), with significant restrictions (which differ between companies and the self-employed) on what income they can be used to offset.¹²⁹ Losses carried forward to set against future income get no compensation for the delay and there is a risk that the losses can never be used.

As the aforementioned authors note, being taxed on positive returns but not symmetrically cushioned from negative returns does discourage risk taking. A sensible focus would be on reducing the disincentives created by asymmetric taxation, and in particular, reforming the treatment of losses.

Another consideration in the taxation of workers is that market failures can arise in relation to self-employed entrepreneurship. For example, there may be too few new ideas tried out because innovators do not reap all of the rewards (some ‘spillover’ to other businesses that can learn from the experiences of the innovator) or some small and/or new firms may find it prohibitively expensive to raise external finance because potential lenders have less information than would-be borrowers about the firm’s prospects.

The UK Institute for Fiscal Studies, however, argues that blanket reductions in tax rates for all the self-employed and company owner-managers are poorly targeted at such problems. It is better to determine which specific activities justify different tax treatment and design a policy targeted at those activities. It may be difficult to find precisely targeted measures that will encourage the kind of socially beneficial ‘entrepreneurship’ that is hard to define but, the OECD notes in *OECD Tax Policy Study No 21: Taxation and Employment*¹³⁰ that there are certain measures governments can take to increase work incentives:

129 Stuart Adam, Helen Miller and Thomas Pope, *Tax, legal form and the gig economy* (Institute for Fiscal Studies 2017) www.ifs.org.uk/publications/8872 accessed 30 January 2019.

130 OECD, *OECD Tax Policy Studies No 21: Taxation and Employment* (OECD Publishing 2011) <https://doi.org/10.1787/9789264120808-en> accessed 30 January 2019.

- introducing (or expanding) work-contingent tax credits targeted at low-income workers can increase work incentives for low-income workers; careful design is needed though, especially as the withdrawal of these tax credits as income rises can discourage work;
- providing age-based tax concessions for older workers rather than pension-specific concessions, and reducing social security contribution burdens on older workers thereby reducing retirement incentives faced by older workers;
- moving from family-based to individual-based taxation, to increase second-earner work incentives; and
- reducing employer social security contributions or payroll taxes for low-skilled youth, long-term unemployed and older workers will reduce the cost of hiring them for employers, increasing labour demand.

Yet most small businesses are not particularly innovative and do not generate significant spillover benefits to wider society, as noted by the Institute for Fiscal Studies. Instead, they consist of people quietly going about the business of making a living by providing valuable goods and services to others, as most ordinary employees do. There is little evidence that the gains from using across-the-board lower rates to promote those socially beneficial activities that cannot be targeted more directly are big enough to justify scattering tax benefits so widely and creating the problems of boundaries in the tax system as discussed.

A potential development in this regard comes from the UK Department for Business's *Taylor Review of Modern Working Practices*. The central thesis here is to strengthen the position of workers in non-standard working arrangements, for example, removing incentives in the tax system that favour a classification of workers as self-employed (and a bolstering of employment law protections for traditional self-employed workers in kind).¹³¹

In addition, governments can undertake subsidies or tax incentives for consumers within the gig economy. In this respect, the UN notes that Norway's transition to electric vehicles was built on a broad range of government incentives, including a 25 per cent sales tax. As the use of those services within the gig economy increases, the opportunities for unemployed or underemployed workers increase in kind.

According to *Effects of Income Tax Changes on Economic Growth*,¹³² a paper by the Brookings Institution and Tax Policy Centre, rapid technological change has contributed to increased wage inequality among workers, as well as between workers and business owners. A response in the form of progressive tax policies could ensure that benefits from new technologies, such as AI, are more widely shared. The paper notes that more progressive tax systems have the potential of generating substantial public resources for the redistribution and financing of universal systems of social protection.

Tax reform, as established, involves reductions in income tax rates and measures to broaden the tax base, that is, to reduce the use of tax expenditure or other items that narrow the base. Broadening the base will have a distributive effect; by reducing the extent to which the tax system

131 Matthew Taylor, *Good Work: The Taylor Review of Modern Working Practices* (Department for Business, Energy and Industrial Strategy 2017).

132 William Gale and Andrew Samwick, *Effects of Income Tax Changes on Economic Growth* (Brookings Institution 2016).

subsidises alternative sources and uses of income, such a reform will reallocate resources towards their highest-value economic use and, as the paper notes, result in a more efficient allocation of resources (and an increase in employment opportunities in those sectors as a result).

Moreover, with ageing populations and increased demands on government revenue, countries' economies are under pressure to boost employment and earnings. In this respect, tax policy should focus its reforms on labour market entry and retirement. Those are the points where labour supply is most responsive to tax incentives, which can reduce barriers to entry for people leaving school and women with young children and prolong employment among older workers. Reforms should recognise that early human capital investments enhance the incentive to work and to accumulate human capital while in work, ensuring that gross earnings hold up longer through the life cycle. In turn, the prospect of higher net income earned later in working life provides an important incentive for human capital investment.

These arguments point to a targeted rearrangement of the tax rate schedule that directs incentives towards points in the lifetime when labour supply responses, especially at the extensive margin, are strongest – largely for parents with young children and for older workers, a point recognised in the Irish Department of Finance's 2017 *Annual Taxation Report*.¹³³ For people leaving school with lower educational qualifications, the aim is to avoid excessive spells of unemployment. For older workers, work decisions are particularly responsive to taxes. Incentives to stay in work longer and to strengthen incentives to invest in human capital can be improved by reducing the disincentives to work for people in their late 50s and 60s that are implicit in social security retirement ages, earnings tests, disability insurance and medical insurance provisions.¹³⁴

3. *What are countries doing?*

There is no specific guidance from the Irish Revenue for the tax treatment of Irish taxpayers with income derived from the gig economy. As aforementioned, the Irish tax system operates on a self-assessment basis, meaning taxpayers must include any income from alternative forms of worker engagement along with income from 'traditional' sources, such as employment income in their annual tax return. For example, income from placing an Irish property on property-sharing websites for short-term letting should be assessed as rental income from an Irish property. To ensure such income is properly assessed, property-sharing websites are required to provide certain information to the Irish Revenue each year on all rental income earned by Irish resident users in respect of both Irish and foreign property listings and all rental income earned by non-Irish resident users in respect of Irish property listings. Similarly, income from casual employment must also be included in the tax return of a taxpayer. The Irish Revenue has issued guidance on 'moonlighting', which it describes as part-time work that an individual taxpayer undertakes, the income from which is not reported to relevant authorities.¹³⁵ This includes wages from temporary or part-time jobs.

133 Department of Finance, *Annual Taxation Report* (2017) www.finance.gov.ie/wp-content/uploads/2018/01/annual-taxation-report.pdf accessed 30 January 2019.

134 Richard Blundell, 'How Responsive is the Labour Market to Tax Policy?' (UCL IZA World of Labour, 2014) www.ucl.ac.uk/~uctp39a/Blundell_WOL_May_2014.pdf accessed 30 January 2019.

135 Irish Revenue Commissioners, *Reporting Shadow Economy Activity (Tax Evasion)* www.revenue.ie/en/corporate/assist-us/reporting-shadow-economy-activity/nixers.aspx accessed 30 January 2019.

In the UK, a group of Deliveroo riders recently settled a case, which was due to be heard by an employment tribunal in mid-July 2018, in which they were arguing that they had been unlawfully denied rights, including the legal minimum wage and paid holiday, after being labelled self-employed contractors. The settlement may indicate a move away in the UK from understanding gig economy workers to be self-employed workers rather than employees. It comes in the wake of the High Court giving the Independent Workers Union of Great Britain permission to launch a full judicial review of the workers' rights to collective bargaining based on human rights grounds and as members of parliament are set to scrutinise Deliveroo's hiring conditions.¹³⁶

In the US, a body of common law shaped by a set of factors was set forth in Internal Revenue Service (IRS) Guidance used for determining how the gig economy should be taxed.¹³⁷ Essentially old rules are constantly interpreted for new situations.

Some countries have seen that clarifying the status quo is the simpler solution to taxing the gig economy: Australia recently issued a clarification on the applicability of General Sales Tax to ride-hailing platforms. An online tax calculator has been floated in a number of countries, including the UK, which could even be built into platforms' digital interfaces. Other countries, such as Belgium, have created a new 'peer-to-peer' status within the tax code, with bespoke rates and thresholds. The UK has sought to take gig workers who generate small amounts of occasional additional income out of the tax system altogether, launching two new £1,000 allowances for property and trading income in 2017, aimed at stimulating 'micro entrepreneurship'. France has recently clarified social security thresholds and rates specifically for long-distance ridesharing activity.

The extent to which tax policy should be used to provide greater protection for workers in the sharing or gig economy has been discussed at EU level. The European Commission has sought to ensure a higher level of protection for 'irregular' workers and has recommended that such workers, for example, Uber drivers and Deliveroo couriers, should have minimum levels of social security protection, such as unemployment protection and maternity leave. The European Commission's definition of the 'irregular' market is broadly defined; approximately 40 per cent of EU citizens are part of the 'irregular' market, which includes self-employed people and those working pursuant to part-time contracts.¹³⁸ As social security rules are the responsibility of individual Member State governments, such proposals are not legally binding, and it would be for the individual Member State to amend domestic legislation to alter the level of social protection to which irregular workers are entitled.

Key findings

- The lines between employees and self-employed workers have become blurred, and this blurring of the lines is challenging when it comes to the taxation of those workers.
- Increased risk is a hallmark of entrepreneurship. Preferential tax treatment of self-employed workers may be justified if markets fail to provide the appropriate incentives for entrepreneurship.

136 James Moore, 'Deliveroo Goliath Hit By Independent Worker Union's Stone' *The Independent* (London, 15 June 2018).

137 Internal Revenue Service, 'Sharing Economy Tax Centre'

138 Mehreen Khan, 'EU Seeks Greater Protection for Gig Economy Workers' *Financial Times* (Brussels, 13 March 2018).

- Governments can take measures to increase work incentives, including introducing work-contingent tax credits targeted at low-income workers; providing age-based tax concessions for older workers; moving from family-based to individual-based taxation; and reducing employer social security contributions or payroll taxes for low-skilled youth, long-term unemployed and older workers.
- Removing incentives in the tax system that favour a classification of workers as self-employed and bolstering employment law protections for traditional self-employed workers in kind can reduce the challenge posed by the blurring of lines between the two forms of work and taxation of each.
- Few countries have introduced specific guidance for taxation of the gig economy, and most rely on the adaptation of old rules for the taxation of a new form of worker engagement.

V. Income tax policy

Many tax exchequers are heavily reliant on income tax receipts from all workers. For example, the Irish income tax system is very progressive. The top five per cent of earners pay 40 per cent of the total income tax, while the top 23 per cent of earners pay 77 per cent of the total income tax take. As set out in the Annual Taxation Report published by the Irish Department of Finance, income tax receipts were the largest contributor to the Irish tax take in 2017, making up 39 per cent of the total tax received by the Irish Exchequer. The next highest was VAT receipts, which made up 26 per cent of the total tax take. The importance of corporation tax as a source of revenue for the Irish Exchequer has significantly increased; the level effectively doubled from 2014 to 2017. Approximately two-fifths of corporation tax payments are made by a small number of taxpayers, as the top ten taxpayers accounted for 37 per cent of the 2016 total receipts. The other tax heads, that is, stamp duty, capital taxes and so on account for six per cent of total tax revenue.¹³⁹

The Irish tax system is based on the principle of taxing income and expenditure and does not have any form of wealth or significant property tax, other than local property tax. Income tax in Ireland is applied to a narrow conventional base. Separate taxes apply to gains realised on the disposal of capital assets and on gifts and inheritance. Indirect taxes in the form of VAT and other duties apply in addition to direct tax. The tax base is reliant on middle and upper-income earners. Interestingly, the Dutch Exchequer relies more heavily on VAT receipts than on income tax receipts from workers, suggesting that a change in receipts from income tax would affect the Netherlands less significantly than it would affect Ireland or the US.

1. *Impact of income tax policy*

Income tax policy can significantly affect remuneration. Tax preferences for certain types of employee benefits drive employers to offer those benefits. There are significant tax benefits to employees of certain types of equity-based compensation, and the reduced cash cost of that compensation drives many early-stage businesses especially to grant equity or equity equivalents as a major part of pay packages.

¹³⁹ See n 133 above.

In the context of employment arrangements, Ireland taxes both cash salary and employer-provided benefits. For example, when an employer makes a car available to an employee by reason of his/her employment, the ‘cash equivalent’ of the benefit of the car for that year, less any amounts that the employee makes good to the employer in respect of the cost of providing or running the car, will be subject to payroll tax in the hands of the employee, with such tax being operated through payroll. The cash equivalent equates to the cost to the employer of providing the benefit. However, certain employer-provided benefits can be provided in a tax-efficient manner, including certain types of share awards, equity-based employee incentive schemes and pension contributions. Employers can match employee pension contributions to a certain maximum percentage rate. The total employer and employee contributions can be deducted from the employee’s taxable income before the tax payable is calculated. RSU and other options are available in Ireland and are chargeable to income tax, USC and PRSI when the RSU vests.

By contrast, given that self-employed persons are not employees, they are not provided with benefits that would be indicative of an employment arrangement (eg, stock option plans and pension contributions) that may call into question their self-employed status. Self-employed individuals are generally paid a fee for their service and, in certain circumstances, reimbursement of vouched out-of-pocket expenses. As aforementioned, self-employed taxpayers with trade or professional income are entitled to claim deductions for expenses incurred wholly and exclusively for the purposes of their trade or profession. An employee is not entitled to deductions in this manner.

Irish tax law permits certain payments to be made to employees upon cessation of their employment in a tax-efficient manner. Such payments can be made in addition to statutory redundancy payments, as statutory redundancy payments are automatically exempt from tax. Termination payments are not exempt from tax, but may qualify for relief from tax. There are several factors that affect the quantum of payment that can be made tax-free (including length of service).

All taxpayers are entitled to a ‘basic exemption’ of €10,160, plus €765 for each complete year of service. An additional €10,000 called the increased exemption is also available where the taxpayer has not received a tax-free lump sum in the past ten years and is not getting a lump sum pension payment at the time their employment is terminated or in the future. A final relief is available, which normally benefits people with higher earnings and long service called the standard capital superannuation benefit (SCSB). The SCSB is calculated by taking the average annual earnings over the previous three years and multiplying by the number of years’ service, then dividing by 15 and subtracting the lump sum superannuation payment that may be available. The taxpayer is entitled to the highest of the three reliefs.

The current system of taxation for workers in Ireland is in need of some reform. In its key structural recommendations, the European Commission noted that ‘broadening the tax base could help improve Revenue stability in the face of economic fluctuations. In particular, taxes on corporate income as a proportion of total taxation continued to rise. In Ireland’s case such taxes are highly concentrated and prone to volatility’.¹⁴⁰ The International Monetary Fund has also emphasised the need to broaden the Irish tax base.

140 European Commission, *European Semester Country Report Ireland* (March 2018).

2. *Innovation in income tax policy*

Irish, Dutch and US tax policies are generally slow to innovate. In the US, the introduction of any form of tax is considered as a move to increase taxes, and in the current political environment, such a move would be unpalatable at the federal level. However, at the state and local level, certain innovations, such as the legalisation of marijuana, is viewed as a significant boon because marijuana taxes can be levied in lieu of some portion of taxes on earned income. Historically, Irish tax policy has not focused on alternative or innovative forms of taxation to reduce the burden on income taxes. That being said, however, indirect taxes, in particular VAT, are charged at a very high rate in most countries. For example, it is generally the case that VAT is charged at a rate of upwards of 19 per cent. In Ireland, there exists a high VAT rate of 23 per cent. Considering this high rate, it appears that the Irish government will need to look at more innovative forms of indirect taxation to raise revenue without having to resort to increasing the already very high tax rates that apply in this jurisdiction in respect of indirect taxation.

This being said, and apart from the general and well-recognised indirect taxes that exist, nothing wholly substantial has been introduced in Ireland that would ultimately reduce or remove the direct taxation burden on employees and the significant reliance on direct taxation of earned income.

Tax policy does not specifically seek to reduce reliance on income taxes on earned income. However, the collapse of public finances from 2008 highlighted the need for a more in-depth analysis of taxation receipts and the importance of monitoring trends to identify emerging imbalances. The *Annual Taxation Report* notes that one of the ‘key lessons’ of the financial crisis was the need to maintain a broad, stable tax base and to avoid reliance on unstable or transient revenue streams, as any shock to the tax base would have ramifications for public finances.¹⁴¹ The *Annual Taxation Report* specifically highlights international corporation tax changes and lack of clarity around the UK’s post-Brexit trading relationship with the EU as two factors contributing to a climate of uncertainty.

3. *Unemployment and income inequality*

Tax is one of the broader ranges of incentives used to promote moving individuals from unemployment into employment and tackling systemic economic inequality in society. There are few regional or sectoral-specific incentives.

The EU plays an active role in tackling this issue. Included in the principles, objectives and activities of the Treaty on the Functioning of the European Union (TFEU) is the promotion of a high level of employment by developing a coordinated strategy, particularly with regard to the creation of a skilled, trained and adaptable workforce and labour markets responsive to economic change. According to the horizontal clause in Article 9 of the TFEU, the objective of a high level of employment must be taken into consideration in the definition and implementation of EU policies and activities.¹⁴²

141 See n 133 above, 11.

142 Susanne Kraatz, ‘Fact Sheets on the European Union: Employment Policy’ (2018) www.europarl.europa.eu/factsheets/en/sheet/54/employment-policy accessed 30 January 2019.

However, according to a Eurofound report, income inequalities have increased in about two-thirds of EU Member States, largely due to growing unemployment levels since the onset of the financial crisis. At the same time, EU-wide income inequality also increased as income convergence between European countries stalled.¹⁴³

The report shows that the crisis reduced average household disposable real-income levels across almost all European countries, although to varying degrees, with the middle classes being significantly squeezed in the majority of countries. It also notes that the impact of the crisis revealed by real household disposable income levels is not always reflected by relative inequality indices or by gross domestic product (GDP) per capita data, which suggests that a wider set of indicators to assess wellbeing and economic prosperity in European societies should be adopted to properly assess the fall in living standards resulting from the recession.

According to a European Commission study on the effect of taxes and benefits in reducing the inequality arising from the distribution of original income, public pensions play an important role in reducing inequality in most EU countries, with their impact larger than that of the remaining tax-benefit instruments combined, except in Ireland, the Netherlands and the UK, where public pensions make relatively little difference to inequality. The tax-benefit system (excluding pensions) does most in absolute terms to reduce inequality in Austria, Belgium, Denmark, Finland, Ireland, Luxembourg, the Netherlands and the UK, and least in Bulgaria, Estonia, Greece, Lithuania and Poland.¹⁴⁴ Ireland's income tax regime is broadly progressive in that those who earn more pay the largest share of the income tax burden.

With the increasing prevalence of AI and robotics, higher unemployment rates and exacerbated income inequality are real concerns. It is estimated that at least one in three jobs is vulnerable to AI and robotics, with routine and repetitive tasks in manufacturing, administration and call centres most easily substituted. Research at the Oxford Martin School estimates that over the next 20 years, up to 47 per cent of US jobs, about 40 per cent of European jobs and a higher share of jobs in many developing countries could be replaced by machines.¹⁴⁵ The exponential increase in computing power and machine learning will intensify these vulnerabilities.

What are marked in this context are the pace and reach of change. Although job destruction rates have slowed, the growth of new jobs is slower than the destruction of old jobs – and their quality in many cases is inferior, as full-time career employment gives way to gig economy work or contingency contracts. Furthermore, many full-time jobs in the modern economy provide neither a living wage nor guaranteed hours. The traditional labour market faces wage stagnation and technological disruption, with certain types of jobs disappearing. Already, we are seeing some skills being made obsolete, with others becoming less valuable. This is likely to lead to a fall in wages over time.

In this context, a system of universal basic income (UBI) would underpin living standards in a precarious labour market. Social Justice Ireland notes that a system of UBI would be transformative, and

143 Eurofound, *Income inequalities and employment patterns in Europe before and after the Great Recession* (Publications Office of the European Union 2017) <https://tinyurl.com/y6uczehz> accessed 30 January 2019.

144 European Commission, Employment, Social Affairs and Inclusion, 'Research findings – Social Situation Monitor – The effect of taxes and benefits in reducing the inequality arising from the distribution of original income' <http://ec.europa.eu/social/main.jsp?catId=1050&intPageId=1954&langId=en> accessed 30 January 2019.

145 Carl Benedikt Frey and Michael Osborne, *The Future of Employment: How Susceptible are Jobs to Computerisation?* (Oxford Martin 2013).

a manifestation of a social welfare system fit for the 21st century.¹⁴⁶ At first brush, the concept of ‘free money’ may seem to run contrary to many of our basic assumptions about how work, pay and personal responsibility interact. Yet forms of guaranteed income already exist in child benefit, disability payments and old age pensions. They further exist in unemployment benefit, tax credits and maternity benefit. Such programmes were initiated because, at the time, they were the most simple and obvious ways to target a distinct issue, incentivise a particular activity or achieve a specified outcome.

There are different variations to UBI: from a negative income tax, in which top-up cash payments would be made to those below the poverty line, to other policy measures such as providing cheaper housing to improve labour mobility, shifting taxes from labour to capital and significantly increasing funding for job training and re-education.

Other proposals, associated for example with the economist Yanis Varoufakis, attempt to directly distribute profits more equitably with a ‘universal basic dividend’.¹⁴⁷ Under this strategy, a fixed share of new equity issuances by firms is placed in a public trust, generating an income stream that is then distributed evenly among segments of society.

UBI as a means of tackling income inequality and unemployment is growing in popularity, with many well-known figures in industry and politics advocating for its implementation. Its popularity may be in part due to the growing realisation in society that a paradigmatic shift in economic and fiscal policy may be necessary to address inevitable developments that will negatively affect the labour market.

Key findings

- Many national exchequers are heavily reliant on income tax receipts from workers and as such are vulnerable in the face of changes that affect these receipts.
- Income tax policy can affect the way in which workers are paid. Forms of remuneration that have favourable income tax treatment can encourage the use of such forms of remuneration.
- The financial crisis highlighted the need for countries to maintain a broad, stable tax base and avoid reliance on unstable or transient revenue streams. International corporation tax changes and lack of clarity around the UK’s post-Brexit trading relationship with the EU have been identified as two factors that could create issues for the Irish Exchequer.
- Countries are generally reluctant to look to innovative forms of taxation. However, in the US, there may be a greater appetite to innovate at a state level than at a federal level.
- Since the financial crisis, income inequalities have increased in about two-thirds of EU Member States and EU-wide income inequality also increased. Public pensions play an important role in reducing inequality in most EU countries with their impact larger than that of the remaining tax-benefit instruments combined in most EU countries.
- It is estimated that at least one in three jobs is vulnerable to AI and robotics. A system of UBI could help to alleviate the problems this would cause.

146 Seán Healy and Brigid Reynolds, ‘Basic Income – Radical Utopia or Practical Solution?’ (Social Policy Conference 2016).

147 Yanis Varoufakis, ‘The Universal Right to Capital Income’ Project Syndicate (31 October 2016) www.project-syndicate.org/commentary/basic-income-funded-by-capital-income-by-yanis-varoufakis-2016-10?barrier=accesspaylog accessed 30 January 2019.

VI. Taxing technology

1. Automation and robotics

Andrus Ansip, the European Commission Vice-President in charge of digital policy, has admitted that new technology will cost jobs, but insisted automation would not cause ‘mass unemployment’.¹⁴⁸ The ILO data points out that from 1984 to 2012, job destruction rates declined – although inequality increased. This means that, historically, process automation has tended to create jobs (or alternative jobs), although the rent derived from technological gains has been concentrated in a few hands.¹⁴⁹

There have been arguments that the taxation of robots would have a negative impact on economic growth. The UK, for example, has had very poor productivity growth for the past ten years. It also has one of the lowest rates of robot take-up rates. According to the Royal Society for the encouragement of Arts, Manufactures and Commerce, the UK has just 33 robot units for every 10,000 employees, compared with 93 in the US and 213 in Japan. The argument is that if the UK doesn’t invest and improve productivity, real wages will remain stagnant. In this regard, the best way to see wage growth is to encourage higher productivity levels, and if a tax is placed on firms who invest in robots, it could discourage investment and UK productivity will suffer.¹⁵⁰

As part of recent changes to the US tax code, US companies are now entitled to 100 per cent capital allowance on the purchase of automation equipment. Irish tax policy neither encourages nor discriminates against the use of robots or automation. Tax depreciation can be available for capital expenditure on robots or automation where it is incurred on qualifying assets.

The notion of taxing robots and AI has been explored at EU level with the European Parliament publishing a draft report, 2015/2103(INL), calling for a parliamentary resolution that would create a new legal entity under which sophisticated autonomous robots would be classified as ‘electronic persons with specific rights and obligations’. Notably, the report raised concerns about the future of employment and Member States’ social security systems if the current tax and social security contribution systems are maintained, stating that ‘[c]onsideration should be given to the possible need to introduce corporate reporting requirements on the extent and proportion of the contribution of robotics and AI to the economic results of a company for the purpose of taxation and social security contributions’.

The paper led to a recommendation from the European Parliament to propose a so-called robot tax on robot owners to fund support for or retraining of workers made redundant by AI and automation technologies. The proposal called on the European Commission to monitor job trends more closely, with a special focus on the creation and loss of jobs in the different fields/areas of qualification, to know in which fields jobs are being created and in which jobs are being lost as a result of the increased use of robots.

148 Catherine Stupp, ‘Ansip Insists Automation Won’t Cause “Mass Unemployment”’ Euractiv (Brussels, 8 March 2017).

149 Tatiana Falcao, ‘Should My Dishwasher Pay a Robot Tax?’ (Tax Notes International 2018) <https://bit.ly/2LMaEuh> accessed 30 January 2019.

150 Benedict Dellot, ‘Too Many Robots? The UK Doesn’t have Enough’, Royal Society for the encouragement of Arts, Manufactures and Commerce (25 July 2017) www.thersa.org/discover/publications-and-articles/rsa-blogs/2017/07/too-many-robots-the-uk-doesnt-have-enough accessed 30 January 2019.

The proposal further stated that, bearing in mind the effects that the development and deployment of robotics and AI may have on employment and, consequently, on the viability of the social security systems of the Member States, consideration should be given to the possible need to introduce corporate reporting requirements on the extent and proportion of the contribution of robotics and AI to the economic results of a company for the purpose of taxation and social security contributions. Such requirements would potentially require a company to report the contribution of robotics and AI to the economic results of a company for the purpose of taxation and social security contributions.

The proposal did not, however, set out any detail as to how the impact of robotics and/or AI should be calculated, nor how the value created may potentially be taxed in the future. The proposals were ultimately unsuccessful in the European Parliament, with opponents arguing that such a tax would stifle innovation.

The question as to how robots should be taxed is, in itself, a difficult one. A leading academic in the area, Xavier Oberson,¹⁵¹ offers a number of approaches:

- levy an income tax on the ‘imputed hypothetical salary the robots should receive from equivalent work done by humans’;
- application of a VAT on robots’ activities; and
- an ‘automation tax’ based on the ratio of a company’s revenues (total sales) to their numbers of employees: the higher the ratio of robots to sales, the higher the tax.

While proposals have been made to establish a ‘robot tax’, there are very few examples of instances where such measures have been implemented by a tax authority. One isolated example would be South Korea, albeit in this instance it implemented a change in tax policy rather than a direct ‘robot tax’. South Korea recently moved to limit tax incentives for investment in automated machines. Under previous governments, tax deduction benefits were provided to businesses willing to invest in infrastructure. Overall, the policy was intended to boost productivity by allowing companies to have between three per cent and seven per cent of their corporate tax deducted, depending on the size of the business. The new rules lower the tax deduction rate by up to two percentage points.¹⁵² While not a direct tax on automation, the move has widely been viewed as a shift in South Korean tax policy and is significant as it represents the first tax policy decision that acknowledges the potential impact of automation on payroll tax revenues.

No specific tax policies have been implemented in Ireland to protect against a fall in exchequer revenues as a result of the automation of work processes.

In terms of the projected uptake of robotics, the International Federation of Robotics (IFR) predicts that more than three million industrial robots will be in use in factories around the world by 2020. This means that the operational stocks will more than double within seven years (2014–2020). Taking these statistics into account, it is clear that the uptake of new technologies is taking place at a fast pace. By contrast, workforces are certainly lagging in terms of upskilling to

151 Xavier Oberson, *How Taxing Robots could Help Bridge Future Revenue Gaps* (OECD Forum 2017) www.oecd.org/forum/oecdyearbook/how-taxing-robots-could-help-bridge-future-revenue-gaps.htm accessed 30 January 2019.

152 WARC, ‘South Korea’s “Robot Tax”’ (2017) www.warc.com/newsandopinion/news/south_koreas_robot_tax/39118 accessed 30 January 2019.

adapt to these changes in the work environment, even though 70 per cent of employees believe that robotics and automation offer the opportunity to qualify for higher skilled work.¹⁵³

There is undoubtedly a gulf in the requisite skills to take advantage of the digitalisation of work. According to data published by the European Commission in 2017, only 3.7 per cent of the EU workforce is technology specialists and only 57 per cent of Europeans have the most basic digital skills.¹⁵⁴

Conversely, in a worldwide comparison, the EU Member States as a whole are particularly advanced regarding automation. This is evident from the robot density existing in the automotive industry, for example. In 2016, half of the top ten nations with the most industrial robots per 10,000 employees belonged to the EU.

The highly developed nature of automation in Europe is also clear from looking at the manufacturing industry. Of the 22 countries with an above-average robot density, 14 are located in the EU.¹⁵⁵ While Europe may be most prepared for the onset of automation and robotics in the workforce, this does not mean that its preparations are sufficient. More work is still required to ensure technological advances create more advantages than disadvantages for individuals.

2. *Digital tax*

The growth of the digital economy has been rapid and dramatic: nine of the world's top 20 companies by market capitalisation are now digital compared with one in 20 ten years ago.¹⁵⁶ The current tax rules were not designed to cater for companies that are global, virtual or have little or no physical presence. To ensure that digital companies are taxed effectively, the European Commission proposed new rules for tax digital business activities in the EU.

Two distinct legislative proposals were proposed by the European Commission. The first initiative aims to reform corporate tax rules so that profits are registered and taxed where businesses have significant interaction with users through digital channels. This forms the European Commission's preferred long-term solution. The second proposal is an interim tax.

PROPOSAL 1: A COMMON REFORM OF THE EU'S CORPORATE TAX RULES FOR DIGITAL ACTIVITIES

This proposal would enable Member States to tax profits that are generated in their territory, even if a company does not have a physical presence there.

A digital platform would be deemed to have a taxable 'digital presence' or a virtual permanent establishment (PE) in a Member State if it fulfils one of the following criteria:

- it exceeds a threshold of €7m in annual revenues in a Member State;
- it has more than 100,000 users in a Member State in a taxable year; and

153 International Federation of Robotics, *Robots Double Worldwide by 2020* (2018) <https://ifr.org/ifr-press-releases/news/robots-double-worldwide-by-2020> accessed 30 January 2019.

154 European Commission, *Digital Economy and Society Index Report 2018* (2018) http://ec.europa.eu/information_society/newsroom/image/document/2018-20/2_desi_report_humancapital_B5DC055D-DD1E-51CD-229138BE55F9AE8A_52247.pdf accessed 30 January 2019.

155 International Federation of Robotics, *World Robotics Reports 2016* (2016) <https://ifr.org/ifr-press-releases/news/world-robotics-report-2016> accessed 30 January 2019.

156 'Here are the 20 Largest Companies in the World by Market Cap' (BusinessTech, 12 July 2017) <https://businesstech.co.za/news/business/184817/here-are-the-20-largest-companies-in-the-world-by-market-cap> accessed 30 January 2019.

- more than 3,000 business contracts for digital services are created between the company and business users in a taxable year.

The proposed rules would also change how profits are allocated to Member States depending on where the user is based at the time of consumption.

PROPOSAL 2: AN INTERIM TAX ON CERTAIN REVENUE FROM DIGITAL ACTIVITIES

The European Commission's short term plan is a three per cent tax on the gross revenues of certain digital transactions, broadly based on where target customers are located. The tax would apply to revenues created from activities where users play a major role in value creation such as those revenues:

- created from selling online advertising space;
- created from digital intermediary activities that allow users to interact with other users, and can facilitate the sale of goods and services between them; and
- created from the sale of data generated from user-provided information.

For example, if a company in Ireland receives €100 in advertising revenue in respect to advertising targeted at French customers, €3 digital tax would be payable to the French authorities, the rationale being that the French customer data is regarded as creating value for the Irish company. The aim of the interim tax is stated as taxing activities that are not effectively taxed and avoiding unilateral measures to tax digital activities in certain Member States that could lead to a patchwork of national responses. This system is proposed to apply only as an interim measure until comprehensive reform has been implemented.

The digital tax is a turnover-based tax based on gross revenue. Whether the company is profit making does not affect the digital tax charge. The proposals arguably run contrary to general tax principles, which look at where the value creation takes place as opposed to where customers are located. There is considerable work to do to convert customer data into something that can be profitably exploited, an activity that would not necessarily take place in the country of the customer. The digital tax payable is deductible against corporation tax profits but is not available as a direct credit against corporation tax payable. From an Irish perspective, the digital tax could potentially have a significant adverse impact on Irish corporation tax revenues and dilute the benefit of the 12.5 per cent tax rate as the digital tax element becomes a material tax cost for Irish-based multinational groups.

The interim proposals could pose a risk to the competitiveness of companies based in Europe and could be economically damaging. Although the European Commission insists that this is in fact an interim measure, as a longer-term solution will likely take some time to develop, there is the danger that the interim solution stays with us for longer than expected.

Many Member States are of the opinion that the European Commission should await the output of the OECD on the taxation of digital transactions rather than implement what could be a damaging solution for Europe. While some countries are likely to introduce unilateral measures for the taxation of digital business, the consensus among many Member States is that the optimal solution is one that is adopted at OECD level.

Aspects of the digital tax proposals could form part of the European Commission's common consolidated corporate tax base (CCCTB) plans, which is a separate set of proposed tax changes that seek to tax all companies, not only digital, based on the location of sales, employees and fixed assets. The CCCTB plans would broadly penalise smaller countries while rewarding larger economies.

Key findings

- Proposals have been made for the taxation of robots as a means to counteract loss of exchequer revenues caused by loss of jobs and thus loss of income tax revenues.
- These proposals are not detailed, and there are very few examples of instances where such measures have been implemented by a tax authority. On this basis, it seems unlikely that taxation of robots will be pursued by many countries in the near future.
- The European Commission has proposed the introduction of a tax on digital business to be levied on gross revenues by the Member State in which the customer is based. While this proposal is supported by many Member States, others are eager to wait until the OECD has completed its work on the possible introduction of a digital tax.

VII. Global mobility

The ways in which people and organisations work and move around the world has changed beyond recognition in recent years. The OECD, along with the Group of Twenty (G20), has developed a framework of actions to address the threat to tax fairness and tax revenues caused by the BEPS initiative. The intended aim is to ensure that profits are taxed where actual business activity is performed and value is created. Actions by governments under the BEPS initiative are creating fundamental changes to the international tax environment, with direct implications to mobile workforces.

Ireland's tax policy with regard to globally mobile workers is guided mostly by international agreements. That said, the Irish Revenue does have special rules to reflect remote working arrangements (eg, tax-free reimbursement of home broadband fees for remote workers). Broadly speaking, remote workers are taxed in the same manner as all other employees.

i. Impact of the BEPS project

The OECD's BEPS project has been by far the most significant global tax development for global mobility. According to PwC's *Managing Mobility in a World Reshaped by BEPS*,¹⁵⁷ certain areas of the BEPS project have far-reaching implications for employee mobility consequences.

i. DISCLOSURE AND TRANSPARENCY

The country-by-country reporting requirements introduced under BEPS include employee reporting, placing a heavy burden on organisations to gather information on where their people are employed.

¹⁵⁷ PwC, *Managing Mobility in a World Reshaped by BEPS* (2016) www.pwc.com/ca/en/tax/publications/managing-mobility-in-a-world-reshaped-by-beps.pdf accessed 30 January 2019.

II. TRANSFER PRICING

The transfer pricing elements of BEPS look at the substance of intercompany arrangements and, in the modern world, ‘substance’ is often created by people. Will we see more people, and particularly more valuable people, moving globally? Do transfer pricing arrangements adequately reflect the value these individuals create?

III. PE RULES

Tax authorities across the world are paying closer attention to PE – where an organisation is deemed to have a fixed place of business or (significantly in terms of mobility) an ‘agency PE’, through the actions of a ‘dependent agent’, in another country. In this new, tax sensitive environment, globally mobile employees – from secondees to short-term business travellers – may pose a significant PE risk.

PwC notes that globally mobile employees can create a significant PE risk for the enterprise. The unfortunate result can be the requirement to register the company as a taxpayer, file local country returns and remit taxes, most notably corporate income tax. Companies may mistakenly think their mobile workers in a specific jurisdiction do not have any individual tax liabilities. Unfortunately, if the employee activity creates a PE for corporate tax purposes, this could mandate that individual tax liabilities be remitted. The failure to remit such taxes properly could result in interest, penalties and other unexpected costs and sanctions. Some tax authorities, PwC notes, will increase their scrutiny of taxpayers that do not show compliance, for example, by increasing their risk rating.

Under the BEPS initiative, changes were proposed to the definition of a dependent agent (DA) PE. These broadened the definition to include individuals, sales agents and contractors who may be habitually performing activities in a location that, on aggregate, plays a pivotal role in the negotiation and conclusion of contracts executed in other tax jurisdictions. As a result, according to PwC’s *Top Ten Global Mobility Issues for Tax Directors to Think About*,¹⁵⁸ the number of cases in which individuals can create a DA PE is likely to increase, creating additional risk for employers of mobile workers. There likely will be an increased focus on intercompany service agreements for internationally mobile employees and on ensuring recharge arrangements reflect the arm’s length value of the services performed. Specifically, certain skilled employees with specific knowledge who move between countries (by transferring between entities or under a secondment arrangement) may be considered to be moving IP.

Key findings

- With increasing globalisation and technology, workers are becoming increasingly globally mobile, creating challenges for the taxation of these globally mobile workers and their employers.
- The BEPS project, and in particular the PE rules, attempt to deal with these challenges by taking the location of workers into account to a greater extent than was traditionally catered for under pre-BEPS tax systems.

158 PwC, *Top Ten Global Mobility Issues for Tax Directors to Think About* (2018) www.pwc.com/gx/en/people-organisation/pdf/pwc-top-ten-global-mobility-issues-for-tax-directors-to-think-about.pdf accessed 30 January 2019.

VIII. Ageing populations

The OECD has described¹⁵⁹ as reasonable a 70 per cent replacement rate as the adequate retirement income benchmark for the average individual, allowing them to ‘enjoy a standard of living in retirement that is similar to the standard he or she enjoyed prior to retirement’. The state-provided pension is designed to provide a bare minimum safety net. As the population ages, the dependency ratio of those working to those retired will change dramatically. In 2010, the ratio was six to one. By 2045, the ratio is predicted to be 2.25 to one.¹⁶⁰

Across OECD countries, these measures have proliferated over recent decades in response to projected demographic pressures and expectations of unsustainable demands on state-provided pensions. In theoretical terms, these incentives enhance the attractiveness of individuals investing in a particular asset through decreasing their cost and consequently increasing the asset’s relative rate of return.

There is a long history of the Irish state providing tax relief for supplementary pensions with the objective of assisting employees, and other taxpayers, to maintain living standards in retirement. In modern times, these supports have taken the form of tax relief on employee and employer contributions to occupational pensions and contributions to voluntary schemes. The latter include mechanisms for self-employed persons to contribute to a retirement annuity contract and persons who are not covered by an occupational pension scheme to contribute to a personal retirement savings account.

Overall, the tax treatment of private pensions takes a clear structure: contributions are exempt on the way into a fund, the fund’s investment income and capital gains are exempt and the funds are partially taxed upon withdrawal.

The partial taxation at withdrawal reflects the ability of pensioners to receive up to €200,000 of their pension fund as a tax-free lump sum upon retirement and the probability that subsequent withdrawals are taxable at a lower marginal rate because of declining incomes associated with old age and the design of the Irish income taxation system, which treats the income of the elderly in a more favourable way than that of those of working age.

Tax supports are provided at the marginal income tax rate of contributors. As a consequence, according to ‘Supporting Pension Contributions Through the Tax System: Outcomes, Costs, and Examining Reform’,¹⁶¹ a paper in the 2017 *Economic and Social Review*, they are more attractive, and more valuable, to those on higher rates. In total, nearly three-quarters of pension tax expenditure is concentrated on contributors who are in the top two deciles of the income distribution; these correspond to those earning well above average earnings (€35,006). Virtually none of the subsidies benefit those in the bottom half of the income distribution. The bottom two deciles get less than 0.75 per cent. In total, the bottom five deciles receive less than seven per cent of the tax expenditure supports for pension contributions.

159 OECD, *Private Pensions Outlook* (2008) 118 www.oecd.org/pensions/private-pensions/42169565.pdf accessed 30 January 2019.

160 Aviva Ireland ‘Mind the Gap – Quantifying the Pension Savings Gap in Ireland’ (2016) http://edepositireland.ie/bitstream/handle/2262/77314/Pensions_Gap_Country_Report_Ireland.pdf?sequence=1&isAllowed=y accessed 30 January 2019.

161 Micheál L Collins and Gerard Hughes, ‘Supporting Pension Contributions Through the Tax System: Outcomes, Costs and Examining Reform’ (2017) 48(4) *Economic and Social Review* www.esr.ie/article/view/824 accessed 30 January 2019.

Middle income contributors in the sixth to eighth deciles, who account for 30 per cent of those in employment, receive about one-fifth of pension contribution subsidies. This group in particular seems disadvantaged given that its average work income comfortably exceeds more than twice the annualised value of state pensions. The *Economic and Social Review* paper notes that the small levels of tax relief this group receives implies low contributions and future challenges around achieving adequate income replacement rates after retirement. The results of the report further highlight the concentration of tax supports among those on the highest incomes in Irish society. In effect, the authors note, the greatest beneficiaries are those who have the fewest needs by any measure used in social policy analysis.

Supporting contributions to private pensions through the taxation system have been the cornerstone of pension savings policy in Ireland for some time. The state resources involved are considerable, with tax supports to the pensions system costing the equivalent of 1.6 per cent of national income and 4.6 per cent of total taxation revenues per annum.

The analysis in the report highlights the relatively small size of most pension contributions (nominally and as a proportion of earnings), raising clear questions around the effectiveness of the collective suite of policy instruments focused on getting people to save for their retirement. The tax reliefs supporting these contributions are availed of at the marginal income tax rate. As such, policies that better target public resources towards encouraging pension savings among under-participating groups, such as middle income earners, is needed.

Key findings

- As populations age, state-funded pension schemes are at risk of becoming unsustainable.
- The system of tax supports for pension contributions encourage the participation of individuals and employers in the private pension system. However, policies that encourage pension savings among under-participating groups are needed.

IX. Preparing for the future

1. Re-education and training

According to the OECD report *Taxation and Skills: How Tax Systems Impact Skills Development in OECD Countries*,¹⁶² governments recover the costs of their investment in tertiary education on average through higher income tax revenue alone. The estimates in the report suggest that, on average across the OECD, the extra personal income tax revenue gained from educating a typical student at the tertiary level amounts to 119 per cent of government education costs.

A primary way in which tax policy may influence education and training activities is through tax incentives on expenditure in education and training activities. Tax incentives can have different forms, such as introducing a tax allowance reducing some amount of expenditure from taxable income, by giving a tax credit against relevant spending or introducing a tax exemption for income accrued by specific groups (eg, apprentices). The first two types of incentives may be subject to

162 OECD, *Taxation and Skills: How Tax Systems Impact Skills Development in OECD Countries* (2017) www.oecd.org/tax/tax-policy/taxation-and-skills-brochure.pdf accessed 30 January 2019.

thresholds (when expenditure is below a limit, tax provisions do not apply) and ceilings (tax provisions do not apply to the expenditure that is above such ceilings).

In Ireland, the government has always placed the development of human capital as a key national priority and sought to keep the cost of education/training provision as low as possible to potential recipients. In Irish corporation tax, a company is entitled to deductions in respect of expenditure wholly and exclusively incurred for the purposes of its trade against its profits. Where employee training is wholly or exclusively for the purposes of trade, an employer may claim a deduction. If training is provided for the employee's own personal development, however, the employer cannot claim the cost of the training provision against the company's profits. While the employer can claim a deduction for training costs, in certain circumstances there could be a benefit-in-kind charge on the employee's personal income tax. The Irish Business and Employers Confederation, the largest employers' representative organisation in Ireland, has called on the government to introduce an employer's tax credit on the costs of education and training. It is suggested that the credit should be weighted in favour of employees at national framework qualification level 3 or lower, low-skilled employees.

According to *Using Tax Incentives to Promote Education and Training*, a report by the European Centre for the Development of Vocation Training,¹⁶³ there is scepticism in some policy circles over the effectiveness of tax incentives on stimulating specific sectors of the population to engage in more education or training.

There is a perception that persuading people in the higher skills/income category to participate is very much dependent on their personal motivation and circumstances. It is believed that high-income earners are well aware of the economic benefits of increasing their skills and are thus well motivated to acquire additional qualifications that generally result in increases in earnings. Consequently, policy-makers are of the opinion that introducing tax incentives to motivate high-income individuals could have significant deadweight outcomes.

Similarly, using the tax system to encourage people in lower-income groups to increase their take-up of education and training is seen as problematic. The issue here is that lower-income people either pay income tax at the standard rate (20 per cent) or may pay no tax at all because their income falls below the income tax threshold and a tax incentive would, therefore, have little or no impact. If individuals have no taxable income, they cannot carry over tuition fee tax relief to another tax year. Further, as the bulk of further education provision is free or at very low cost, this limits the relevance of tax incentives.

Bearing in mind these strengths and weaknesses of tax incentives, the aforementioned report gives some recommendations that could improve their efficiency and positive impact:

- Tax incentives on their own are insufficient and they should be considered as a supplementary rather than as the main tool in the context of the policy-makers' arsenal of available tools (which grant schemes for enterprises, loan schemes, subsidies for individuals or enterprises, learning accounts and training funds). Therefore, tax incentives have to be fine-tuned with other policies in place so that the final mix is mutually reinforcing and does not result in inconsistencies and contradictions.

163 European Centre for the Development of Vocation Training, *Using Tax Incentives to Promote Education and Training* (2009) www.cedefop.europa.eu/files/5180_en.pdf accessed 30 January 2019.

- Public authorities should introduce specific and deliberated targeted incentives for those groups that benefit less from tax incentives, those who participate less in education/training (small enterprises and their employees, individuals on low income and low skilled).
- Public authorities require a complete understanding and analysis of the costs and benefits involved. More attention should be given to monitoring and evaluating existing tax incentives, especially to check that the expected goals are being met given the lack of comprehensive public evaluation.
- Educational tax incentives have to be particularly clear about concepts and individuals supported to avoid future uncertainties to taxpayers. All that tax authorities can do to improve current schemes will redound to a greater take-up and increased effectiveness.

However, the OECD in its *Taxation and Skills* report¹⁶⁴ argues that tax deductions and credits for skills spending are not the best way to encourage skills investments, with loans, grants and direct spending likely to be more effective and more progressive. Tax expenditures to encourage skills investments exist in different forms in most OECD countries, but existing evidence suggests that they often come with significant efficiency costs and are generally regressive. Funding skills through direct government spending and student loans is therefore seen as the most efficient and equitable approach.

An alternative means of employing skilled labour is by outsourcing the work. The tax costs of hiring employees versus outsourcing are not a key driver for corporations in determining whether to hire employees or outsource. The decision to outsource is driven by the question of whether the employer has employees with expertise to carry out a particular function or whether cost efficiencies can be generated by outsourcing. Functions can also be outsourced to other group companies where the required expertise/capacity is available elsewhere in the group. Whatever the background to the outsourcing, the corporation will need to supervise the outsourced function.

Employers may also use secondment agreements to split the duties of their employees to a number of different organisations operated by that employer; the use of secondment agreements allows the employee to work for another organisation on what is usually a short-term basis, while still being employed by their original employer for legal and payroll purposes. Secondment agreements are often used when a new business is being established by an employer and the employer has operations elsewhere to ensure that the necessary functions are covered while new employees are recruited. Secondment agreements usually provide an excellent means of upskilling employees through experiencing different working environments, with minimum expenditure on training by the employer.

There are a variety of means by which employees can grow and develop so that employers and governments are able to address changes in the labour market. Tax policy can have a general positive impact on these efforts, and it has been evidenced that increasing the range and level of skills of workers in Ireland can give a healthy return on the investment through tax revenue.

164 OECD, *Taxation and Skills: How Tax Systems Impact Skills Development in OECD Countries* (2017) www.oecd.org/tax/tax-policy/taxation-and-skills-brochure.pdf accessed 30 January 2019.

2. *Alternative tax policies*

The traditional forms of indirect taxes collected in Ireland are VAT and customs and excise. Also on the rise are so-called ‘sin taxes’, an excise tax specifically levied on certain goods deemed harmful to society, such as alcohol and tobacco, sweets, drugs, soft drinks, fast food, coffee, sugar, gambling and pornography. While tobacco and alcohol have traditionally been taxed in Ireland and the UK, taxes have also been more recently levied on sugar, for example, Ireland’s sugar-sweetened drinks tax. It could be argued that the primary role of such taxes is not to generate revenue for the exchequer but rather to discourage the use of certain goods, as such measures do generate significant revenues with excise receipts accounting for 11.8 per cent of tax receipts in Ireland in 2017.¹⁶⁵

Historically, Irish tax policy has not focused on alternative or innovative forms of taxation to reduce the burden on income taxes.

The proposed EU digital tax is an alternative tax policy which aims to deal with the changing nature of work in the economy. The proposals have, however, been subject to opposition from many EU Member States.

3. *Developing communities*

It is possible to incentivise CSR by way of tax breaks, which will have overall benefits on society. In its most common form, this involves the state providing companies with a credit against tax (or royalties) owed based on the company’s investment in local community initiatives.

Carefully targeted tax credits have proven to be very efficient at creating local value and benefits and, simultaneously, developing local capacity and infrastructure. Acceptable spending areas and processes can be defined by the state and normally include local infrastructure projects and a requirement for local governments to be involved in setting priorities.

Strategic integration of CSR into tax policy can produce benefits for a range of stakeholder interests. Perhaps the ultimate benefit is simply a tighter alignment between government, community and corporate interests and a more efficient application of government and corporate resources to support development priorities.

An example of such a policy is the Peruvian government’s voluntary ‘mining programme of solidarity with the people’,¹⁶⁶ aimed to help to alleviate poverty, especially in the country’s mining regions. By 2008, 38 companies had signed individual five-year agreements with the government in which they agreed to contribute to the fund in years when the prices for metals are above the threshold determined by the contract (decided based on market and export prices). The funds are used for local and regional projects and education, health and nutrition programmes. The government does not require companies to contribute to the fund; however, the private sector is encouraged to participate as a way to improve relations between the government, business and the community. Due to the constant tensions between private mining companies and local communities, firms view this initiative as a way to improve their relationships with people in surrounding areas. This type of policy has the potential to diminish conflict and disputes between companies that extract natural resources and neighbouring communities.

165 Revenue Statistics and Economic Research Branch Revenue, *Excise Trends 2017* (2018) www.revenue.ie/en/corporate/documents/research/excise-trends-2017.pdf accessed 30 January 2019.

166 Described at www.southernperu.com/ENG/adc/Pages/informationpmsp.aspx accessed 30 January 2019.

A tighter alignment of stakeholder relationships through tax policy and CSR will help to alleviate the burdens imposed by future developments in the labour market. Developmental initiatives, community projects and ethical corporate practices may not provide radical solutions, but incremental change will result in stronger foundations to address future concerns.

Key findings

- Governments recover their investment in education and training through higher income taxes alone.
- Tax policy may influence education and training activities through tax incentives on expenditure in education and training activities; however, loans, grants and direct spending are likely to be more effective.
- Where a company is carrying on a trade, it will generally have employees with the skills and expertise required to carry out its trading activity in the country in which the company is resident to demonstrate substance in that country. Increasing the range and level of skills of workers in a country can help the return on investment through tax revenue as the company will be taxed in the country in which the workers are located.
- Sin taxes can have a primary function of discouraging certain behaviour, with the added benefit of generating revenue for the exchequer.
- Tax policy can be used to incentivise CSR.

X. CONCLUSION

The rapidly changing nature of work in today's technologically advanced and globalised world poses many challenges for national tax systems. In some instances, countries seek to adapt traditional tax rules to cater for these unforeseen changes. In others, proposals such as the taxation of robots, the establishment of PE rules and the development of a digital tax represent innovative ways that systems seek to deal with these challenges.

X. TENTH REPORT: TECHNOLOGY LAW

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Executive summary

Most jurisdictions have recognised the benefits of technology and have integrated it into their corporate systems. Technology has proven to improve efficiency, increase transparency and save time and costs (eg, by encouraging remote working/work from home). Consequently, there is a visible progression towards digitalisation in the corporate sector. However, most countries are not fully prepared to deal with the negative effects of digitalisation. Regulations by and large have lagged behind the pace of digitalisation. Only a few countries have implemented meaningful legislation that controls and channels the impact of technology and protects employees from the negative effects of workplace automation.

While technology has led to an increase in efficiency and reduction of workload, it has also resulted in the elimination of employment opportunities, much to the detriment of workers. The growing trend towards automation poses a greater threat to manual labour roles than to roles that need customer interaction. A large multinational bank forecasts that in the US alone, 47 per cent of employees will cede their place to automation and AI in the next few decades. Adapting or implementing technology in the workplace may also lead to discrimination in recruitment procedures, with those proficient in the use of technology at a distinct advantage. Some governments have taken initiatives to counter the loss of employment and enhance job opportunities.

Technology has played a significant role in reducing regulatory burden and improving corporate governance and compliance. Several countries use videoconferencing for board meetings, have e-voting, pass circular resolutions via email and report to stock exchanges through electronic means. Digitalisation has also modified the way employee appraisals take place and has helped companies to gather performance data more accurately. The majority of the surveyed countries has legislation for the protection of copyright and data privacy (including personal data). Some countries reported that they are in the process of strengthening existing laws/implementing new laws to ensure data privacy improves diversity and reduces, if not eliminates, hiring discrimination against those with disabilities, women and minorities more effectively across several sectors.

Some of the major challenges in corporate law affecting the rights and interests of workers reported by various countries include the risk of AI replacing the workforce; outsourcing of jobs and business restructuring resulting in reduction of the workforce; and unemployment due to automation and lack of skill development. The pace of digitalisation also poses challenges for the interpretation and application of the related parts of the legal system, including workplace regulatory rules, employment/contract law and liability law.

The survey

On September 2018, the Working Group released a questionnaire, which is the basis of the findings made in this report. The survey asked 20 questions (and some sub-questions), primarily in relation to

the commercial technology issues arising in global technology trends. The questions were tailored to encourage the respondents to provide responses on the emerging trends in the corporate sector and the impact of advanced technology on work opportunities in each of their jurisdictions.

Substantive questions

The questions asked in the survey in relation to the technology law issues arising, and their impact on employment were:

Nature of jobs, a redefinition of 'work' and appropriate safeguards

1. To what degree are jobs at risk at companies in your country from automation (eg, by automation/software or a trained robot)? Low, medium or high risk
2. Does the law in your country/jurisdiction allow the dismissal of workers due to the introduction of technology in the workplace?
3. Are there any visible efforts by the government or employers to address the issue of unemployment/redundancy as a result of implementing technology in the workplace? For example, are there any safeguards provided for technology-led dismissal of workers in legislation (eg, mandatory training, notice periods and severance pay)?
4. Is there any unemployment benefit (or other state assistance) for workers unable to upskill and/or left unemployed due to the impact of technology? What is the typical compensation for dismissal/redundancy?
5. Are there any collective bargaining laws in your jurisdiction that can be used by employees to counter the threat of jobs being automated?
6. Do you see trade unions under threat due to a decrease in physical presence in the workplace from the development of cloud computing and remote working?
7. Are the in-house lawyers working with HR, technology suppliers and senior management to handle constructive dismissal lawsuits and other issues arising from automation?

Impact of technology in the workplace

8. Has any legislation been implemented to deal with the negative effects of technology implementation in the workplace (eg, increase in stress due to violation of privacy and increased employee surveillance)? Do companies help with any such psychological problems?
9. Have specific laws been introduced to govern remote working? Do companies introduce their own guidelines?

Technology surveillance

10. What legal/regulatory framework governs monitoring employees in the workplace?

11. Are there any specific provisions in your jurisdiction regulating or restricting social media use and/or exposure by employees on behalf of their employing company?
12. Are you concerned about the lack of adequate protection of personal data and IP in this age of breakneck technology upgrades and automation?

Discrimination/social inequality

13. To what extent will the introduction of technology affect recruitment policies and lead to age discrimination?
14. Has your jurisdiction implemented legislation to deal with the issue of discrimination?
15. To what extent does your jurisdiction hold companies responsible for any potential discrimination caused?
16. Do you see increased automation leading to increased inequality and therefore increased spending on welfare/social security?
17. How can the legal concept of 'employment' or 'contract' law be deployed so that it improves the technology-driven changes, thereby minimising the anti-social impact?

Impact of technology on the interpretation of law

18. In your country, has technology raised issues of liability law linked to robotics/technology (eg, who is responsible for any mishaps – the employer, the user or the main supplier)?
19. Have technology companies in your country/jurisdiction lobbied for and achieved exemption from local laws that end up imposing costs on existing businesses?
20. How widespread are new technology companies or services in your jurisdiction that operate on the borderline of what is legal (eg Uber, Airbnb, bitcoin and autonomous vehicles)?

Key findings

Nature of jobs, a redefinition of 'work' and appropriate safeguards

Technology such as robotics, AI and machine learning has been used to transform the workplace and the operation of companies and industry. The use of technology has increased exponentially. With the introduction of technology into the workplace, the definition of 'work', traditionally denoting labour undertaken by living beings, looks set to undergo a transformation. Manual workers in certain industries have already been replaced by technology. While the recategorisation of work is a topic of many discussions in several jurisdictions, in others, so far as we are aware, the need for change does not seem to have been acknowledged.

Simple manual jobs would be more at risk, while jobs that focus on human interaction, face-to-face conversation and negotiation would be more likely to flourish. A large multinational bank forecasts that in the US alone, 47 per cent of employees will cede their place to automation and AI.

Advanced software, such as blockchain, will allow the growth of a new breed of decentralised autonomous organisations, forever changing the way business is done and posing unique legal challenges. Clearly, this change is happening, and it is definitely happening quicker than ever before. However, in the race to find viable solutions to the impact of technology, if we have learned anything from the Airbnbs, Ubers and Amazons, it is that by the time the unwanted human consequences of digital disruption become obvious, much of the damage is often already done.

Certain jurisdictions, so far as we are aware, require employers as a matter of practice to provide training facilities to assist workers to better adapt to technological advancements in the workplace. Trade unions and other industry bodies have been largely absent in this area. That said, the greatest impact is likely to be felt in the manufacturing and service sectors, where trade union or industry body involvement/activity is generally negligible.

Based on the responses, it appears that most of the countries, for now, are at low risk of automation, with risk increasing into the future. In the US software industry, it is common for automation to make employee job descriptions more technologically demanding, which eventually leads to employees continually retraining themselves or moving on.

The survey demonstrated that the unemployment/redundancy issue, as a result of implementing technology in the workplace, is under academic and doctrine discussion in most jurisdictions. In the US, it is common in the software industry (and many other sectors) to provide training for job skills, placement services, notice periods and severance pay based on duration of employment with the minimum and maximum based on base pay. All these efforts kick in after an extensive internal search for alternative employment for top talent. It is uncommon in top-tier software companies to see job losses (in the past four years, these have been few and far between). In Hong Kong, it would vary by company and not by law. In general, rules favour business and employers.

In Austria, workers unable to add the required new skills receive usual benefits under the Austrian 'social net', such as unemployment pay, social assistance and needs-based minimum income. Responses from Austria, Chile, India, Russia, Ukraine and the US suggested that trade unions are not under threat due to a decrease in physical presence in the workplace from the development of cloud computing and remote working. Cloud computing as a technology solution is neutral to physical presence. Remote working, for example, in the financial industry is common and widespread.

Impact of technology in the workplace

The use of technology in the workplace may help in the quicker delivery of results and better utilisation of time. While it may improve efficiency, the use of technology may also affect employees and relations between management and employees, with each employee wondering when they may be replaced or made redundant owing to technology. The employee may have to be allocated a different task for which the employee may not be suitable, leading to them being forced to leave employment. Retraining and wellness programmes take on increased significance.

The chief economist of the Bank of England has warned that, to avoid large segments of the working class becoming 'technically unemployed', the UK will need to undergo a revolution in skills. There is a 'huge risk' of people being left without jobs that computers and robots have taken.

The challenge will be ensuring that people are prepared for the cultural and economic shifts, and that the focus is on creating the new jobs to replace those at risk of robotic replacement.

Increased dependence on technology may result in companies that operate in rural and urban areas being obliged to maintain parallel modes of operation. However, this may reveal a significant gap and division in terms of application: simply because there is likely to be a lack of the necessary technology infrastructure to support it in rural areas.

No specific legislation has been implemented in Austria, Chile, Hong Kong SAR, India, Russia and Ukraine, to deal with the negative effects of technology implementation. Both in the US and western Europe, varying levels of stress leave are available to employees. Hotlines and counselling programmes are available and are encouraged as support systems for employees across the software industry. Austria already has a body of legislation that is aiming to protect workers/staff against negative influences from various sources in the workplace (occupational safety laws and ordinances). Employee surveillance is heavily regulated not only through the recent data protection regulation and its precursors, but also through legislation and case law on privacy rights and at the collective/ industrial plant level (eg, employee surveillance, provided it does not violate human dignity, is only lawful if the works council by way of a plant agreement consents to such measures or, absent an elected works council, if the employee specifically agrees).

In Austria, Hong Kong SAR, India and Ukraine, no specific laws have been introduced to govern remote working. However, the Hong Kong Monetary Authority has published guidelines for Bring Your Own Device (BYOD), that is, use of personal devices for official work. In Chile, for example, the government has filed a new act before Congress which intends to modernise remote working status. In the US, there are many laws and guidance for remote workers, and mixed-mode employees are increasingly common (part-time office presence and part-time remote work). Companies offer varied levels of infrastructure support/incentives for remote workers dependent on their support for this evolving work culture, some examples being: waivers for using home offices as workplaces; reimbursement for internet fees; and tax credits for working from home.

Right to disconnect

Technology is also likely to affect the right to disconnect. Currently, following judgments from the courts in France and the passing of legislation to this effect, an employee in France has the right to disconnect from all official communication from the workplace. However, while technology may assist in a global flexible workplace, the right to disconnect, while benefiting employees from a health and social perspective, may result in the inability of companies to deliver within prescribed timelines.

Procedures for the evaluation of performance and productivity of workers

Digitalisation has modified the way employee appraisals take place and has helped companies to gather performance data more accurately. Several large technology companies have changed their annual review systems and are testing new ideas that give them continual feedback and coaching. A large US-based media service provider no longer measures its people against annual objectives because its objectives have become more fluid and can change quite rapidly. Some tech companies have automated many evaluation activities that managers elsewhere perform manually. Many companies are also

collecting more objective performance data through systems that automate real-time analyses. There is a shift in emphasis from backward-looking evaluations to technology-backed fact-based performance appraisals, which are becoming frequent and as-needed rather than annual events.

There is no uniform procedure for performance and productivity control, and such procedures vary largely between enterprises in almost all jurisdictions. In countries, such as India and Ukraine, technology is used for monitoring attendance, output, punctuality and so on through ERP systems, biometrics, surveillance systems or other such digital means.

The use of technology for performance evaluation was found to be common among most enterprises in India and several other countries. Computerised balanced scorecards and other technologies are used to evaluate efficiency in some other countries. In Austria, technology has shifted the focus of the method of evaluation from input based to output based.

In the majority of the countries reporting, while employees are required to be fully informed of such internal procedures and policies, these are rarely negotiated with employees. However, the use of technology in monitoring employees requires the prior consent of the works council/employees in Austria.

Influence of technology on governance, risk and compliance

Technology developments in many business areas will have a significant impact on important aspects of risk and compliance. Current risk and regulatory issues, as well as some key relevant technical developments and trends, affect four major industries. These are financial services, energy and power, IT and telecommunications and healthcare.

Technology developments lead to compliance problems and compliance solutions. Products based on new technologies may lead to unforeseen consequences and potential compliance failures. There are many examples of such compliance issues arising from new technology developments in several industries. One example that is common to many industries is that arising from the 'consumerisation of IT'. The growing trend of allowing the use of employees' personal smartphones, tablets and so on to access corporate information helps to enable convenient mobility for employees, but can also create a variety of security and privacy compliance problems. Many organisations address these issues with a combination of technology monitoring systems and new corporate policies and business processes.

In most countries, the convening of board or shareholder meetings through videoconferencing and other digital means is an accepted practice in most cases, and there are generally no restrictions on the agenda to be adopted in such meetings.

In some countries, convening meetings through digital means (eg, videoconferencing and teleconferencing) is permitted only for board meetings, while in others, convening meetings through digital means is not permitted under any circumstances.

Only certain types of corporate entities in Austria and Spain are allowed to hold meetings electronically and, in Poland, such meetings are permitted only if authorised under the articles of association of the entity. Some countries, including India, reported that regulators have prescribed various safeguards, such as the recording of proceedings to avoid any misuse of electronic facilities, to hold board meetings.

The use of AI/digitalisation has helped companies better understand and anticipate their risks related to governance and compliance. Technology has also helped companies to correlate datasets, such as internal profits or losses, consumer sentiment, GDP growth rates and unemployment rates, forecast business performance and offer more accurate market guidance (especially publicly held companies). New algorithms are helping companies to condense large volumes of regulatory compliance information into nuggets of useful and relevant insights to help to maintain regulatory and risk compliance.

Recently, there have been reports of the prospect of companies in the UK implanting their employees with microchips for security purposes. The microchip is expected to assist companies to set restrictions on employees performing various tasks. Additionally, it is also expected to assist companies to do away with access cards and other entry tools, with the access points in company premises recognising employees with the data from the implants. This has raised concerns with the Trades Union Congress, the UK's main trade union body.

Emerging trends in labour platforms influenced by technology

The technology industry trends that will affect jobs and drive growth in the near future include data, cloud computing, flexible consumption, cognitive computing, user-friendly tools, application programming interfaces (APIs) and apps.

- **Cloud computing:** Important innovations are making cloud computing more valuable for companies as they seek to transform their operations and business models. These advances are helping to accelerate the deployment of AI and IoT solutions, while enabling deep, analytics-driven insights.
- **Flexible consumption:** The cloud is driving demand for flexible consumption ('pay as you go') models. Connected devices and the IoT have made more products suitable for 'as a service' consumption, enabling lower unit costs and enhanced customer relationships.
- **Cognitive computing:** Although still in its infancy, cognitive computing is helping companies to enhance products and services, make better decisions and improve operations. In particular, machine learning is helping companies find patterns (and anomalies) in large datasets.
- **User-friendly tools:** APIs and apps are ensuring that, in the future, fewer people will need to know how various technologies actually work.

In most jurisdictions, wherever there has been a switch to automation that has decreased workload, it has increased the susceptibility of the elimination of employee positions. This is detrimental to the interests of employees as it leads to a reduction of the workforce, but the views expressed in the survey showed that authorities are primarily focused on the impact of technological development on manual labour roles.

The increasing trend of e-banking is recognised by the authorities, but no legislation has been enacted to date in this regard.

Other common trends reported by the surveyed countries include the following:

- **Online platforms:** Online platforms, such as social media, online channels and blogs, have become increasingly popular and have led to new opportunities for income generation in various countries.
- **Working from home:** Japan reported benefits from technological advancements that have enabled employees to work from home. India has also recognised the importance of working from home, especially in the case of women employees who wish to work from home after their statutory maternity leave. Telework has proven to be a flexible way of working and enables employees to use virtual networks, shared platforms and verbally communicative robots to work from home or locations outside the employer's office and/or to be virtually present in the office. Working from home has been beneficial to workers by allowing flexible work hours, saving time, improving productivity and maintaining work–life balance.
- **AI:** Due to technological developments in AI, robots and teleworking, demand from the traditional employment market has decreased in countries such as Spain. These technological advancements have been advantageous and disadvantageous, because workers who fail to acquire new skills lose their jobs or receive lower compensation, but flexible working hours have been created and workloads reduced.
- **BPO:** Due to advancements in technology, countries such as India are among leading players in the BPO sector.
- **Blockchain:** Blockchain and its ledger-based technology is likely to play an important role in the future of work. Companies are more likely to utilise blockchain for the verification and assessment of the credentials of prospective employees. Similarly, blockchain may be utilised for the assessment of the skills and performance of existing employees, thereby enabling better assessment and allocation of various employees to more appropriate assignments and roles. Payroll services and reimbursement of expenses could also be undertaken using blockchain, with companies possibly having their own virtual currencies.

Effects of technological advancements on 'subcontracting'

Among the surveyed countries, a few demonstrated an inclination for subcontracting as a result of technological advancements. For example, in the construction sector, web-based software means that subcontractors no longer have to invest in expensive hardware and software that quickly becomes obsolete. They only need a web browser and an internet connection. With the explosion in mobile telecommunications, subcontractors, for whom the 'office' is often quite far away from an office, are able to run their companies in an efficient, almost paperless way, from any location. Technological advances have created more flexibility in subcontracting and a shift towards subcontracting. Based on the views expressed in the survey, it can be inferred that advancements in technology have been advantageous and disadvantageous to the subcontracted workers as it gives more flexibility but increases uncertainty and affects job security. Several countries have recognised the rise in subcontracting under their employment regulations and prescribe the general criteria for the characterisation of employment relationships.

Non-tech options to remove bias in reviewing job applicants have been around for decades. Orchestras, for instance, have conducted blind auditions since the 1970s to improve workplace diversity. A rash of technologies launched in the past few years could improve diversity and reduce, if not eliminate, hiring discrimination against those with disabilities, women and minorities more effectively across several sectors. For example, Textio's online service parses job announcements to flag gender-biased language and other terms that may turn applicants off and offers alternatives. Phrases like 'driven by' and 'ambitious goals' resonate more with men while 'collaboratively' and 'be heard' statistically attract more women to apply for a position. Blendoor works like a dating app, allowing recruiters to swipe quickly through profiles that highlight candidates' qualifications and education while hiding the name, gender and dates. Gap Jumpers provides a platform for candidates to audition anonymously for openings by completing work assessments designated by the hiring company. The top performers are then referred to the employer.

- **Doctrine of equal pay for equal work:** The majority of surveyed countries responded in the affirmative on the prevalence of law providing for equal pay for equal work in their jurisdictions. Equal pay for equal work is ensured in various jurisdictions through specific regulations, such as the Labour Code in Chile of 2002.
- **Influence of automation on equality in wages:** Based on the responses provided in the survey, limited information is available on the implementation of equal pay for equal work against automation. In most cases, there are no special provisions or regulations governing it presently.
- **Equality among migrants and local workers:** Chile and Japan reported that there can be no discrimination on the basis of nationality. Russia, on the other hand, indicated that there is a differentiation in wages payable to migrants and citizens.
- **Equal treatment of outsourced workers:** While in many surveyed countries there are no specific regulations governing the rights of outsourced workers, in Austria no differentiation is made on the basis of direct employees and outsourced workers. In Japan, no protection of equal pay is provided to outsourced workers while in Chile, there are no legal provisions to ensure equal pay for equal work to outsourced workers.

Based on the views expressed by the surveyed countries, it is evident that there is discrimination in payment against outsourced workers and migrant workers in some jurisdictions.

- **Gender equality and disclosure of wage gaps:** Austria reported that, based on the data collected, the number of women in managerial positions has increased. Chile recorded very limited growth of women in managerial positions. In India, the numbers are presently not very high, but there appears to be a gradual rise.

Measures to improve gender equality, such as maternity leave, child care leave, flexible working hours, parental leave and working from home are provided by the majority of countries.

An overwhelming majority of countries reported that there is no requirement for corporates in their respective countries to disclose wage gaps as a matter of practice. However, the survey further showed that some countries, such as Austria and Belgium, mandate the publication of remuneration reports to ascertain gender gaps.

Technology surveillance

Technology surveillance, while applicable to monitoring employees in the workplace, may be difficult to use to monitor employees who are working from home or offsite locations. Such monitoring would have to be based on the productivity and deliverables of the employees and it would be difficult to monitor whether they are misusing their freedom to work from home and not focusing on work-related matters. While employers may be able to monitor the workplace, if any employee works from home or offsite, such monitoring would not be possible. This may lead to employers paying the workers on the basis of the number of deliverables, while at the same time setting the target at extremely high and unachievable levels. Efficiency could be monitored using technology such as internet history, leading to exploitation of workers.

Most of the countries confirmed that there is no formal regulation of electronic monitoring in workplaces. As a general rule, monitoring employees in the workplace is prohibited without their express consent or unless there are other good reasons for monitoring.

Discrimination/social inequality

Digital disruption makes things more unpredictable. Adapting or implementing technology in the workplace may lead to discrimination in recruitment procedures. Unless a person is proficient in the use of technology, such a person may not be hired; the level of a candidate's knowledge and experience of working with certain technology may determine the outcome of their application. It is difficult to imagine a means of preventing such discrimination – and some might argue such discrimination is to be expected.

Performance appraisals may be affected in these instances where the performance of a person knowledgeable in technology is deemed praiseworthy, and hence such person is promoted.

An employee may be coerced into using technology and may not have any choice in this regard. The employee may not have any right to determine whether such an employee wants to use the technology to achieve and complete the assignments. Even if an employee is provided with a choice, it could result in indirect discrimination of the employee when the company reduces the workload of the employee until the employee starts questioning their own position in the company, thereby forcing the employee into resignation.

Companies are increasingly hiring 'early in career' workers to keep up with their frenetic pace of innovation. College hires tend to be better trained for the cloud and digital economy. Therefore, the view is that such a hiring model leaves one with the impression of age discrimination.

Few countries stated that a general rule regarding discrimination should apply. Austria and the US, however, have strong laws to curb age discrimination. In Hong Kong SAR, there is a mix – some issues like age discrimination are not legislated but there is guidance on handling them. Others, such as race-based discrimination, have legal protection. In India, there is no single comprehensive piece of legislation dealing with discrimination in the private sector.

In the US, over the years, automation has been viewed as source of eventual higher unemployment but each of the large automation thrusts have only enabled a larger workforce, albeit one that

requires workers to be agile and in a continuous learning mindset. In Hong Kong SAR, India and Ukraine, it appears less likely that increased automation will increase inequality and therefore increased spending on welfare/social security. The Hong Kong government has traditionally not funded welfare/social security. These are typically borne by large charitable organisations.

Fewer countries believe that employee rights and labour standards need to be improved. The view is that one would be better off by investing public resources in creating new jobs and better preparing people for the jobs of the future.

Impact of technology on the interpretation of law and data protection

In most countries, there are presently no regulations concerning the interaction of workers and robots in their jurisdictions. Additionally, several jurisdictions do not have any specific legislation that governs workers in a gig economy (or contract/self-employed workers). Already, according to a recent Atos research report, 25 per cent of Americans report earning a significant portion of their income through freelancing.

The pace of digitalisation poses challenges for the interpretation and application of the related parts of the legal system, including workplace regulatory rules, employment/contract law and liability law. However, the process appears to be more interactive than reactive. The legal system does not only respond to technological change, it also monitors challenges and eventually facilitates the change. Use of robotics and automation in the workplace, alongside other technological innovations, has the capacity to stretch and/or undermine existing forms of legal systems and regulation while creating an environment for new ones. Although technology may erode some professions while enabling others to flourish, it is unlikely to make redundant the existing labour law or liability law regulations that oversee employment.

While law may clearly lag behind technology given the pace of innovation and complexity, the perceived threat to certain jobs or the misuse of personal data will lead to further complex legal challenges, such as class action lawsuits against social networking companies for abuse of personal data, taxi drivers against a transportation company or the hotel industry/local residents against a hospitality service company. Other key technology innovations, such as bitcoin, pose unique design-related regulatory challenges. While bitcoin, as a new mode of payment, may be useful for users who want to achieve anonymity for their transactions, it is challenging for the fiscal and legal system to regulate and trace, thus making enforcing relevant civil and criminal laws difficult.

The concept of consent has been globally strengthened, and companies will no longer be able to use long illegible terms and conditions full of legalese, as the request for consent must be given in an intelligible and easily accessible form using clear and plain language. It must be as easy to withdraw consent as it is to give it.

Also known as the right to erasure, the right to be forgotten entitles the data subject to have the data controller erase their personal data, cease further dissemination of the data and potentially have third parties halt processing of the data. It should also be noted that this right requires controllers to compare the subjects' rights with 'the public interest in the availability of the data' when considering such requests.

Based on the responses received, the majority of the surveyed countries have legislation for the protection of copyright and data privacy. Some countries reported that they are in the process of strengthening existing laws/implementing new laws to ensure data privacy. Belgium reported that individual contracts or company policies govern data privacy and copyright protection.

The survey also gave an insight into a common trend on copyright that, unless otherwise agreed, copyright over any work prepared by employees during the course of employment belongs to the employer.

The survey responses suggest that issues of liability law have been raised in relation to robotics/technology. However, this trend is yet to gain popularity in countries such as Chile, Hong Kong SAR, India, Russia and Ukraine.

Some respondents found that technology is generally ahead of legislation and is usually altered after mass adoption. An example of such an issue is the social media analytics issue, where regulations are slow followers or playing catch up. Software vendors are increasingly seeing larger regulatory efforts that require significant investment and are seen as innovation inhibitors.

By and large, new technology companies gain in popularity in most countries. However, certain technologies are still high risk. In Russia, an autonomous vehicle was tested, but is still under progress, while autonomous cars have had limited success, as well as highly publicised accidents along the line.

PART THREE

THE FUTURE REGULATION OF WORK AS APPLIED TO DISRUPTIVE TECHNOLOGIES

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I. INTRODUCTION

Many of the issues discussed in the following individual reports focus on the present and future impact of new technologies on the legal framework of labour relations and employment contracts. Even if there are topics in the reports that do not directly relate to that impact, many of the main issues discussed on the future of work consider that technology will have a decisive influence on how countries and international organisations, such as the ILO, will face employment contracts and the collective rights of workers' representatives and unions.

Accordingly, we have considered as a reference some of the points discussed in the reports¹⁶⁷ and apply them to three disruptive technologies that will be (or already are) essential for understanding the future of work: the IoT, robotics and AI. We have tried to integrate the different legal perspectives of the Working Group, according to the individual reports that follow this part, although the conclusions and key points of this part are heavily based on other sources.¹⁶⁸

We begin (II) with some common trends applicable to the three technologies (and other technologies) and then (III, IV and V) we analyse each technology and comment on several key findings addressed to regulators and companies and unions/workers' representatives.

II. GENERAL LEGAL TRENDS, DISRUPTIVE TECHNOLOGIES AND THE FUTURE OF WORK

1. **Legal framework and disruptive technologies:** At a regulatory level, the current debate focuses on determining when the rules regulating disruptive technologies must be drawn up and their level of regulatory intensity and binding legal effectiveness. Timing is particularly important in the EU debate, which revolves around the fact that a regulation adopted too soon not only runs the risk of being inadequate for the evolving realities of those technologies, but also, due to its inadequacy, may considerably hinder their evolution. However, depending on the technology, the debate is moving in different directions: unlike

167 Some of the authors of the individual reports have considered as an important reference the very relevant reports developed in the past few years by the IBA GEI www.ibanet.org/LPD/Human_Resources_Section/Global_Employment_Institute/Global_Employment_Institute_Home.aspx accessed 30 January 2019.

168 Although considering as important references the points discussed in the individual reports, this part mainly includes the findings and conclusions contained in four recent publications by the Cuatrecasas Institute directed by the author of this part: *IoT y su Impacto en el Mercado de Trabajo, en los Recursos Humanos y en el Marco Regulatorio de las Relaciones Laborales* (Kluwer 2017); *Robótica y su Impacto en el Mercado de Trabajo, en los Recursos Humanos y en el Marco Regulatorio de las Relaciones Laborales* (Kluwer 2018); *Inteligencia Artificial y su Impacto en el Mercado de Trabajo, en los Recursos Humanos y en el Marco Regulatorio de las Relaciones Laborales* (Kluwer 2018); *Economía de Plataformas y Blockchain y su Impacto en el Mercado de Trabajo, en los Recursos Humanos y en el Marco Regulatorio de las Relaciones Laborales* (Enero 2019). Therefore, the author is solely responsible for the views, findings and conclusions included in this part.

what happened in the area of robotics and the IoT, AI already presents multiple areas in which there may be an impact on the fundamental rights of people and on the economic and social system (eg, data protection, conditions and liabilities of autonomous and semi-autonomous vehicles and limitations of Fintech). Accordingly, in many countries, a call for early regulation, even in specific issues of AI, is gathering momentum.

2. **Disruptive technologies and the constitutional regulation affecting work:** Given the lack of specific regulation in most countries, the consequences of disruptive technologies on workers' rights are most likely to be considered in the context of the interpretation and application of the constitution. Therefore, from the perspective of constitutional labour rights, we may see already how the rights to strike collective bargaining and trade union freedom will be affected by the central implementation of disruptive technologies such as the IoT or AI in companies. In some cases, this impact may be negative by making strikes less effective or reducing the subjective scope of coverage or affiliation to collective bargaining or trade unions, although those rights may also benefit from the application of those technologies, as could well happen with AI concerning the collective bargaining process or the solution by mediation or arbitration of labour conflicts. There will also be fundamental rights that may not be explicitly employment-related, but are fundamental for workers and may be substantially affected by those technologies. This is the case with the right to privacy or the right to healthy and safe work guaranteeing physical and mental integrity – in relation to occupational hazards – and in the case of freedom of ideas in relation to the possible objections workers may have to dealing and interacting with some of these technologies, notably AI. Naturally, the right not to be discriminated against could also be affected, directly or indirectly, and, in relation to technologies like AI or the IoT, could appear in different forms, ranging from age discrimination concerning the preparation for interacting with them to the algorithms on which AI is based, which could entail discriminatory preconceptions.
3. **On the regulating role of collective bargaining:** As mentioned, state regulation must play a leading role when it comes to regulating certain aspects of the organisational implementation of AI, given the effects it already has on the fundamental rights of people and on the economic and social system, so that, unlike what happened with other technologies (particularly robotics and the IoT), collective bargaining can occupy a more subordinated place in those aspects of mandatory law. However, collective bargaining, particularly developed at the company level, must play an essential role when it comes to eliminating any possible resistance to implementing AI, thus strengthening the information rights in the company, and on establishing basic labour conditions, such as working hours, professional classification and remuneration, which may be seriously affected by the AI implemented.
4. **Disruptive technologies and CSR:** The intensive process of introducing disruptive technologies and workers' interaction with them in work organisation may deeply affect CSR principles. Therefore, in addition to other principles and values (eg, ethics and transparency), aspects such as ongoing training, professional and talent promotion, diversity and employability, socially responsible implementation of technologies in relation to restructuring process, working hours and work–life balance, and the prevention of occupational risks, must be considered or reviewed from the CSR perspective in relation to business codes. Moreover, there is currently a general

concern as to how it is possible to transfer the principles and values of rules and companies' codes of ethics and conduct to technologies such as AI. This may generate management and control issues, as it is not only a matter of transferring those principles and values initially, but making sure there is some control over the influence that the interaction with workers or customers has on those principles and values at a later stage, and that warnings are in place advising of possible maladjustments or dysfunctionalities with those principles and values during their subsequent development.

5. **Disruptive technologies and the legal framework of the labour market:** From a labour market perspective, the introduction of technologies such as the IoT, robotics and AI has an impact in three areas related to employment. First, in recruitment, given the algorithms' capacity to transform data on the characteristics of candidates – for example, their academic training and their answers in tests – into predictions on their future performance in the job. However, the use of those technologies in the selection process may affect: (1) the right to personal data protection, taking into account, for instance, that Article 22 of the EU GDPR prohibits, with certain exceptions, 'a decision based solely on automated processing'; and (2) the prohibition of discrimination, insofar as hiring decisions based on algorithms can act as a platform to reproduce and extend discriminatory biases and prejudices inherent to human nature. Those technologies will allow the selection process to be quicker and more objective and effective, giving it greater guarantees by making illegal treatment more difficult and releasing the business owner to a higher degree from possible liabilities derived from discriminatory treatment. However, there is also a danger that discriminatory biases may be generated in the AI device as it evolves and 'learns'. All of this entails the need to incorporate supervision mechanisms and 'warnings', whether public or private. Second, the potential negative consequences derived from introducing those disruptive technologies in companies on a massive scale raises the question as to whether the law, to avoid massive and indiscriminate substitution of humans by machines, should protect workers' jobs and promote human recruitment. It is clear that those technologies could represent a systemic and global disruption that will make it necessary to adopt measures that benefit groups with special labour market permanence or integration difficulties. Therefore, we must highlight the risk of exclusion from the labour market that those technologies may pose for certain labour groups, particularly those who, due to their age or qualification, cannot be classified as 'digital natives'. From the analysis carried out in several of our individual reports and in this section, we can conclude that it is not legally possible or even advisable to limit directly the employer's right to decide on incorporating those technologies in the production process, even if this may eventually have a negative impact on employment in certain companies, at least in the short term. However, the regulations on employment policy must play a role in organising and promoting the employability of workers most susceptible to suffering the negative impact on their work prospects. It seems that those technological devices may have an effect of replacing people in the short to medium term, particularly when technologies such as the IoT or AI become a central element of the organisation. For this reason, a debate about measures, such as applying a quota system or the obligation to pay contributions for robots or AI systems incorporated in the company, are being raised in most countries. However, public authorities must be very cautious regarding such 'penalising' measures (eg, specific taxes and special social security contributions) relating to employers implementing

new technologies. These, in theory aimed at protecting employment, not only can project an unwanted negative social image of technological innovations, but also unduly delay or prevent their correct implementation, with the resulting loss in productivity and competitiveness for the economic and business system. Likewise, granting subsidies and allowances to companies to keep up ‘artificial’ (‘zombie’) employment to avoid its elimination because of those technologies must have, in the medium term, the opposite result of promoting more unemployment. That is why the obligations that labour market regulations may introduce because of technological development must focus closely on the training aspect, so that workers can acquire as soon as possible the new skills required in the workplace and, at the same time, neutralise any negative effects these technologies may have on employment, promoting the redeployment or outplacement of affected workers to different tasks or jobs. Moreover, we have concluded that the expansion of different disruptive technologies will lead to an increase in freelance work, adopting different forms (one area will be the collaborative economy, as we can see), as well as a necessary diversification in employment contract modalities. Therefore, temporary and part-time contracts, with the necessary guarantees and protection required, must continue to be present in labour regulations to guarantee a high level of employment.

6. **Diversity, discrimination and implementation of disruptive technologies:** The implementation of disruptive technologies can have a disparate impact on staff, where certain groups of employees, including older employees and employees of a certain gender or race, are indirectly discriminated against. Therefore, once employers decide to implement those technologies in their work centres, they must make many decisions (automation of certain job positions and not others or of certain tasks and not others and selection of employees to train in relation to collaborative work with robots or AI) in which they must avoid having a negative impact, whether disproportionate or unjustified, on certain groups of employees, whether indirect or direct discrimination. In relation to AI, it must be highlighted that AI devices, if applied to the better management of working conditions, can provide greater control over discrimination because they can limit instances of discrimination considered ‘indirect’, which are more difficult to identify with the traditional criteria managers have applied to date. However, as people program AI devices, they can act as a platform to reproduce and extend discriminatory biases and prejudices inherent to human nature. As well as causing new discriminatory conduct, the development that AI presents is that, owing to its self-learning capacity, the employer will be responsible for ensuring the device does not learn or acquire discriminatory conduct through its relation with the ‘feeder’ employees or the internet. In relation to the predictive analytics applied to areas such as selection or promotion, we have to point out the need to avoid it being a basis for decisions leaning towards the homogenisation of and lack of diversity in the workforce, as those predictions are based on past and current conditions and can reproduce current ‘success’ models that may not be adaptable to future circumstances. On the other hand, some technologies, such as robotics, may be very powerful tools for reducing disabilities and increasing capabilities at work, leading to an unprecedented equalisation of employees. Thus, with exoskeletons and robotic extensions (‘cobots’), groups of employees who previously were excluded from or limited in the performance of certain tasks due to specific requirements, usually related to physical strength or abilities, can be integrated to carry out those tasks.

7. **Technologies and permanent (re)training of employees:** The implementation of disruptive technologies must entail a continuous effort for companies to train workers appropriately, not only in the new aptitude requirements on professional qualifications that they require, but also regarding the personal attitude with which the whole workforce must approach them. Workers affected by an organisation in transformation due to the extensive use of those technologies require constant training in all the professional and personal facets they introduce. It is not possible to reach the full potential of the IoT or AI without developing an intensive corporate effort to educate workers on all its implications for work. The employer's training duty must be intensive, like workers' obligation to make all efforts to absorb the new professional requirements that the implementation entails. Technologies such as the IoT, robotics or AI, and their consequences for work organisation and labour activity, are one of the clearest signs that training in work must not only constitute a right for the worker, but a duty both for the employer and worker. The fact that workers are recipients, emitters and managers of data from IoT devices or AI programs clearly strengthens their right and obligation to training and continuous updating. Therefore, from the outset, companies must establish, even before those technologies are effectively established, regular and strategic plans that enable workers to obtain and develop the necessary skills and aptitudes.
8. **Technologies and professional classification:** Although, amid the uncertainty in this regard, it is not envisaged that the predominant upshot of disruptive technologies, at least in the medium term, will be the replacement of workers, their functions are expected to change substantially, along with their professional classification. Functions directed at routine and bureaucratic tasks may gradually disappear due to those technologies. In turn, the demand for resources training, maintenance and technical monitoring functions may increase, meaning it is foreseeable that tasks, functions, professional specialisms or responsibilities assigned to employees will undergo a considerable change with the extensive and widespread use of technologies such as the IoT, robotics and AI. In all cases, it will be necessary to consider whether the professional classification system contemplated by law and collective agreements in many countries is valid in that technological context insofar as the current professional groups may disappear or become confused or limited, given that working with those technologies may generate new tasks and, particularly, a greater and structural functional versatility in the sense that workers will not perform one function alone, as all of these functions, or the vast majority, will be partially carried out by the company's new technological systems. This may even give rise to contradictory effects, resulting in workers' de-professionalisation or super-specialisation. De-professionalisation could arise as new devices assume the most basic or routine functions. Therefore, the essential tasks left to staff would be supervision and making decisions, which would make all workers become some kind of managers. However, the same premise could have the opposite effect and promote the specialisation of workers. As stated, routine tasks would be carried out by those technologies, allowing workers to focus on tasks that are more specific to their job. That would affect the qualifying training that the company could offer. In conclusion, regarding professional classification, we must ask ourselves whether our current definition of professional groups will still be valid when, with the extensive implementation of disruptive technologies, along with a profound redefinition of tasks, functions and specialisms, we are heading towards greater functional versatility or mainstreaming.

9. **Performance, productivity and disruptive technologies:** Regarding the performance required of workers, it is to be expected that, in a greatly automated workforce, it will be necessary to re-establish performance and productivity levels, particularly if there are shared, complementary or similar tasks between workers and the IoT, robotics or AI. Also, as we can see with the IoT and AI, those technologies applied to work organisation can facilitate an unprecedented ‘parametrisation’ of labour activity, giving greater precision to fundamental labour regulations for companies’ competitiveness and productivity, which, due to their current lack of determination, cause frequent legal conflicts of interpretation and application. Indeed, AI or the IoT applied to work organisation and the production process obtains more accurate measurements and subsequent analysis of activity and specific worker performance, making each worker’s individual contribution to that productivity more quantifiable. This makes it an unprecedented determination channel that can adapt better to labour regulations than indicators that have been used so far (particularly purely economic ones). This particularly applies to collective bargaining or, in its absence or as a complement, employment contracts, which play a fundamental role for the specification of this element based on the data provided by the IoT and AI.
10. **The impact of disruptive technologies on working time:** Technologies such as the IoT or AI can achieve much greater efficiency when managing new working methods and, consequently, the legal provisions on work performance, which have become increasingly complex, making management tasks more complicated. Aside from other already mentioned benefits regarding professional upgrading, those technologies may foster a more efficient management of working hours, ensuring greater clarity for the purposes of legal limits in the flexible and irregular distribution of working hours, enabling a better work–family balance. This is particularly applicable to part-time contracts, given the difficulty in managing the limited, usually irregular, numbers of working hours that they imply. Currently, as is well known, working hours are undergoing significant changes. There is a tendency towards reducing working hours, particularly in certain sectors, which, in turn, is frequently combined with an irregular and flexible distribution of working hours. In view of this flexibility regarding working hours, the big challenge is to ascertain how effective working hours can be accurately calculated in weekly, monthly or annual terms, as discussed in the worldwide debate on the legal control of working hours. This difficulty is reflected when it comes to combining working hours with a satisfactory work–family balance. This difficulty increases when the traditional working hours/workplace binomial is broken because of digital connections and teleworking, an option that will be increasingly fostered as those connections quickly develop in the employment relationship. The issue here is how these technologies will influence all the changes that are occurring in relation to working time. Beyond technologies such as the IoT, robotics or AI resulting in a decrease in working hours, on which there is still no solid scientific evidence, what seems clear is that sensors, robots or software programs do not need to rest, as they can be active 24 hours a day. This change of configuration could affect workers’ rest because, as they are not confined to a specific schedule, particularly in homeworking cases when their workspace is not separate from their personal space, they would not have a set rest time, either between working days or at weekends. With respect to monitoring the fulfillment of working hours, we may conclude that technologies such as the IoT or AI can contribute to a

simpler and more rational management of working hours and become the company's central 'supervisor' for these purposes. AI software, above all when based on the IoT, is capable of calculating the hours required to carry out a specific project, a calculation that can serve the employer, to ensure the worker's hours are correct, and workers, enabling them to organise themselves in a flexi-time framework, and to account for the hours classified as overtime. This tendency towards greater dissolution of a rigid regulation of working hours that began with the widespread use of the internet and smartphones, and which AI has accentuated, is easily applicable to the workplace, as we consider that AI will reinforce the tendency towards the rupture of the physical work centre as a predominant place of supplying services. Therefore, workers are increasingly likely to be able to work from any location, making AI move closer towards becoming the main 'workplace'. Wherever there is connectivity and a smartphone will be a suitable place to perform even the most collectivised or complex tasks by means of AI, without prejudice to the fact that, as the evolution of teleworking shows, companies may consider regular physical contact between their workers necessary as a way to highlight certain organisational advantages of personal contact. In any case, we underline that the extensive organisational application of disruptive technologies will open new channels to strengthen the work–family balance, in a way that, if the so-called right to disconnect is established properly, the desired equilibrium can be achieved.

- 11. Disruptive technologies, IP and other standard employment contract covenants:** On the one hand, with the implementation of these technologies, IP rights acquire greater qualitative and quantitative importance as they become more intensive and extensive. Therefore, the potential conflicts concerning the attribution of IP rights will appear particularly when: (1) the improvements in the production process are the result of the implementation of those technologies; and (2) a creation is produced because of their interaction with workers. Therefore, in the future, effort must be made to adapt the law and review thoroughly the IP clauses in force in companies based on the evolution of technologies such as AI and its interaction with workers. On the other hand, the central implementation of disruptive technologies such as the IoT, robotics or AI in companies may intensify the need to regulate certain employment contract covenants envisaged in many countries, including minimum term of permanence at the company, full commitment or exclusivity and post-contractual non-competition. Introducing those technologies to the workplace increases the potential damage companies may suffer if a worker reveals aspects of the expertise related to them. Permanent interaction between workers and technologies enables the company's expertise, including its principles, values and culture, to be accessed by the whole workforce more frequently and extensively. This entails the need to review essential aspects of law to make the duties and covenants that preserve the genuine expertise of a company more effective. Besides those covenants, with respect to the legal prohibition of unfair competition by employees during the contract, which is a traditional consequence of the contractual duty of good faith, it may become more relevant because of disruptive technologies, either because the company produces or adapts those devices and must keep its production process confidential or because the company is a pioneer in the way it uses them, giving it an advantage in the market, which could be impaired if its own workers transfer its unique techniques to rival companies.

12. Data protection law and the implementation of disruptive technologies at work: From a data protection viewpoint, and to take a recent example, the new EU GDPR introduces a series of business obligations, the fulfillment of which must be assessed and programmed due to the quantitative and qualitative leaps taking place as a result of applying new technological devices such as IoT sensors, robots with visual-voice recording devices or AI to the production process, labour activity and, particularly, workers themselves. At the same time, it is noteworthy that the essential principles of the data protection legislation (DPL) may be at odds with the faculties usually derived from employers' rights. In particular, a business decision to implement those technologies intensively in work organisation and its interaction with workers may challenge some essential data protection law principles, such as data minimisation or limitation of the purpose (which entail that excessive data cannot be compiled, but only the minimum amount required, and for the purpose for which it was initially collected). Those principles may easily clash with the very logic behind the IoT or AI, as these technologies are based precisely on the analysis and use of massive and expanding amounts of data, without which we would be unable to extract the knowledge enabling us to uncover (previously) hidden facts and make more accurate staff-related decisions – which, for example, is the logic of people's analytics that applies to HR management. AI or the IoT are based on a continuous evolution fuelled by the introduction of new data, which will be necessary for them to be fully effective. This expanding nature of data collection and its potential collision with data protection law explain the importance of determining the data employers need regarding their workers to enter into a contract – data for which workers' consent is not required – and data that is superfluous. Additionally, massive and regular data collection from the IoT and its processing by AI make the technical possibility of an automatic decision applied to HR management, which means major options regarding employees in the labour relationship, such as hiring selection, promotions or dismissals, may be subject to automated processes. The problem arises when the data analysed by means of the base algorithms of those processes are not accurate or true, and the workers – or even the managers – are not aware they are being used to make decisions that deeply affect them. Consequently, those technologies legally imply the need that the exercise of data protection rights of access, rectification, cancellation and opposition in the workplace must be strengthened.

13. Disruptive technologies, medical privacy and prevention of occupational risks: From the viewpoint of the prevention of occupational risks, and apart from the obvious risk of possible accidents when employees work side by side with robots, the features of technologies such as the IoT or AI may entail new psychological risk or mental stress because one form of action of 'intelligent' devices involves their capacity to analyse workers' conduct constantly (24 hours a day, seven days a week). This capacity can incur the risk of workers adapting their conduct depending on the device's action, generating behaviours of technological alienation or dependence that may affect workers professionally and personally. The greater intensity of work (working constantly with measuring IoT sensors or with AI programs that become progressively more intelligent than the worker) can generate a permanent stress that may lead to serious psychosocial disorders. At the same time, paradoxically, AI or the IoT can be used as a tool to avoid risks and reduce conditions such as work stress or excessive workload, above all due to their capacity to analyse large amounts of data. Thus, AI's predictive capacity may

enable the construction of personalised future risk profiles for each worker in the company based on their medical history.

- 14. Impact of disruptive technologies on collective labour rights (trade union freedom, collective bargaining and strike):** From the perspective of the impact of disruptive technologies on union freedom of association and on the representation of workers at the company level, we could point out that the process of replacing workers with machines, generally known as automatisisation, has generated and will generate reticence, to a lesser or greater degree, initially or continuously, among workers' representatives, particularly when this results from a unilateral decision without previous reporting or consultation processes. From an affiliation perspective, although implementing technological innovations such as the IoT, robotics or AI is likely to create jobs in the medium and long term, in the shorter term for the trade union, it may represent either terminations of its members' employment contracts or the transfer of members to new economic sectors in which the level of trade union influence or affiliation is more limited or non-existent. Examined from the micro-organisational perspective of a specific company or work centre, a business decision to establish the IoT or AI extensively could have a clearly negative impact, under current regulations, on the trade union or workers' committee representation if a more or less significant number of workers are laid off. This does not mean, of course, that the decision to introduce those technologies must be legally extracted from the area of employers' faculties, that is, from employers' unilateral powers. However, it does mean that certain information and consultation rights must be considered when considering introducing disruptive technologies, the effects of which on employment and specific jobs are uncertain. However, as commented, the most significant challenge trade unions may face concerning those technologies, which, although attributable to the company's internal 'hyperconnectivity' resulting from the digital means of communication, may now gain momentum, is the extent to which direct and personal contact between employers and workers will acquire even greater intensity through collective participation that, from an info-communicative perspective, the centrality or predominance of technologies such as AI involves at all levels of the company's organisation. In other words, the representative work of the trade unions – or of other bodies such as the workers' committee representation – is mainly based on an intermediation role that identifies and integrates interests to be defended before the company, interests that the company is not always prepared to recognise or assume. If the extensive organisational development of AI represents a qualitative leap in the levels of company-worker knowledge as an exceptional vehicle of communication between them, the representative function of the trade union may be seriously questioned if it does not acquire new dimensions beyond that of mere reporting or grouping of interests.

Concerning the right to collective bargaining, the true challenge it must currently face is determined by the systemic and global disruption that new technologies in general and AI in particular cause or may cause in labour relations. That said, in expeditious terms, the greatest risk it must face on shifting more generally to a regulatory marginalisation is determined by the radical alterations that new technologies, with AI at the forefront, may cause with respect to work organisation in particular and the economy and the company in general. Specifically, the IoT, robotics or AI may bring about a marked change in the functions performed by workers in their interaction with it, and in terms of time and remuneration affected by how the work is carried

out. Therefore, the content of collective bargaining can and must undergo significant regulatory changes, just as it must face the challenge of shifting towards the new sectors of economic and business activity that arise from those technologies.

Moreover, if the organisational implementation of those technologies are as extensive, this will affect the relation between collective bargaining and other regulatory sources, such as legislation, employment contracts or employers' unilaterally provided codes of conduct, while the defining elements of the bargaining system in many countries, analysed individually (eg, the subjects regulated by collective bargaining, the different legal types of collective agreements, a greater agility in the negotiation process, a more varied and innovative range of issues and matters to be negotiated and the continuity in the tendency towards decentralisation with respect to levels of negotiation) can and must be affected and altered if that system aims to continue playing a central organising role and not be subject to a potential regulatory marginalisation. We must conclusively indicate that, in the context determined by disruptive technologies, it is necessary to be prepared to forestall or at least shift some of the most dogmatic stances on the traditional system of collective bargaining. New technologies, of which AI is a good example, can even provide a great opportunity to increase the current centrality of the collective bargaining system, which may benefit them on different levels. However, to do so there must be a willingness to acknowledge the need to innovate those essential elements which have largely defined the bargaining system inherited from the 20th century. Opposition with respect to those innovations, or 'overprotection' of those aspects that have provided or provide some of the system's traditional features, can have the opposite effect to that which is pursued; that is, facilitating its marginalisation as a governance instrument of the neo-technological system of labour relations. Concerning the right to strike, the main issue will be the question of 'technological strikebreaking' in companies that have implemented those technologies extensively. We must draw attention to the fact that, at present, in many countries, there is no doubt that employers' freedom, concerning their powers of organisation and management of workers, is restricted by the exercise of the right to strike. However, the law also considers that there is no precept which, during the exercise of that right, prevents employers from using the technical means usually available to them in the company to keep its activity running. Therefore, we must conclude that, in the future, using robots or AI in 'normal' conditions during a cessation of work would not, in many countries, infringe the right to strike, as AI is used in the workplace regularly. However, the effectiveness of striking, which is understood as a measure that puts pressure on the employer, may be limited. Therefore, this could mean that unions should look for other, more innovative measures of pressure, such as freedom of speech on social networks. In any case, the slighter impact the strike may have as a means of pressure, together with the requirements derived from a much more dynamic work organisation, must surely lead to a greater promotion and use of out-of-court resolution methods, including mediation and arbitration. This entails the need to review the regulation of those methods to make them more effective, which can be achieved with the help of AI, which could be vital for achieving quicker solutions to labour and employment conflicts that will not take months or even years to resolve in a workplace subject to continuous and radical changes.

- 15. Disruptive technologies and migration:** As indicated in the migration law report, two issues need to be considered in relation to the interaction between immigration laws and technology: how

immigration laws and policies respond to and reflect technological advances in the workplace and society in general; and how technology is used in the enforcement of immigration controls imposed by governments. In relation to the first issue, as technology advances, so the need for more specialist workers increases. Often these new technologies can be operated, maintained and repaired remotely, meaning immigration controls are no barrier to the operation of those technologies. However, sometimes, physical access to the technologies will be required, and where the technology is so specialist that a worker with specialist knowledge from another jurisdiction is the only person who can carry out that function, then immigration controls may be a barrier to the continued operation of that technology. Therefore, organisations relying on such technology need to consider whether the immigration laws of the jurisdiction in which the technology is located will easily permit specialist workers from overseas to enter the jurisdiction to inspect, service, install, repair and maintain specialist equipment. The use of technology in the implementation and enforcement of immigration controls is becoming more and more prevalent and visible. Security is one factor driving this, reducing fraud in relation to identity documents and passports and sharing information between governments in relation to criminal and immigration histories. Another factor is the ability of technology to make travel for certain classes of traveller more straightforward, the increasing prevalence of e-passport gates being one. AI is also finding its way into decision-making in immigration applications, being used to augment decisions made by humans by highlighting more risky applications (based on risk factors such as the applicant's nationality, their location and their immigration history) so that decision-makers can apply more scrutiny to applications that are identified as posing a higher risk. The risk, of course, is that such an approach perpetuates, or even accentuates, existing prejudices surrounding certain types of immigration applicants.

- 16. Disruptive technologies, blockchain and the future regulation of work:** Blockchain benefits from different technologies, such as the IoT and AI. There are several aspects of blockchain that may influence the regulation of work in the near future, and we will point out some of them. First, one of blockchain's most important applications is the field of smart contracts. The use of self-executing smart contracts in the area of employment may be useful for managing events that usually occur on a recurring basis during the employment relationship, such as paternity/maternity, sick leave, workplace accidents, change of occupational category, bonuses/targets, reduction in working hours, schedules/shifts and even dismissals. Once the event in question has occurred, previously programmed work-related rights and obligations would be generated in writing for the parties. Second, and in relation to recruitment, blockchain can support the concept of the digital identity of persons in the use of their data by HR professionals. The use of CVs or social media, such as LinkedIn, could be replaced by formulas that can verify candidates' data, such as university qualifications, certificates and experience. Third, blockchain technology can transform a company's relationship with its subcontractors, ensuring the traceability of the production chain, as this technology can identify the legal subject responsible for guaranteeing working conditions; until now, it has only been possible to track or geolocate the object manufactured. This can reduce the negative impact on the main company's brand image in the event of a possible breach by subcontractors, as it would certify that the company did everything possible to avoid catastrophes resulting from not knowing who manufactured its products or how they were manufactured. Fourth, since it is necessary to ensure a balance of personal and

work life, as expressed in the case of the right to disconnect from digital devices, blockchain is an excellent tool for recording working hours by producing a record using a smart contract. This smart contract record can act as a trusted third party and be used to determine how much time is spent on any work-related activity. Fifth, and in relation to employees' personal data, generating hashes and unique identifiers for that personal data enables the confidentiality, anonymisation and, where applicable, modification and erasure of employees' personal data, thus ensuring that they can exercise their rights in line with legislation such as that of EU Regulation 2016/679. Sixth, blockchain will enable flexible and customised compensation, as well as the use, when legally allowed, of cryptocurrency and corporate currencies. Variable pay will also be more secure and objective, which will have a positive impact on transparency. Seventh, and regarding promotion and individual rewards, blockchain can ensure that careers, targets and achievements are tracked better and will enable management to measure customer satisfaction with the company's employees, meaning that there is continuous feedback from users. Eight, blockchain enables quick access to employees' individual training history, making it easier to assess their future needs in terms of technical knowledge and personal competencies and skills; it also enables quicker and better evaluation of the quality of the training provided by external providers. And ninth, regarding health and safety in the workplace, the convergence of blockchain with other technologies, such as the IoT and AI, will enable employers to meet health and safety requirements in the workplace, even allowing predictions to be made through the use of algorithms to prevent individual risks.

- 17. Public-private collaboration, social dialogue and the implementation of disruptive technologies:** Public authorities must require that businesses that opt for the extensive implementation of disruptive technologies at the workplace conduct socially responsible development, strict compliance with legislation and constant supervision to avoid unforeseen and disproportionate negative effects from the implementation, particularly concerning employment stability and employees' fundamental rights. The initial regulations on the application of those technologies to HR and labour relations, insofar as there will be many unprecedented and new aspects, must be submitted by management for frequent assessment and review processes. In the scope of a permanent public-private collaboration on the consequences of those technologies for society, regulations on the impact of disruptive technologies on HR and labour relations must also have essential support in social dialogue (tripartite and bipartite) and in collective bargaining. The law must promote, nationally and internationally, the capacity of public authorities and social agents and companies to overcome and neutralise undue damage arising from the necessary implementation of technologies such as the IoT, robotics or AI in the area of labour relations. That capacity must be strengthened regularly, promoting the consensus that must exist in this key area to avoid a dramatic backlash ('neo-Luddism') from employees and unions.

III. THE IMPACT OF THE IoT ON THE REGULATORY FRAMEWORK OF EMPLOYMENT AND LABOUR RELATIONS

A. Introduction

It is well known that we are witnessing a revolution of big data because of the internet revolution and the exponential growth of technological advances. This revolution is radically changing how we communicate, socialise and entertain ourselves and, obviously, how we work.

This explosion of data is spurred on by the development of the IoT, which also forms part of the 'great convergence' of disruptive technologies, including AI, robotics and 3D printing. Coupled with the increased capacity to process and store data from various sources, this phenomenon means that these technological changes are causing certain unprecedented effects on the organisation of work and on HR. These disruptive technologies are converging, resulting in an increasingly complex network of relationships between technological devices, between devices and people and between people themselves, resulting in an overlapping of private, social and work spheres.

Of those technologies that are having a major role in these changes in its use in HR and labour relations, the IoT has, in itself, a highly disruptive component, especially in its interaction with work organisation, the production process and employees' jobs.

Implemented at the workplace, IoT technology results in hyperconnectivity of a multilateral nature between:

- workers;
- workers and work tools;
- workers and the services and products of a firm;
- workers and the location of the worker in the workplace;
- the various work tools;
- products and services; and
- workers, tools, products and services and third parties (eg, suppliers and customers).

From a technical perspective, the IoT makes it possible to obtain data from the worker directly, either from connected devices the worker is wearing (eg, items of clothing, bracelets, glasses, audio media and insertables) or from objects in the workplace (eg, work tools and machines) with which the worker must interact when carrying out their job.

The implementation of the IoT will give rise to a new human resource management model, which is rapidly changing due to this technological development. Incorporating the internet in work tools and objects worn by workers means information that is more detailed can be gathered on the performance and needs of employees (or candidates). Consequently, human resource management systems now have more and better information to recruit and manage their workforces.

The transformation can also be seen in the management of equipment, as the use of sensors, which interact continuously with workers and other devices and are placed strategically in the workplace,

enables more detailed information to be gathered to improve the safety, motivation and productivity of employees, as well as to find ways of promoting a good work atmosphere and, in general, to design strategies aimed at enhancing a firm's employer branding.

The IoT significantly increases the capacity to give employees what they need, to hyper-segment and develop ad hoc the management of talent, performance and compensation for the contribution of each employee and to treat them as a 'workforce of one'.

This 'sensorisation' of parts, products, machines, tools and the work environment is contributing to automation and productivity in a variety of ways. Thus, we are on the threshold of a new generation of interconnected portable smart devices that will be incorporated into workplaces to help employees, with practically any profile or role at the firm, to perform their tasks and processes to the highest standards. In short, we are dealing with a new type of worker: the 'augmented worker'.

In this regard, it becomes necessary to manage properly the cultural change entailed by working in environments 'quantified' by the IoT, so that the aspects contributed by the IoT to improve experiences and situations are known and understood by employees, allowing the change to be seen as an opportunity, both for the worker and firm. The successful implementation of a new culture based on quantification through the IoT makes more sense if it is a gradual but constant implementation, focusing as much as possible on the elements of the technology to be adopted and their consequences for employees. However, depending on the size and nature of the business, there may be organisations that do not require such a gradual implementation.

A strategically quantified firm alters and enhances the work of the HR management function. The job of HR is now becoming the management of people-related data. The ways of working and the perspective HR is able to bring to the business are entirely altered and enhanced when we add the data which, until now, we did not think would be available to us. With the widespread use of smart devices, HR teams are able to capitalise on the IoT to obtain information that has traditionally been processed intuitively. The role of HR is facing a veritable transformation by being able to provide knowledge that was previously difficult to find. This does not mean the judgment, intuition and leadership competencies of HR professionals must be forgotten. In conjunction with this transformation, it is important to reconsider the competencies of the HR team, as the change is so radical that it requires fast and in-depth training on the new trends, technologies, impacts and changes disruptive technologies in general and the IoT in particular may produce in an organisation's human resource management processes.

Attention should also be drawn to the impact that disruptive technologies in general and the IoT in particular are having on the labour market. To a greater or lesser degree, the process of convergence of the latest and most advanced exponential technologies is resulting in the appearance of new profiles and areas of knowledge, as well as the need to develop skills relating to data analytics, statistics or mathematics, which will be essential for workers in the years to come.

This is the context of the following conclusions and key points to determine the effects of the IoT on the regulatory framework of labour relations and its use in companies, having given rise to various issues and dilemmas that, until now, have seldom arisen in labour relations and will significantly affect the future of work.

B. The impact of the IoT on the regulatory framework of employment and labour relations

B.1 General conclusions

- 1. Differentiation of the IoT with respect to other data extraction sources in the company, a qualitative and quantitative leap:** The implementation of the IoT in the company, through the massive use of sensors, devices and internet connectors, represents a quantitative and qualitative difference in relation to other sources of data extraction and knowledge, for example, social networks and online search engines. Particularly, the quantitative leap arises from the exponential growth of the possibilities of extraction and processing of workers' information, and there are currently multiple forms, places and combinations for collecting data. From a qualitative perspective, the IoT can simultaneously develop multiple purposes, particularly those related to greater efficiency in the production processes and labour activity, unlike other data sources – such as surveillance cameras – focused on specific purposes.
- 2. Transparency with greater information to employees from the IoT:** The application of the IoT to work organisation and labour activity represents the unprecedented possibility of disseminating technical, organisational and business information among the workforce. Consequently, the implementation of the IoT in the company entails greater transparency in work organisation and in the production process, meaning more workers have more information on these issues than they had previously. This democratisation of information will have significant legal consequences, particularly on the extent of employers' duty of information to workers' representatives and the justification of business decisions, such as dismissals for economic reasons.
- 3. IoT implementation as a free and voluntary decision by employers:** IoT implementation and its intensity constitute a strategic choice which the company can make freely, as it forms part of the employer's right to organise the workplace technically. Until now, there has been no legal obligation to implement IoT instruments and devices in work organisation, as it is a free and voluntary decision. However, in the future, employers could have a duty to implement the IoT in certain aspects or areas. In particular, the main exception to the general rule of free and voluntary implementation of the IoT arises in the area of occupational risk prevention, in cases in which it is possible to prove that certain IoT devices reduce or eliminate the occupational risks to which workers are exposed, in which case IoT implementation can become mandatory for companies.
- 4. A more defined legal framework for employers and employees when implementing the IoT:** Unlike what happens in other technological areas (eg, AI), in which there is a lack of minimally concrete regulation, the IoT is affected in many countries by a specific and developed legal framework, that is, DPL. This entails that, in exchange for the advantages arising from the increased corporate knowledge of data that has labour and organisational significance, IoT implementation becomes an important source of new, multiple and complex obligations for the company, as workers will hold many rights arising from the essential right to data privacy. Consequently, even before implementation, employers must balance the intensive effects that the IoT will have on the increase and specification of their responsibilities and obligations regarding workers' representatives and workers.

5. Increase of possible corporate liabilities and contingencies vis-à-vis workers: The application of the IoT to the area of labour relations entails a qualitative leap in relation to the level of legal corporate liability, as the huge information coming from that technology will usually require the exact knowledge of possible legal contingencies that were difficult to identify several years ago, particularly concerning data processing in the labour area. The increase in potential liabilities arising from the data protection law after the IoT has been implemented at the workplace must be related to the fact that, in most countries, and certainly those of the EU, economic sanctions and penalties for data protection infringements are much higher than those that apply to violations of employment law.

We can also see that qualitative leap from the perspective of criminal liability, when the offence against employees' data privacy can be committed by both a natural person and a legal person. Therefore, if employers decide to implement the IoT, they must be prepared and pre-warned of the important legal consequences this could involve, carrying out an exhaustive analysis of the potential liabilities associated with its implementation and development at the workplace.

6. Legal significance of the source of data extraction: From a labour law perspective, attaching IoT devices to objects (eg, machines and walls) is different to attaching them to an employee's clothes or body. Therefore, we must distinguish between two sources of information extraction from the worker: (1) data collected from devices the employer instructs the worker to have on their person (eg, wearables and insertables); and (2) data collected through objects deployed in the workspace (eg, work instruments, machines and places) with which the worker interacts when providing their services. Generally, attaching the IoT to things, processes and activities that the employer owns will give the company greater discretion to implement and manage them. On the contrary, concerning objects attached to the worker (eg, clothing, glasses and audio means), particularly when workers' bodies are involved in the devices ('insertables'), the level of legal protection and the possible need for workers' consent will increase and the legal guarantees will be stricter.

7. Two main areas of labour relations affected by the IoT: It is evident that an intensive implementation of the IoT can have significant consequences on the regulatory framework of labour relations at the workplace on collective and individual levels. For the purposes of the labour law analysis of the IoT, these consequences may be seen from two perspectives, which, although being in some way related, can be differentiated due to the legislation that primarily applies to them:

- The perspective of data protection, as the implementation of the IoT to work activities, particularly to workers, involves the vigorous application of DPL.
- The perspective of what we can call legal quantification can be understood as the significant fact that the widespread implementation of the IoT in work activities will usually entail the possibility of 'setting parameters' for legal concepts, rights and duties that, until now, are generally not specific in employment law or collective bargaining agreements – for example, productivity and performance. Now, due to their massive 'datafication' from IoT devices, they may undergo an intensive process of exact quantitative determination.

Next we examine both perspectives separately.

B.2 Conclusions on data protection and the IoT in labour relations

1. **The IoT will mark the ‘hyper-datafication of the workplace’:** The application of the IoT to work organisation, workers’ work activities and to workers will involve the ‘hyper-datafication’ of the workplace. Consequently, the company becomes a constant flow of data, issued and received multilaterally and regularly, directly related to labour matters and to the worker.
2. **Greater application of DPL to the IoT–worker relationship:** With the hyper-datafication of the workplace, workers and their activities become a constant and regular source of data, whose legal classification as ‘personal data’ means the relation between the IoT and workers is even more subject to DPL, which has been strengthened in many countries, as in the case of Regulation (EU) 2016/679, of 27 April 2016 (GDPR), and similar legislation in the US and Japan (although not as strict), entailing a qualitative leap forward in terms of the requirements that data controllers (employers) must meet when implementing the IoT. We will take as a reference to our conclusions on data and the IoT the European regulation.
3. **Need to adapt DPL to labour relations:** In the labour field, of all the aspects of the GDPR, the most original undoubtedly stems from the specific provision, for the first time in that legal system, of data processing in the employment relationship. Thus, Article 88 of the GDPR expressly recommends that Member States individually regulate, through an act or collective agreement, the processing of workers’ personal data. However, we must highlight that the wording of Article 88 is not totally appropriate, given that, when specifying the labour matters that should be regulated, it indicates key subjects that are differentiated from what must be understood as ‘execution of the contract’ – for example, cessation of the labour relationship, and health and safety at work – that, in a broader and more correct sense, should be included in the scope of that execution. We must take into account that what must be understood by ‘execution of the contract’ is key to the purposes of requesting the worker’s consent or the possible specific features in the application of the general principles of DPL.
4. **Potential conflicts between labour regulations related to the implementation of the IoT and DPL:** We must point out that the essential principles of DPL can be at odds with the faculties usually derived from the employer’s rights. In particular, a business decision to establish the IoT intensively in work organisation and its interaction with the workers could challenge the current regulatory framework on data protection for several reasons:
 - The principle of data minimisation, meaning that the data compiled must not be excessive and that only the minimum amount necessary for the purpose for which the data is collected must be compiled, is at odds with the very logic of the IoT, given that it is based precisely on the analysis of massive amounts of data without which the knowledge that allows us to discover facts (previously) hidden and make more accurate decisions on the performances of HR could not be extracted. Thus, it is important to distinguish between the data that the employer needs in relation to the worker for the execution of the contract – in which the worker’s consent will not be required – and the data that is not necessary for its execution.

- The IoT may raise problems in relation to the principle of ‘limitation of the purpose’. With the IoT, the data that is obtained for an initial purpose is normally reused in time for a different purpose, while DPL establishes that personal data must only be collected for certain explicit and legitimate purposes and not be subsequently processed in a manner incompatible with or different from those purposes.
- Also, the IoT is based on the collection and storage of large masses of data for an indefinite period and this raises problems in relation to the breach of the principle of quality and the periods of data conservation.
- With the IoT, the anonymisation of data (now called ‘pseudonymisation’) presents some limitations, since it is simpler to re-identify individuals by increasing the quality and diversity of information. Besides, information extraction that makes it possible to make more accurate and efficient decisions on HR arises precisely from obtaining personified data.
- Also, with the IoT, the technical possibility is raised of automatic decision making in the labour relationship, such as promotions or dismissals, which theoretically, mainly with AI, can be subject to algorithms executed automatically. As we will mention later, the problem arises when the data analysed through algorithms is not accurate or true or is discriminatory.

5. Need for constant re-adaptation of data processing and balancing with management’s rights:

There are characteristics of employment contracts that give significance to data processing and make the employment relationship particularly sensitive to the risks arising from the implementation of IoT devices. For instance, labour contracts tend to be indefinite, which makes the conservation of data important, and can have an intrinsic personal nature, which makes the type of data to be considered more complex, since it always relates to the ‘person’ of the employee. Given these characteristics of the employment relationship and with the greater capacity to extract direct and indirect information on the worker with the IoT, it is clear why DPL and labour regulations, particularly the employer’s management rights, are on a constant path of collision. Therefore, in the future, it will be necessary to strike a balance between: (1) the employer’s legitimate interest to preserve the effective execution of the employment contract through a greater accumulation of data that underlies and justifies its decisions; and (2) the need to preserve the worker’s rights (data privacy), whose protection will become more complex and unstable.

6. To what point will the worker’s consent be necessary for the extraction and processing of data arising from the IoT?

The aforementioned effect of constant balancing is particularly seen in the requirement of the worker’s consent for collecting and processing personal data, which constitutes the cornerstone of the data protection law models. Under DPL, in the labour relationship, as we already mentioned, the worker’s consent is not necessary when the processing of personal data affects subjects that may be considered necessary ‘for the execution of a contract’. However, in the absence of greater clarification by the legislator, the borders between execution and non-execution of the contract are and will be blurred, even more so with the multiple uses and purposes that can be covered by IoT devices. Consequently, it will be necessary to constantly determine those borders to clarify what data the employer needs in relation to the worker for the execution of the contract, considering that, in those subjects in which consent is required, the contract must meet some demanding requirements to guarantee its free issuance.

- 7. The so-called ‘special categories of data’ will require specific processing to avoid their involuntary configuration:** Sensitive data and, in particular, data relating to workers’ health, ideology or sexual orientation can present most complexity for processing and protection in the sphere of employment contracts. Under DPL, data relating to certain personal areas of the interested party cannot be subject to processing, and this is fully applicable in the labour field, except in cases in which the employer provides strong evidence of the need and proportionality of carrying out that processing. As an exception to this rule, it will be possible to process the data relating to the worker’s health based on the corporate obligation to guarantee workers’ health and safety, although that processing will be subject to the limitations arising from the confidential nature of the data, which affects its use and dissemination. In this area, the question will also be raised of to what point the possibility of obtaining more information on the worker by using personalised IoT devices to prevent risks for the worker’s health can become: (1) from the employer’s perspective, a duty included in the general obligation provided in many countries to guarantee the worker’s health and safety; and (2) in relation to the worker, a right not to provide services if it is possible to confirm that IoT implementation seriously enhances the prevention of the risks actually existing in the company.
- 8. Special significance of data security measures:** We must also highlight the impact of the IoT on data security, as a consequence of workers and their activity becoming a regular source and a constant issuer of information at the workplace. In this context, the liability for any security breach arising will be assumed by the employer (either in its status as data controller or as data processor), which has a special obligation to adopt all the measures necessary to ensure the confidentiality of the data. We must consider that these measures do not refer solely to possible cyberattacks by third parties, as there is also a risk that the worker will cause the destruction, loss or alteration (accidental or intentionally) of personal data of colleagues or third parties (eg, clients, suppliers and shareholders). Although the liability regime envisaged in the GDPR only affects the employer, labour cases by tribunals analysing disciplinary measures adopted because of the inadequate use of personal data by workers are increasingly frequent. Therefore, there is a need that the employer also adopts security measures specifically in relation to workers who have access to personal data.
- 9. Determining the role and duty of confidentiality of workers’ representatives:** One of the challenges that companies will face is determining the role that the worker’s representation must assume in the development of massive data processing arising from the IoT. Beyond considering the need to establish channels that permit greater information to those representatives, it must be considered that the duty of confidentiality for that data also affects the workers’ representatives, whose area of competence to be informed and consulted is, in many cases, limited by the validity of fundamental rights and, particularly, by the right to data privacy under DPL. Considering all the information from the IoT on which workers’ representatives will be entitled to be informed or consulted, the company must establish all the measures necessary to ensure the fulfillment of professional secrecy that the law in most countries envisages and whose breach may not release the employer from liability.
- 10. The adoption of the IoT and its development will require an effort of constant regulation and assessment by the employer:** Based on the above, the general conclusion that we must

extract from this analysis is that a technological change of the dimensions of the IoT involves introducing in the company an intensive application of DPL, with its complex obligations and guarantees, as well as its intensive liabilities for the employer. At the same time, workers, not the objects in themselves, become the essential legal reference in the whole flow of data derived from the IoT, to the point that, for DPL, more than the IoT, it is in reality the internet of people.

B.3 Conclusions on the impact on the labour regulation of the 'parametrisation' caused by the IoT

- 1. Use by labour regulation of open and undetermined regulations:** Labour legal regulations, including collective agreements, are characterised by a frequent use of open and undetermined legal concepts, principles and categories (eg, productivity, indiscipline and underperformance), which offers the advantage of giving to that labour regulation greater flexibility and permanence in the long term. However, it also generates a marked degree of legal uncertainty, most notably manifested in the development of frequent conflicts of application and interpretation of that regulation and in the need for resolution of those conflicts by third parties, such as courts or arbitrators. The IoT could help to limit that uncertainty.
- 2. The parametrisation legal effect of the IoT:** With the massive datafication of an intensive IoT implementation in the production process, in work organisation and labour activity, these open and undetermined concepts can experience an intensive degree of specification by exact measurement. One of the greatest contributions that the IoT could make to the future regulatory framework consists of the possibility of making greater or better quantitative determinations in regulations traditionally formed with a generic description of the conduct, rights, obligations and principles that must govern the relationship between the employer and the worker. Now, because of an extension of endless sources of data thanks to the IoT, those regulations are susceptible to being specified or adjusted from a quantitative perspective, which is, in itself, a qualitative leap in the scope and efficiency of those regulations.
- 3. The parametrisation legal effect of the IoT can generate greater legal certainty and fewer conflicts of interpretation:** The main advantage of the quantifying effect of the IoT will be that it could bring greater legal certainty to labour regulation, reducing the margin of discretion left to courts or arbitrators when settling disputes regarding the application or interpretation of that regulation. In other words, the IoT does not mean that the undetermined legal concepts disappear in the labour regulation, but that, in the future, at the time of its massive application, the parties and the judges or arbitrators will have a level of factual consistency on which the management decision regarding working conditions is based.
- 4. Need for decentralising the sources of labour regulation:** In this context of data specification that the IoT provides, the decentralised sources of company regulation – that is, collective agreements, employment contracts and codes of conduct – can play an important role that goes beyond legislation or branch collective agreements in determining and quantifying those general legal concepts, reaching unprecedented levels of applicative specification.
- 5. Greater regulatory specification can also translate to greater specification of employers' obligations:** In addition to a potentially greater legal certainty, we must bear in mind that the strategic

decision to implement IoT devices in work organisation and the production process will also mean a greater specification of the employers' obligations, such as limits to working time, determination of jobs' classification and promotion of health and safety. Possible infringements of workers' rights, such as those of effective professional occupation, promotion and training and non-discrimination, can be easier to identify with the IoT.

- 6. Potential quantification of the duty to contribute to productivity at the workplace:** Of the legal concepts susceptible to being specified with the IoT, we should draw attention to the one of contribution by employees to better 'productivity' at the workplace. This contribution appears in the legislation and in the collective agreements of many countries as an essential duty for workers, but the fact remains that its legal determination has proven to be highly elusive, especially when measuring the specific performance levels required from workers or determining variable salaries in relation to that performance. The IoT applied in the organisation of work and the production process will establish greater possibilities for measuring the activity and specific performance of the worker, making the worker's individual contribution to that productivity more quantifiable. Thus, there is an unprecedented quantitative determination channel that can be better adapted to the labour regulation than other indicators that have been used up until now (particularly purely economic ones).
- 7. Quantification by the IoT can accurately determine the essential parameters of time and place at work:** The data accumulation and management that the IoT permits will contribute to a greater specification of the two main aspects on which the completion of work is based: working time and workplace. On the one hand, regarding working hours, the characteristics of the IoT will make it possible to measure more precisely the units of time during which workers perform their jobs, facilitating the measurement of (flexible) working time, which entails greater legal certainty. Thus, the application of the IoT constitutes a great opportunity to combine work-life balance needs legally (eg, rest between working days and rest at weekends) with the appropriate annual – and even biannual – management of working hours. On the other hand, from the place of work perspective, we must indicate that, with the IoT, new devices arise that can lead (as a direct or derived consequence) to the company having knowledge of the worker's physical location, guaranteeing that workers are in the appropriate place during working hours, regardless of whether the work must be carried out inside or outside the work centre.
- 8. Greater determination of the technical, organisational and production reasons for employers' decisions:** Another area that can be profoundly affected by IoT implementation relates to amending and terminating management decisions that employers must legally base on technical, organisational or productive reasons. More specifically, we must remark that the increase of data available in relation to business activity and work organisation can make those decisions of modifications of working conditions or dismissal of employees much more objective, particularly in the case of productive or organisational reasons, which could have an essentially subjective foundation compared to an economic reason (eg, decreasing benefits).
- 9. Greater data for the objective evaluation of workers' behaviour and activities:** The characteristics of the IoT will make it possible to delimit aspects of workers' activities and behaviour that, until now, were considered difficult to set or demonstrate, thus providing the clarification of

parameters relating to causes for disciplinary dismissals. The IoT can help in the determination of concepts as legally undetermined, such as the ‘breach of contractual good faith’ or the ‘continuous and voluntary decline in the performance of the normal or agreed work’, which are usually used in the law of many countries. Another example can be determined by devices that may measure the level of accuracy with which the worker’s activity is being carried out, to the point that certain degrees of incorrectness could be considered evidence that the tasks are not being carried out properly, which can also facilitate the avoidance of negative repercussions for the safety of the worker, other workers and customers and the property of the company.

10. **Greater delimitation in relation to unfair strikes:** These parametrisation changes of work organisation and the production process can also have significant consequences in relation to determining the legality of a strike, especially if it is defined based on its disproportionate impact on work organisation and the production process. In fact, due to the ‘datafication’ of the organisation of work and production processes by the IoT, it must be easier to determine, first, that a rotational or work-to-rule strike has effectively taken place and, second, what exactly the organisational and productive alterations and the subsequent damages caused by it have been.
11. **Greater delimitation in the externalisation of activities and services:** The application of the IoT and its capacity to quantify the production process, labour activity and working conditions represent a greater possibility of identifying the application of the criteria that case law has developed in many countries to distinguish the lawful model of subcontracting from what is an illegal assignment of workers. Criteria such as origin and regularity of instructions to workers by their formal management or the effective implementation of the contractor’s know-how may now be easier to determine. Also, the possibility of datafication that the IoT provides may permit a greater delimitation of the personal extension in which the employer operates as a contractor in relation to self-employed workers. Aspects such as the quantitative and qualitative level of instructions regularly received by the self-employee regarding the client, the degree of own know-how in the self-employee’s activity, the intensity of the integration of the self-employee’s activity in work organisation and the production process of customers and the relationship between self-employed workers and the client’s other workers will be susceptible to a more precise determination with the application of the IoT in the different aspects of that organisation and the working process.
12. **Greater specification of employers’ labour obligations:** Despite all the advantages for employers, they must note that this quantitative and qualitative increase in employment and organisational-related data may not only create a more precise regulatory and application framework and better promotion of efficiency for them, but will cause a greater specification of obligations and liabilities for those employers. For illustrative purposes, we provide three examples. First, as one of the most significant areas, the duty to report working conditions information to workers’ representatives and workers becomes much more specific and extensive, comprising an exponential increase in the data the employer should provide to them. The employer’s duty to provide wider information and documentation will be even more relevant in consultation processes generally scheduled by law in many countries for modifications of working conditions, transfer of undertakings (TUPE) or collective dismissals. A second example relates to allegedly discriminatory treatment in relation to the decision-

making process in issues as important as remuneration, promotion or termination of the employment contract. Regarding this point, it should be remembered that there are company decisions that do not initially require justification because they are within the scope of the employer's management rights (eg, termination in the probation period and promotion of certain workers). However, if there is an allegation of discrimination by the worker, for which even light evidence is presented, the whole evidential burden to show that the discriminatory situation does not exist falls on the employer. This is done by the employer when justifying those decisions with non-discriminatory facts, data or criteria, which will now have greater support with the datafication by the IoT of those decisions. The third area in which the datafication caused by the IoT can have special significance in relation to employers' obligations is health and safety, since the chances of preventing risks increase exponentially with the possibilities that devices and sensors can grant in this regard. In the legislation of many countries, not setting parameters using the IoT when greater and better preventive data can be extracted from them could be considered a breach of the generic employer's obligation to adopt all the possible preventive measures. However, again, once that parametrisation is carried out through the massive use of sensors or other devices, it can provide all types of information on possible legal breaches by employers in this area, making the proof of companies' liabilities easier and more evident.

- 13. IoT and the 'augmented worker':** The implementation of the IoT in the organisation, particularly when it is intensive, can entail a reconfiguration of the workplace and, consequently, of workers activities, resulting in a quantitative and qualitative increase in their efficiency and performance: it is what we can call the 'augmented worker'. However, precisely because of that augmentation, one of the main problems raised by IoT implementation, particularly when the devices are attached to workers or their clothing, is whether it can be optional for workers, such that 'augmenting or not' may be the result of their decision and not that of employers. Consequently, the question is raised of whether the rejection of that augmentation can be a legal ground for employers' decisions that may negatively affect those employees in their working conditions (eg, less promotion or lower salary) or it can be considered (indirect) discrimination, particularly compared with employees who have given a positive response. In principle, if it is an augmentation based on devices for which the consent of workers is not required, those differentiations in working conditions could not, in general, be discriminatory. However, if workers' consent is required (eg, because the devices to be established affect workers' bodies), it could be considered that the negative consequences on their working conditions would eliminate workers' freedom to grant that consent.

C. Key recommendations on the future regulation of work and the IoT

In view of the stated conclusions in terms of both data protection and quantification in relation to the IoT in labour relations, we can make a series of recommendations considering the future regulation of work. A group of them (five) is mainly directed at the state and the social actors as regulators. Another group (ten) consists of a series of practical recommendations for companies.

C.1 Key recommendations for regulators

1. **Necessary adaptation to employment and labour relations law of DPL:** EU regulation, as in other regions, calls for DPL to be adapted to labour and employment relations by national legislation and collective agreement. To date, the experience of most countries with the application of the regulation of data protection to labour relations shows the need for that adaptation to be completed effectively. Without prejudice to the role that collective bargaining can and must play in that adaptation, the fact is that legislators must establish minimum regulatory bases, considering the specific features of data protection in labour relations, given the general implications for productivity and innovation in relation to the intensive emission of data from the IoT and its impact on the essential rights of employers and workers.
2. **Adaptation is key in essential areas of friction between management's rights and the rights of workers regarding personal data:** There are areas in which labour regulation and DPL are on a constant path of collision. These regulatory bases that national regulation and collective bargaining must establish could refer, as essential points, to: (1) the general clarification of what 'execution of the employment contract' must be understood to mean for the purpose of the role of the worker's consent in data processing; (2) the guidelines of the labour application of the general principles on data protection, particularly those relating to minimisation, purpose and anonymisation; and (3) the liabilities of employers, workers' representatives and workers in the adequate processing and protection of data, particularly regarding basic duties of confidentiality.
3. **Need to respect legitimate use by employers' of workers' personal data for HR innovation:** In the adaptation we mentioned, DPL must not to be an obstacle to the flexibility that the company needs to correctly use the data for the purposes of the production process, work organisation and development of an innovative management of HR, in which workers' data provided by the IoT is essential. Therefore, it corresponds that the legislator and collective bargaining should develop the appropriate balance in that adaptation so that the preservation of workers' fundamental right to privacy coexists with the enormous contribution that data from the IoT can make to companies' competitiveness, productivity and the improvement of their labour relations.
4. **Need to promote the contribution that the IoT can make to a greater determination of the legal meaning of essential employment rights and duties, promoting less controversy in their application and interpretation:** The implementation of IoT devices in work organisation and production process is a great opportunity for less legal controversy, so that generic and open concepts and principles that labour and employment law adequately uses to be able to adapt to multiple circumstances can now be subject to a process of specification, of 'legal quantification' or parametrisation, which, to date, is unprecedented in its extension. Thus, parameters regarding organisational needs for temporary contracting, the determination of work time units, the reference measurement in variable remuneration, the delimitation between ordinary and extraordinary functional mobility and versatility and the specification of the levels of performance or employees' duty of contribution to productivity are, inter alia, conditions susceptible to being specified by the adequate use of IoT data at the workplace for the purposes of giving greater legal certainty and less dependence on the resolution of conflicts of application and interpretation by a third party.

5. **Need to preserve decentralised regulatory sources to strengthen the effect of ‘legal quantification’ and greater legal certainty that the IoT can generate:** This specification must be essentially developed in company or work centre regulations, through either collective bargaining or corporate rules and codes. Consequently, and notwithstanding the role that sectorial collective bargaining may develop in many countries, the legislator must be aware that the massive implementation of IoT devices requires decentralised levels of regulation of the main working conditions, including the employment contract.

C.2 *Key recommendations for companies and unions*

C.2.1 KEY RECOMMENDATIONS ON DATA PROTECTION, THE IOT AND LABOUR RELATIONS

1. **Companies and unions must be prepared for the complex regulatory management of DPL that the IoT entails:** Given the increasing development of national and international DPL, an intensive implementation of the IoT must represent a significant increase in the intensity and complexity of the legal management of DPL for companies and unions, which represents a great opportunity to develop more efficient and productive processes and organisations, but also has significant additional requirements and can entail great legal liabilities, mainly for the employer, in case of breach.
2. **Companies must establish the IoT with the intensity and timing that makes it possible to assimilate the greatest regulatory complexity:** Given the above, it is necessary to prepare the internal business organisation to give it the adequate means of augmented administration for dealing with the massive increase of data originated by the IoT. Companies must not adopt decisions on the implementation of IoT devices that may entail an assumption of data for which it does not have the capacity to regulate and manage correctly, such that a sufficient level of legal certainty and guarantees of rights is developed in line with the rules established by DPL. The above not only refers to the technical infrastructure necessary for that administration, but also to the HR allocated to those purposes.
3. **In relation mainly to EU countries, companies must determine the need and role of the data protection officer for the best administration and legal certainty of the data from the IoT:** The figure of the data protection officer (or similar in non-EU countries) is progressively important, given the legal and technical complexity in the processing of data provoked by the IoT, considering that the role is basically defined as the data controller’s adviser. This will be a key figure in the future who will make the organisation constantly aware of the need to comply with the intensive duties imposed by DPL and will entail a commitment by the company for its effective fulfillment.
4. **In line with the characteristics of IoT implementation and its production and organisation process, companies must give themselves appropriate levels of internal regulation, with its main manifestation in the data protection code of conduct:** Although in many countries DPL develops a detailed regulation on the main principles, rights, guarantees and duties of all the individuals affected by massive data processing, companies must also develop an adaptation of DLP to their specific circumstances for the better application of that legislation. This internal

regulation or data protection code of conduct must clarify the application of principles as essential as need, proportionality and purpose and workers' basic rights, such as access, rectification and cancellation.

- 5. Employers must develop high levels of information for workers and their representatives because of the massive processing of data provided by the IoT:** The new legislation on data protection in most countries strengthens information rights of workers' and unions. Therefore, companies must apply a constant and regular policy of transparency in relation to the data collected, processed, stored and cancelled as a consequence of the intensive implementation of IoT devices. Also, in everything that affects work organisation and the production process in that implementation, a significant level of information and consultation must be developed in relation to workers' representatives, particularly if the IoT implementation entails material changes in working conditions.
- 6. Regarding data provided by the IoT, internal corporate regulations must determine the issues on which, exceptionally, the worker's consent is required and the form in which to grant it:** As long as data is necessary for the execution of the employment contract, the worker's consent is not required. However, in those aspects that exceptionally may not be included in that concept of execution, and for which the worker's consent is required, that consent must be given in conditions from which it may be clearly deduced that there is no abuse of rights or breach of law, with the intervention of the worker's legal representatives being a guarantee in this regard. The corporate data protection code of conduct must establish a clear regulation on how that consent must be given in relation to the data outside the execution of the employment contract, but in relation to which the employer can show a legitimate and justified interest in the data processing based on IoT devices.
- 7. Companies must pay attention to special categories of data that may be directly or indirectly obtained using IoT devices:** Within the special categories of data in relation to its workers (eg, religious beliefs, sexual orientation and ideology), and whose processing is prohibited unless there is a demonstration of strong corporate interest in this regard (eg, trade union affiliation in case of having check-off of union fees), the employer must take special care not to reconstruct profiles, particularly by sources other than the worker itself, given that the liability in this issue is objective, that is, regardless of the will to do it. Such non-voluntary profiling can be considered to invalidate negative decisions by the employer in relation to the affected worker when it is proved that the employer has gathered sufficient information for such a reconstruction even if it was not intended for its use in that way.
- 8. When implementing IoT, companies must review their health and safety policies thoroughly:** Data relating to workers' health, which will be significantly increased with IoT devices, must be treated in a very special way, since it is relevant due to its connection to the right of privacy. Therefore, companies must regularly review the preventive policy to ensure that all the information that may be collected through IoT devices is aligned with DPL. While the decision to establish the IoT in the production process and labour activity is usually optional for employers, this would not be the case when some IoT devices can show a unique efficacy in occupational risk prevention.

9. **The increase of data due to IoT implementation obliges employers and unions to strengthen the duties of confidentiality and secrecy of workers and their representatives:** Employers, with the help of unions, must particularly pay attention to meet the rules of DPL on confidentiality, as they are the direct controllers of data processing by the IoT at the company level, including the strict fulfillment of this confidentiality by all the workers with responsibilities in data processing and the duty of secrecy of workers' representatives. Besides establishing the liabilities in case of violations more clearly, regarding the workers' representatives that must receive confidential information on workers, they should assess whether to appoint one of their members as the party responsible for exclusively receiving the most sensitive information, thus guaranteeing its confidentiality more efficiently.
10. **Employers must follow a proactive and regular policy of reviewing workers' and ex-workers' data arising from the IoT:** The principles of veracity, anonymisation of data, minimisation of data accumulation or cancellation, among others, impose the duty on the employer to review the data kept on record in relation to workers constantly. Although those principles are qualified in the employment contract, they must always be considered for the purpose of giving them a greater application when the limitations or adaptations imposed on them due to execution of the labour contract have ceased to be necessary. The development of that proactive policy is better assured if there are protocols previously developed that ensure the regular fulfillment of those principles, duties and guarantees, rather than leaving that fulfillment to episodic and irregular acts in view of certain crises.

C.2.2 KEY RECOMMENDATIONS OF THE IMPACT ON LABOUR REGULATION BY 'PARAMETRISATION' CAUSED BY IOT

1. **Employers and unions must consider that the IoT can represent an unprecedented alternative for increasing legal security in labour relations and employment law:** In facilitating a massive parametrisation of labour activity, the IoT makes it possible to give greater specification to fundamental labour regulations that, due to their current lack of determination, cause frequent conflicts of interpretation and application to be resolved by judges and arbitrators. The implementation of IoT devices in work organisation and the production process has a quantification effect on the applicable labour regulation and presents a great opportunity for legal concepts with a certain vagueness in the labour regulations to be specified or delimited more precisely, adapting those concepts to the nature of each sector of activity or each company and work centre. Concepts such as productivity, performance or diligence are susceptible to measurements that are more specific, such that they clarify the extension of the workers' duties in this regard and the exact levels of their fulfillment. This can be an effective form of resolving intra-organisational disputes arising from the application and interpretation of the applicable regulation and of limiting the need to turn to third parties (labour jurisdiction or arbitrators) to resolve those labour disputes.
2. **IoT makes it necessary for companies to carry out a strategic assessment of its global effects and to identify the obligations of workers for which stricter parameters may be set:** All companies should have a regulation as adapted as possible to their characteristics when implementing the IoT, whether through collective agreements or corporate instructions,

which, at the same time, should perform this exercise of greater determination and specification by ‘quantifying’ aspects of such main working conditions as time or functions; This should be done after a strategic assessment of the consequences that a massive increase of devices and sensors will have in their labour relations in connection to the following three areas affected by that implementation: the production process, work organisation and workers’ activities.

3. **Companies must assume in the strategic assessment that a greater legal quantification of labour duties by means of the IoT can simultaneously represent a greater specification of obligations for employers:** In that strategic assessment, the employer must consider that the increase by the IoT of data with labour and organisational significance will not only create a more precise regulatory framework that better promotes efficiency and determination of workers’ duties, but will also be the cause of a greater specification of the employer’s labour and employment obligations, such as those related to health and safety or non-discrimination, which, in turn, can entail greater contingencies and legal liabilities in case of breach.
4. **In particular, employers should assume that the increasing data provided by the IoT also means greater transparency at the workplace:** A massive use of devices in work organisation, the production process and workers’ provision of services facilitates a detailed knowledge by them of all the aspects relating to their activity and their working conditions, which requires companies to have a policy of regular and constant information and transparency. It is on this point that a greater cultural change is required, given that the regulatory framework in an organisation with high levels of transparency requires greater interaction between company, union and workers in the development of the labour activity, making a greater involvement of unions and workers in the company’s policies possible and worthwhile.
5. **The extensive deployment of the IoT means a stronger employers’ duty of information to workers’ representatives:** A major expression of that greater need for transparency is that the content and scope of companies’ reporting and information obligations acquire greater specification and extension. Therefore, in all consultation and negotiation processes required by law when employers make important decisions affecting working conditions or dismissals, the content of employers’ duty of information must be best aligned with the levels of data provided by the IoT. It will be increasingly difficult for employers to claim in those processes that they do not have the information required by unions in relation to employment, performance or remuneration.
6. **Companies must make the most of the facilities that the data provided by the IoT can offer to accelerate the processes of the adoption of decisions in the area of labour relations:** Currently, many processes for adopting business decisions in labour relations are delayed or held up because of the lack of consensus with workers’ representation on the essential data that justifies those decisions, as it is considered subjective or unsubstantiated. The IoT will make it possible to better set parameters and justify with more foundation decisions as important as those relating to working hours, variable remuneration, the level of temporary contracting, the degree of outsourcing of activities or the need for a reduction of staff for organisational and technological reasons. The possible greater effectiveness and speed in the decision-making process can depend on the continuous reporting to workers and their

representatives and the due protocoling of the justification of these decisions, making their rationality with exact and verifiable data more objective and promoting a climate of greater confidence in the process.

- 7. IoT should have a great impact on the occupational risk prevention policy:** Given that, with the IoT, the possibilities of measuring and consequently avoiding and preventing occupational risks increase, the decision not to set parameters through the IoT when greater or better preventive techniques and policies can be extracted from it could be considered a breach of the generic corporate obligation to adopt all the measures possible to guarantee the health and safety of workers in all work-related aspects. This implies that companies must regularly analyse the impact of the IoT on work organisation and jobs to determine whether the advances it provides permit an improvement in the existing level of protection and, thus, the disappearance or limitation of risks for workers' health and safety.
- 8. Companies must adequately assess the effects that an extensive use of the IoT can have on workers as citizens with fundamental rights, affecting the corporate culture and social perception by society of companies as technical and socially responsible organisations:** Companies must be aware, at all times, that their management and control rights are different depending on whether they apply IoT devices to workers themselves or the objects at the workplace. However, beyond the different legal regimes in this regard, applying devices to workers themselves, or applying them in a way that has a strong impact on them, given that they hold not only labour rights, but also fundamental human rights, entails a qualitative leap in the conception and, particularly, perception of the control and oversight by companies that must be explained and only adopted with certain levels of consensus at an individual and collective level. Corporate regulations must place special emphasis on need and proportionality to implement the IoT in the company in the case of personalised devices capable of emitting information on workers. The conception by workers and the company of the organisational culture, and its harmony with the social responsibility policy of the company, will depend on how this implementation of the IoT is done and on the acceptance of its purposes and means by the workforce.
- 9. Companies must be able to face and overcome any type of 'technological conscientious objection' of workers in relation to the effects of extensive IoT implementation on their work and themselves, avoiding a backlash of negative organisational and productive consequences:** The IoT applied with intensity to the production process and work organisation can have significant effects, not only on the labour activity of workers, but also on them as persons. Therefore, companies must develop appropriate channels of information and consensus to overcome possible harm and personal problems to which that technology may give rise. We strongly recommend establishing informative clauses of an internal policy, which must be inserted into the employment contract or the corresponding data protection policy, that reflect the worker's knowledge of the existence of the level of IoT implementation, with clear instructions on the application of devices to work organisation, labour activity and the worker and their immediate environment. In the employment contract or a complementary covenant, it must be recorded that the worker has been given the opportunity, after reporting, to make any type of possible 'technological

conscientious objection', provided it is justified and can be assimilated by the organisation. To avoid or limit misgivings and negative reactions, within their possibilities and without this representing a disproportionate cost or obstacle to the establishment of the IoT, companies must ensure that they align their decisions on the IoT (in form, time and proportion) to workers' requests regarding the implementation system and subsequent interaction with IoT devices, particularly when they have a direct impact on workers.

10. **IoT must entail a continuous effort for companies to appropriately train workers, not only in the new aptitude requirements or professional qualifications that it requires, but also regarding the personal attitude with which the whole workforce must approach it:** Workers affected by an organisation in transformation due to the extensive use of the IoT require constant training in all the professional and personal facets it represents. It is not possible to develop the IoT augmented worker without the development of an intensive corporate effort to educate workers on all its implications for work. The employer's training duty must be intensive, like the workers' obligation to make the effort to absorb the new professional requirements that this entails. The IoT and its consequences for work organisation and labour activity is one of the clearest signs that training in work must not only constitute a right for the worker, but also a duty both for the employer and worker. The fact that workers are recipients, emitters and managers of data from IoT devices clearly strengthens their right and obligation to training and continuous updating. Therefore, from the outset and before the effective establishment of the IoT, companies must establish programmes that enable workers to obtain and adapt the necessary skills and aptitudes.

IV. THE IMPACT OF ROBOTICS ON THE REGULATORY FRAMEWORK OF EMPLOYMENT AND LABOUR RELATIONS

A. *Introduction*

Using robots in production processes has been a standard procedure for years, mainly in manufacturing sectors such as car manufacturing. The qualitative difference is that, historically, robots were designed to work separately or with little contact with employees; however, new machines and robots are going to interact more directly and tangibly with our lives.

Applied in the workplace, robotics poses several challenges from the perspective of managing HR and regulation. Particularly, the growing automation of individual activities means employees will need to interact with robots more actively in the workplace of the future as part of their daily activity, leading to an interactive person–robot workforce, with all this entails.

At the same time, and in a more radical way than other disruptive technologies, robotics development poses questions about the future of employment, including the possible loss of jobs and the viability of social security systems due to a lack of (human) contributors.

Workforces are not often prepared for the integration of robots or are only partially ready, meaning robotics will change the business organisation, and its successful implementation will require a real cultural change in the organisation. People's attitude will be key. Both organisations and HR departments will have to pay particular attention as to how they manage the cultural change required

to incorporate robotics. Although robots, to some extent, are already established in manufacturing sectors, the imminent invasion of robots in other areas, including services and agriculture, requires all of us to have a different attitude towards what we could call a robotised workforce or robotised employees of a versatile nature.

Companies and unions must deal with the short and mid-term implications of the intensive implementation of robotics for employment with the greatest transparency possible. Given the complexity of the challenges arising from the growing interaction between robots and people and the important role of people's reaction in ensuring a successful implementation, the role of social dialogue and collective bargaining is more important than ever.

Until now, companies have considered robots as essentially standard work tools of the manufacturing area rather than 'devices' that could have consequences for managing people in their company, apart from the potential consequences adopting robots could have on jobs. Companies and unions must be aware that, as robots are not (and will not be) confined to a certain area, they are no longer the traditional work tool they were once considered; although they will not acquire legal personality or become subjects of law, they will constitute a new element in labour relations and will interact with employees, with the resulting implications for companies and legal and labour issues.

B. The impact of robotics on the regulatory framework of employment and labour relations

1. **Legal concept of the robot and its relationship with AI:** The legal concept of the robot is multifunctional and variable, meaning that a wide or restrictive concept could be considered, depending on the legal problems to be analysed. Considering this multifunctionality, for our purpose, we define the robot as a special 'work tool' characterised by its autonomy, physical configuration and capacity to interact with employees continuously. We understand that this definition can highlight the new and most important developments of the impact of robotics on labour regulations, particularly on: (1) employers' powers and obligations; and (2) employees' rights and obligations. Therefore, it is necessary to separate the legal consequences and problems posed by robotics from those that may arise with the use of AI that we will see in the next section. Although it is clear that the convergence of robotics and AI can generate new and complex problems, the extension of the robotisation of companies will generate its own legal implications that require specific analysis.
2. **Legal framework and robotics:** If we consider the regulatory framework in the EU and other regions (eg, Japan, South Korea and the US), there is a lack of specific laws on the legal concept of robots and the extent and limits generated by the introduction of robotics in general and in labour relations in particular. In addition, to date, there is no political and business consensus regarding the opportunity to develop specific regulation on robotics. Some believe it could be too early to approve regulation, given the extensive development and implementation of robotics, as it could be a considerable handicap for its technical, productive and organisational development. Others argue that excessive delay in approving regulation could cause the implementation of robotics to be channelled inadequately, which could be difficult to remedy later. There is also a debate about the intensity of regulation on robotics:

whether to apply ‘hard law’, with the essential component of legally binding force, or ‘soft law’, under which the objectives could be reached through guidelines and incentives.

3. **The regulatory role of collective bargaining:** Owing to the general lack of international or state legislation to specifically regulate the effects of robotics on labour relations beyond general or specific rules related to health and safety, collective bargaining, particularly at the company level, could and must take on a more important role in relation to new technologies than it has had until now; and this, as in the case already mentioned of the IoT, to the extent that collective bargaining is the source, best meets the need for decentralised, adapted and flexible regulation that the implementation and development of robotics in companies requires. The implementation of robotics will affect areas such as working hours, configuration of the workplace and professional classification or wage structures, which is an area in which flexibility and adaptability must have general guidelines for regulating these work conditions to be able to meet the needs of a robotised work organisation. In many cases, it will be advisable for the company and employees’ legal representatives to reach a consensus; although employers are entitled to introduce robots into the production process based on their management rights, imposing decisions of this kind without carrying out an information and consultation process – in an area in which, due to its nature, could raise ethical or moral issues – could lead to employees’ rejection, in turn jeopardising or delaying the benefits expected from the implementation of robotics.
4. **Robotics and CSR:** The intensive robotisation process and the employees’ interaction with machines in work organisation can also affect CSR principles. In addition to other principles and values, aspects such as ongoing training, professional and talent promotion, diversity and employability, the socially responsible implementation of robots, working hours and work–family balance and the prevention of occupational risks must be considered or reviewed from the CSR perspective in relation to business codes, whether general or specific to robotics.
5. **Robotics and the legal framework for employment:** From the perspective of the labour market, the possible negative consequences arising from a mass robotisation of jobs poses the question as to whether it is necessary to amend employment legislation in many countries (and its rules and implementation) to promote (human) employment in sectors developing because of robotics technology and, simultaneously, try to limit the negative effects on employment in already existing sectors due to intensive implementation of robotics technology.

We must conclude that, in most countries, it is not possible to directly limit the employers’ right to decide on incorporating robotics into the production process, although it could eventually have adverse effects on employment in certain companies, at least in the short term. However, it is legally possible to include certain additional obligations for employers that want to robotise their work organisation intensely, including training, adaptation and specific outplacement plans in the case of the posting of employees and dismissals. In general terms, we do not consider it advisable to oblige employers under law to commit to a quota of employees in each production process that they intend to robotise. Regarding access to employment by employees prepared to provide services in this new robotised context, we must remember that, when selecting staff, employers can assess employees’ greater or lesser capacity to adapt to a robotised production process. The only limit would be that the employers’

selection decision is not based, directly or indirectly, on discriminatory factors, including gender and age, and that the ‘technological capacity’ requirement has sufficient justification because it is necessary to carry out the activity required for that job position.

- 6. Employment and specific (tax and social security) collection measures due to the introduction of robots:** The future mass entry of robots into companies of all sectors has triggered an intense debate, significantly more than other disruptive technologies, about the need to adopt certain collection measures in relation to the possible loss of jobs and, therefore, of social security contributors and taxpayers. Two possible solutions have been proposed: (1) establishing the obligation for companies that replace jobs held by people with jobs performed by robots to make the corresponding social security contributions; and (2) establishing a specific tax on robots. Regardless of the technical analysis we have carried out in this report concerning this area, we must highlight the need to be cautious when intending to introduce robotisation-linked contribution measures. This is because of the real risk involved in these measures for innovation and technological development and, therefore, for the creation of emerging employment with this technology, not to mention the difficulty of legally differentiating robotisation from other technologies that can involve automated processes and possible short-term job losses in certain sectors and companies.
- 7. Right (and obligation) to training and robotics:** Regarding the impact of robotics on employees’ individual rights and obligations, we may indicate that this technology clearly shows the need for permanent ongoing professional training to be not only a right, but also an obligation whose breach should be punishable both for the employees and the company. The fact that the employees can be affected by failure to adapt to technology or risks generated by the robots and the need to manage their work with sufficient autonomy clearly reinforces their rights – but also their obligations – to regular training and continuous updating.
- 8. Diversity, discrimination and implementation of robots:** Regarding the right not to be discriminated against in the workplace because of the extensive implementation of robots, we should highlight that, as robots are machines created and programmed by people, they can act as platforms for reproducing and extending human bias and discriminatory preconceptions. Among other aspects, the implementation of robots can have a disparate impact on staff, where certain groups of employees, including older employees and employees of a certain gender or race, could be indirectly discriminated against. Thus, once employers decide to implement robots in their work centres, they must make many decisions (robotisation of certain job positions and not others or of certain tasks and not others or selecting some employees and not others for training in relation to the collaborative work with robots) in which they should avoid having a negative impact, whether disproportionate or unjustified, on certain groups, implying indirect or direct discrimination.
- 9. Right to privacy and audiovisual media integrated in robots:** The implementation of robotics in the production process can lead to constant intercommunication between humans and machines, with important legal implications. This is heightened by the fact that robots, to increase their functions or performance, are mostly equipped with audiovisual media, enabling the company to record employees’ images and conversations constantly. Image

capturing by robots must be carried out in line with the criteria established by national and international law for image recording by surveillance cameras in work centres, and: (1) employers must inform employees and their representatives before any recording; (2) the recording must have exclusive security and work-orientated objectives; and (3) the recording must be limited to the places where employees provide their services or where it is necessary for security reasons. In the case of robots equipped with microphones or sound-recording systems, there are several fundamental rights that can be particularly affected; therefore, the courts in many countries are particularly cautious about them because they consider that there is more risk of these rights being breached by listening systems than by image capturing. The courts usually consider that recording is only justified if its objective is to monitor the correct carrying out or improvement of work, and personal comments are not recorded unnecessarily.

- 10. The effects of robotics on working hours:** Intensive implementation of robotics in a company can deeply affect the working conditions, particularly in the following areas: (1) working hours; (2) professional classification and compensation; and (3) performance and productivity.

In addition to an intensive robotics implementation reducing working hours and, considering robots' technical possibilities – particularly their ability to work at full capacity and without the need to take a break – a partial robotisation of the workforce could mean a more 'standard' distribution of the working day, since robots could cover the hours, days and weeks when it is necessary to work beyond what is established by law.

Also, as robots can continue producing 24 hours a day, it will be necessary to have employees available to supervise the robots' correct operation constantly, meaning it will be necessary to implement shifts, including night and weekend shifts. It is also possible that working with robots could generate an intensified pace of work in the company, making the robot an important reference for the pace of work required of employees. Work organisation according to a certain pace must be considered a particular characteristic of working hours, as it may generate additional risks for employees' safety and health, particularly because of the pressure to follow the new pace of work established by reference to robots. To mitigate the possible consequences, companies will have to adjust employees' breaks during the working day considerably.

- 11. Robotics and professional classification:** The foreseeable consequence of possible workplace robotisation for professional classification is that, in a 'mixed' workforce, a new distribution of functions will be required, bringing with it new professional levels and groups and eliminating the categories and groups involving more repetitive, routine tasks. The probable and desirable consequence of this is the development of a professional upgrading of the workforce with the corresponding greater importance of rights, obligations and conditions more appropriate for employees who are more qualified: variable salary, rights to promotion and professional training and more importance for the individual employment contract. However, we must not exclude the possibility of opposite circumstances arising in which employees' tasks are simplified, given that robots will assume more complex tasks.

- 12. Performance and robotics:** Regarding the performance required from employees, if we take the robots' full performance of their functions as a reference, it is to be expected that, in a

partially robotised workforce, it will be necessary to redefine the performance and productivity levels, particularly if there are shared, complementary or similar tasks between employees and robots. Also, the ‘comparison exercise’ used in case law in many countries to determine the ‘performance required’ of a worker for promotion or dismissal should now also apply to employees who interact with robots to respect the necessary homogeneous relationship.

13. **Implementation of robots and substantial changes of working conditions:** A business decision to introduce robots into the production cycle comes under the general management rights of the employer and in itself may lead to a sufficient technical reason for implementing internal flexibility measures. However, if the present functions, working hours or performance of employees are seriously affected, the company would be facing a substantial change, and it would be legally possible to alter those functions using the procedure generally established by law for substantial change of working conditions given the technical reasons justifying this modification (the very decision to implement robots can constitute a technical reason), assuming the worker has the knowledge required to carry out the new tasks. Even without this considerable functional modification, implementing robotics can make it easy to focus on some of the functions of the professional group of which the worker is included, particularly those with greater added value.
14. **Effects of robotics on the rights of unions and workers’ representatives:** Regarding how robotics affects collective rights and union freedom, for the trade union to keep up the number of members and institutional representation, considerable proactivity will be required when dealing with new generations of employees joining robotised companies. They will probably have qualifications and cultures different to those of the replaced employees. Thus, trade unions will have a great challenge to incorporate those employees from new sectors emerging from the implementation of new technologies in general and of robotics in particular. Regarding employees’ representation at a company level, if robotisation significantly reduces the number of employees in work centres, the lawmaker or company will probably have to evaluate whether the numerical ‘frontiers’ (number of employees at company or workplace levels) established in the current regulation for trade union representation and workers’ representatives in many countries should be kept or reduced to adapt the representation to smaller workforces. On this matter, we have to point out that the decision to robotise the workforce, although protected by the employer’s right to manage, must respect rights to information, consultation and negotiation established by legislation in favour of workers’ representatives.
15. **Significance of robotics for the right to collective bargaining:** Regarding collective bargaining, the legislator and social partners will have to make a huge effort to adapt their key elements so that collective bargaining can, from a regulatory perspective, adapt to the changes that will occur – and that are occurring – in those most basic working conditions as a result of implementing and developing robotics. We believe that, to keep the central importance of collective bargaining as the main way of ‘governing’ labour relations, it is necessary to be willing to change, or at least limit, some of the more classic and dogmatic positions on collective bargaining, as positions that are too adverse to this kind of innovation and wish to ‘overprotect’ what were or are their traditional characteristics could have the opposite of the

desired effect, that is, to promote the marginalisation of collective bargaining as a governance tool of the neo-technological system of labour relations.

- 16. Right to strike, out-of-court conflict resolution and robotics:** There is a quite complex relationship between robotics and the right to strike for employees participating in a robotised production process. Regarding this and the controversial possibility of using robots to replace the services of striking employees, we have to take into account that, in many countries, employers' applying the technological means that are used regularly in a work process does not constitute per se, a breach of the right to strike if these means are used in the same way as always. Therefore, continuing to use robots to carry out business activity during the strike will generally not breach that right under the law of most countries, provided the robots are technological means that the company uses regularly to carry out its activity. The slightest impact that the strike may have as a means of pressure must surely lead, together with other motives for speeding up conflict resolution, to a greater promotion and use of out-of-court resolution methods, such as mediation and arbitration. We will come back to this issue in relation to AI.
- 17. Subcontracting, temporary work agencies and robotics:** From the perspective of business insourcing and outsourcing decisions, we must consider that robotisation can lead to: (1) greater use of new outsourcing services of activities currently carried out directly by the companies; or (2) possible insourcing of services carried out until now by outsourcing companies. When this happens, how to combine robotisation with the case law criteria laid down by the courts in many countries to determine the existence of lawful subcontracting or unlawful assignment must be decided. If the robots belong to the main employer and the subcontractor provides its employees to manage the robots in the main employer's production process, it is highly probable that it is an assignment of employees if the robot programming and general instructions are the responsibility of the main employer. To avoid an illegal assignment, the ideal scenario would be, even if the main employer owns the robots, for the know-how and effective management to be the responsibility of the subcontractor and for it to give instructions directly to the subcontracted employees. Another issue is the lawful assignment of employees by temporary work agencies to manage the robots. In this case, the effect is the highlighting of the importance of certain obligations that the temporary work agency now has before the supply of services (particularly related to preventing occupational hazards) and that the user company has related to preventing occupational hazards before and after the supply of services by the assigned employees.
- 18. Robotics and preventing occupational hazards:** The mass entry of robots at the workplace poses two main challenges for the health and safety of employees. First, the safety conditions of the robots themselves must be guaranteed and how the safety of the employees working closely with them could be jeopardised must be determined. Second, and apart from the obvious risk of possible work accidents, using robots in the company's daily activity alongside traditional employees could generate new risks for employees, particularly psychosocial risks, such as a higher level of stress arising from the greater intensity and increase of workload, greater mental pressure arising from the pace of work imposed by the robots, added tasks or greater responsibilities for employees to make decisions in the robotic context. In this

scenario, precisely because of the lack of specific regulation in many countries, the role of collective bargaining will be important, even though there are currently not many collective bargaining agreements that expressly refer to the psychosocial risks generated by the mass introduction of robots.

19. **Employers' management rights and robots:** From the perspective of employers' rights, we have highlighted that the decision to introduce robots in the production process by replacing or complementing the tasks up until now carried out exclusively by persons is the employers' responsibility, although the consequences of this decision for employment and working conditions must be subject to an information, consultation and negotiation process with workers' representatives. In this regard, and even without the implementation of AI, we must mention that employers will be able to delegate their management rights to give instructions in the robots' software. They can deliver the instructions without there being peculiar legal issues and in application of the rights and obligations existing when the instructions are delivered directly by employers or managers in which employers have delegated those rights. From a disciplinary perspective, if the instructions for carrying out the work come from the same robot through the corresponding programming, any non-compliance by employees could also be subject to disciplinary sanctioning in the same classification of disobedience or lack of discipline in relation to the employers' instructions.
20. **Employer liability and robotics:** We should highlight that the current liability and sanctioning system concerning employers will generally not have to be modified due to the introduction of robots, as opposed to what we will see regarding AI. Employers can have administrative, contractual, civil and criminal liability in relation to employees and their use of robots. In fact, in many countries, we may already find examples of case law of accidents caused by industrial robots. The employees' main liability is contractual, particularly in relation to employers' disciplinary faculties. In any case, the mass use of robots could increase the application of administrative, civil and criminal liability of employers, which currently are relatively secondary to the labour relationship.
21. **'Equating' effects of exoskeletons and other robotic extensions:** We should highlight the progressive development and improvement of robotic mechanisms – exoskeletons and robotic extensions – that complement and increase employees' physical capacity, regardless of disabilities or physical limitations due to personal factors, such as age. These robotic mechanisms are a great opportunity to integrate these employees into the workplace, enabling them to carry out tasks or duties that, due to their physical limitations, they would not be able to do. Applying exoskeletons and robotic extensions to people with those limitations can have 'equating' effects between employees of different ages and genders in relation to tasks that require physical effort and may require certain physical traits, for example, height and weight, thus placing less (or no) importance on these items.
22. **Robotics and AI:** We will leave the legal implications of the integration and relationship between robots and AI (and vice versa) to our next section. We have already stated technical and organisational reasons for the separation of two areas that often go together and sometimes whose concepts are even confused. It is true that robotics applied to the production process and work organisation reaches its maximum legal complexity when it is integrated

with AI. However, robotics, at least the robotics we have considered in this section, has its own legal issues that are not the same or do not reach the same level of importance as those related to AI. In the same way, AI does not have to be linked to robotics and, like software programs, it has its own legal issues that are not applied (or are applied less) in the field of robotics. However, it is evident that the union between robotics and AI not only brings together their respective legal issues, but also puts them into context and generates other new issues.

C. *Key recommendations on the future regulation of work and robotics*

In view of the stated conclusions regarding robotics in labour relations, we can make a series of recommendations considering the future regulation of work. A group of them (five) is mainly directed at the state and the social actors as regulators. Another group (ten) consists of a series of practical recommendations for companies.

C.1 KEY RECOMMENDATIONS FOR REGULATORS

1. **Evaluate the negative effects of a temporary regulation of robotics or regulation that is inadequate in terms of content:** Regarding the regulation of robotics in general and of its effects on the labour market and labour relations in particular, if adopted prematurely in relation to the exact knowledge of its development or with excessive demands and obligations, it would be important to consider the negative effects that this may have on developing a technology whose implementation is and will be essential for the competitiveness of the national and international economy and, thus, for job creation. Therefore, to avoid hindering investment, research and business operative application in the production process or in relation to new activities, when legislating, it will be key to analyse the timing and content of the possible legal regulation of this technology, which will be extended to other sectors not currently affected (service and agriculture sectors).
2. **Lawmaker to prioritise incentive and promotion measures in robotics and limit hard law:** In the current and immediate stages of robot technology's rapid evolution, particularly if linked to integration with AI, it is important to favour regulatory alternatives for promoting or guiding (soft law) the agents involved over binding laws (hard law). Tax incentives, subsidies and allowances can play an important channelling role in relation to the aspects considered to be of public interest and can adequately guide private initiatives. In the labour field itself, collective bargaining should be encouraged to have a more important role, particularly at the more decentralised levels, which can supplement the robotic instructions and codes given by companies.
3. **'Penalising' measures for robotics theoretically aimed at protecting employment are not recommended:** The public authorities must be very cautious regarding contributory 'penalising' measures (eg, specific taxes and special social security contributions) relating to robots that, in theory, are aimed at protecting employment. These kinds of measures can project a negative social image of robots, as well as delaying or preventing their correct implementation, with the resulting loss in productivity and competitiveness for the economic and business system. Likewise, granting subsidies and allowances to companies to maintain

‘artificial’ (‘zombie’) employment to prevent or delay its elimination because of robotisation must be avoided.

4. **Law must clearly state the great benefits of robotics:** The law, particularly in the labour field, must help to remove any unfounded negative views in certain sectors of society about the negative effects of robotisation; they must contribute to a cultural change that states the important benefits of this kind of technology, as well as establish specific policies to counteract any possible damage of robotisation. In the short term, the aforementioned will be fundamental in relation to predictions, more or less founded but occurring regularly, about the mass destruction of employment by robots. A decisive factor will be a policy explaining the real impact of robotics on the labour market, its transformative – rather than destructive – effect, which at the same time refers to employment incentives in the new sectors arising from robotics and promotes the requalification and outplacement of employees affected by the intensive implementation of robotics in other already existing sectors.
5. **Public private collaboration is essential to protect affected employees and not ‘robotisable’ jobs:** Public policy, which must strive for maximum protection of employees affected by the implementation of robotics, but not for the protection of jobs that disappear or are modified because they are not competitive, must be the result of close collaboration with the private sector, which, in turn, must implement robotics responsibly while paying attention to the possibilities of employees’ requalification and internal and external outplacement. The transitions in the labour market between sectors and economic activities affected on and causing an impact will generate sufficient complexity to make this public–private cooperation necessary, so as to design strong measures at all levels of education, training, outplacement and social protection of the collective groups whose jobs will be eliminated or greatly altered due to this technological innovation, which must coexist with the promotion of employment in the activities arising as a result of this innovation.

C.2 KEY RECOMMENDATIONS FOR COMPANIES AND UNIONS

1. **Law, companies and unions must evaluate the legal differences between robots and other technologies:** Although by law robots are work tools and, so far, not subjects of law, as the robots acquire mobility and anthropomorphic characteristics and start to interact with employees in mixed workforce scenarios, robots will be ‘beings’ of intermediate reference, and although they will not be ‘people’ for legal effects, they will differ from traditional work tools and, compared with other technologies, have their own legal characteristics that must be considered to operate the necessary culture change at the workplace.
2. **Principles, values and labour rules must be established in a clear ‘robotics code’:** Given the complexity that we have indicated regarding the possible present and future prejudices existing about robots, which will increase in a society to which the employees belong, we should consider that, from the start, the relationship between robots and employees in a company must be based on principles, values and rules that must preferably be laid down in what we could call a ‘robotics code’, so as to provide clarification and legal certainty. The company must determine whether that code, which must be easy to understand, regularly

updated and easily accessible for employees, should be the result of a prior regulation in the collective bargaining agreement and whether it must include principles and values that the company has introduced into generic instructions or in its code of ethics or conduct (CSR).

- 3. The implementation of robotics must avoid discriminatory effects, particularly indirect ones, on the workforce:** In the process of the intensive implementation of robots at the workplace, there may be a tendency to carry out a ‘technological’ selection of the employees who will interact with robots, probably prioritising those that have greater promotion and professional development possibilities. The company must be aware that there must not be direct or indirect discrimination in that selection, particularly when there are factors relating to gender, race or age involved. Even when that selection is based on strictly technical or functional criteria, the company must consider whether there is a disproportionate impact on certain groups, which could be interpreted as indirect discrimination if there is no clear functional justification.
- 4. Intensive robotisation generates opportunities for professional promotion and improvements in working conditions, to be highlighted by the company and unions:** Another perception that employees may have of robotics and that the company and unions must deal with is the negative implications that robotisation can have for working conditions, such as working hours, greater intensity of shifts and night work or higher levels of work stress due to the increased demands regarding performance and productivity. It is clear that robotisation will generally lead to substantial changes in working conditions, but this does not have to be interpreted as ‘worse’ working conditions, rather the opposite. The obligation to have consultation periods with unions’ representatives, together with the corresponding information and documentation duties, must help to make it clear to employees that there are usually more possibilities and alternatives, so the benefits arising from robotisation for such conditions could be greater than the possible damages.
- 5. Intensive robotics implementation takes the technical reason as the legal justification for reorganisation to a higher level and requires its appropriate identification:** It is important to consider that, although the labour laws in many countries have included a technical reason as a legal basis for substantial modifications of working conditions or dismissals, it is actually the reason less claimed by companies (compared, for instance, to an economic reason), meaning there is generally less case law on this matter. Therefore, if the implementation of robotics is linked to a reason for reorganisation, it is advisable for companies to justify in detail why and to what extent there will be consequences for employees, above all for later negotiations with unions. Also, the technical reason is complex, since it is not the same in the case of a worker’s failure to adapt to a new technology, as in the case of the need to streamline part of the workforce.
- 6. The audiovisual media integrated into robots must be legally defined regarding interaction with employees:** One of the main challenges facing companies in the relationship between robots and employees is that robots, which are increasingly more equipped with audiovisual media, are constantly recording images and sounds in the workplace. This must be regulated, not only in the data protection laws (robots equipped with this media are constantly extracting personal data), but also regarding management rights to use those robotised audiovisual media as a means of supervising the work, surveillance and safety of workers and assets.

The important thing is that this characteristic of robots as permanent recorders of personal data, which does not occur with such intensity in other work tools, means the relationship between robots and employees must be regulated specifically from the perspective of the limits of employers' right to control activities at the workplace.

- 7. More than other technology, the intensification of robotics calls for companies and unions in the future to have a stronger obligation to legally assess the labour risks to curtail possible prejudices against its implementation:** This perception must be clarified immediately to avoid a negative evaluation by employees of mass robotisation in terms of possible implications, if any, from the perspective of labour risks. Certainly, this perception has developed and can develop for other automation processes, but we should not underestimate that, particularly due to the partial or total mobility of robots, the prejudices and apprehension regarding their risks, even without a scientific base, tend to be more significant. Therefore, before and during an intensive robotics implementation in mixed workplaces, it is important to develop a clear legal identification of the risks and corresponding preventive measures, as well as an adequate explanation of the outstanding advances made in the area of robotics safety at work, which, in recent years, have made it possible to change the idea of the 'robotics confined area' isolated from the staff to one of coexistence and interaction between robots and people. More than ever, in the future all the work accident prevention plans that could be affected directly or indirectly by implementing robotics must be redefined, updated and explained as a clear expression of the company's renewed commitment to employees' health in the new context.
- 8. Robotics and collective labour rights are not incompatible, but they must be adapted:** In this panorama of existing prejudices that law, companies and unions must deal with in relation to the intensive implementation of robots, it is evident that the effects on collective rights will have a serious impact on the wellbeing of employees and the role of their representatives. Thus, if accompanied with a significant reduction of employees, intensive robotisation can have a serious impact on representation rights (fewer representatives) and the right to strike (limited efficiency of the 'harm' caused to the company by this action of pressure). To avoid employees' representatives, union representatives and the employees themselves radically opposing the implementation of robotisation, companies should: (1) establish alternative and appropriate channels to enable the representation to be carried out by other means, probably separate from the quantitative element of the workforce; or (2) as an alternative to a strike limited in its efficiency as an action of pressure, develop conflict resolution methods, such as mediation and arbitration – arbitration has been used as an alternative in groups that do not have the right to strike – that are agile and effective, thus substantially reducing the need to resort to striking.
- 9. Robotics is a very powerful tool for reducing disabilities and increasing capabilities at work:** We must consider that implementing robotics can lead to equalising employees in the case of disabilities and physical agility or force. Using exoskeletons and robotic extensions ('cobots'), groups that previously were excluded from or limited in the performance of certain tasks due to their requirements, usually related to physical effort, can be integrated to carry out these tasks. Regardless of the legal obligations that may develop in this area, the possibilities of integrating those groups and giving them greater professional capacity through the implementation of robotics must be considered from a CSR perspective.

10. Importance of reviewing the labour legal effects of the continuous technical upgrading of robots, particularly concerning their integration with AI: Regarding the intensive implementation of robotics and the evaluation of the legal consequences for employees, we must consider that there will be a regular and dynamic process for constantly upgrading and improving robots technically, including their progressive integration with AI. This means the legal rules developed for this in the aforementioned company robotics code or in the regulation of collective agreements must be sufficiently flexible to adapt to this evolution, particularly when this could mean, as is the case of the incorporation of AI, qualitative changes, not only quantitative ones, in the worker–robot relationship.

V. THE IMPACT OF AI ON THE REGULATORY FRAMEWORK OF EMPLOYMENT AND

LABOUR RELATIONS

A. Introduction

The extensive implementation of AI in a company represents a qualitative techno-organisational leap with multiple legal consequences for HR and labour regulations. AI is the most disruptive of the new technologies and it has profound legal effects in companies that opt to place it at the operational centre (and not only as an ‘accidental tool’) of all or the main production processes and of their workers’ main functions and tasks. Companies and unions must prepare themselves for what may be foreseeable in relation to those effects and, more importantly, establish protocols and rules to follow when less foreseeable or unexpected effects arise.

To be more specific, the main cause of the disruption that AI represents in the legal framework of the organisation of work in general and labour relations in particular is its potential to adopt autonomous and predictive decisions, without or in collaboration with people. If AI can adopt autonomous decisions in the company’s processes, the essential difference from other technologies, marking its legal and administrative differential, is that it can conduct automated and innovative processes when adopting decisions, without these being programmed in advance.

This autonomy is combined with its predictive capacity, which, if applied to HR management, would entail that the key decisions concerning people – such as selection, promotion and remuneration – may be based on probabilities of future developments. That capacity can risk the reproduction of homogeneous models potentially contrary to innovation and diversity.

None of the new forms of organisation or work performance deriving from the extensive implementation of AI in a company can be put into practice unless through a profound cultural change in the workforce. The basic pillar of that cultural change should be the confidence generated through a transparent discourse by the company combining two main elements: on the one hand, a certain sense of urgency that encourages people to mobilise around that profound change and, on the other (and most importantly), a constructive and positive vision of the future that AI provides for the organisation. In the decision to adopt AI and in its establishment, and based on the enormous technical complexity of it and the current level of social ignorance in this regard, companies and unions must develop, in relation to workers, the maximum transparency and information about that technology, not only to

address its role in the organisation, but also to accentuate its great benefits and identify the measures adopted to limit or eliminate its possible negative effects.

On the other hand, involving the whole society, the relationship between AI and ethics is a debate in full development at political, social, philosophical and business levels and raises the need to align the AI systems adopted by companies to the codes of good business practice of each of the organisations and, more generally, to the values and principles that underpin modern legal systems. Specifically, in the context of business ethics, progress in AI has brought considerations including the level of control organisations can exercise or retain in their decision-making processes and how to ensure that the AI systems they adopt are fully in line with the organisation's core values.

AI presents those and many more challenges and will have a definite impact on many legal issues related to its application to work organisation and employees' activities, some of which we will now discuss.

B. Conclusions regarding the impact of AI on the regulatory framework of employment and labour relations

- 1. On the concept and centrality of AI in business organisation:** The legal concept of AI is multifunctional and variable, meaning it may fall under a broad or restrictive interpretation, depending on whether the AI systems only respond to the orders pre-programmed by the manufacturer or are equipped with an autonomous learning capacity, in which case they can make labour decisions in view of situations for which they have not been programmed. In this report, AI is defined as the capacity of a machine or software to carry out business processes usually conducted by humans, by analysing the data collected in its interaction with the environment and with workers and through its capacity for learning. We consider that this definition underscores the most important developments of the impact of AI on labour regulations and, more specifically, their expansive nature and the centrality that AI will gradually represent in the organisation. The point is that, although AI may be initially used in auxiliary or limited activities, its application in the company, whether due to its effects on central labour relations institutions or the number of workers affected, will likely occupy a position of centrality in the organisation, which makes it necessary to analyse the legal problems from a perspective of maximum organisational and productive relevance, and not one of marginality.
- 2. Legal framework and AI:** At a regulatory level, and even in a more acute way than in the case of robotics, the current debate focuses on determining when the rules regulating AI must be drawn up and their level of regulatory intensity and binding legal effectiveness. Timing is particularly important in the EU debate, which revolves around the fact that a regulation adopted too soon not only runs the risk of being inadequate with respect to the evolving realities of AI, but also that, due to its inadequacy, it may considerably hinder this evolution. However, unlike what happened in the areas of robotics and the IoT, it is noteworthy that AI already presents multiple areas in which there may be an impact on fundamental rights of people and on the economic and social system (eg, data protection, conditions and liabilities of autonomous and semi-autonomous vehicles and limitations to Fintech). For this reason, the notion that a regulation that is adopted too soon runs the risk of being inadequate and

hindering evolution appears not fully adequate compared with the rapid evolution and social impact of certain areas of AI.

- 3. AI and the constitutional framework:** Given the lack of a specific regulation of AI in most countries, the most important law regarding employees' rights will come from the constitution or similar supreme norm. Thus, there will be fundamental/human rights that may not be employment-related, but are fundamental for people, which may be affected by AI implementation processes at the workplace. This is the case of the right to privacy and the right to life and physical integrity – in relation to occupational hazards – and even in the case of freedom of ideas in relation to the possible objections workers may have to dealing and interacting with AI in the workplace, at least with certain types of AI. Naturally, the right not to be discriminated against could also be affected, directly or indirectly, which, in relation to AI, could appear in different forms, ranging from age discrimination concerning the preparation for interacting with AI, to the algorithms on which AI is based, which could entail discriminatory preconceptions.

From the perspective of labour rights, we may see how the right to strike, to collective bargaining and to trade union freedom could be greatly affected by the central implementation of AI at the workplace. In some cases, this impact may be negative, by making strikes less effective or reducing the subjective scope of coverage or affiliation to collective bargaining or trade unions. However, we will see that those rights may also benefit from the application of AI, as a cooperative tool, as in the case of the collective bargaining process or labour conflict resolution mechanisms, such as mediation and arbitration.

- 4. On the regulating role of collective bargaining:** As we mentioned, state regulation must play a leading role when it comes to regulating certain aspects of the organisational implementation of AI due to the effects it already has on the fundamental rights of people, as well as on the economic and social systems, so that, unlike what happened with other technologies (particularly robotics and the IoT), collective bargaining can occupy a more subordinated place in those aspects of mandatory law. However, collective bargaining, mainly developed at a company level, must play an essential role when it comes to eliminating any possible resistance to implementing AI, thus strengthening employees' information rights in the company and establishing basic labour conditions, such as working hours, professional classification and remuneration, which may be seriously affected by AI.
- 5. AI and CSR:** Likewise, the intensive process of introducing AI and workers' interaction with these programs to work organisation may affect CSR principles. Therefore, in addition to other principles and values, aspects such as ongoing training, professional and talent promotion, diversity and employability, socially responsible implementation of AI, working hours and work–life balance, and the prevention of occupational risks must be considered or reviewed from the CSR perspective in relation to business codes, whether general or specific to AI. Moreover, there is currently a general concern as to how it is possible to transfer the principles and values of rules and companies' codes of ethics and conduct to AI devices. This may generate management and control issues, as it is not only a matter of transferring to AI those principles and values initially, but making sure there is some sort of control over the influence that the interaction with the workers or with customers (regular 'feeders' of AI) has

on those principles and values at a later stage. For this reason, it is important that warnings are installed in AI programs advising of possible maladjustments or dysfunctions with those principles and values during their subsequent development.

6. **AI and legal framework on employment:** From the labour market perspective, the introduction of AI as a central aspect in labour activity has an impact in three areas related to employment. First, in recruitment, given algorithms' capacity to transform data on the characteristics of candidates – for example, their academic training and their answers in tests – into predictions on their future performance in the job. However, the use of AI in the selection process may affect: (1) the right to personal data protection, which will usually prohibit, with certain exceptions, 'a decision based solely on automated processing'; and (2) the prohibition of discrimination, insofar as hiring decisions based on algorithms can act as a platform to reproduce and extend discriminatory biases and prejudices inherent to human nature. AI will allow the selection process to be quicker and more objective and effective, giving it greater guarantees for the purposes of making illegal treatment more difficult and releasing the employer, to a higher degree, from possible liabilities derived from discriminatory treatment. However, there is also a danger that discriminatory biases may be generated in the AI device as it evolves and 'learns'. Second, and as in robotics (albeit in a more subtle way), the potential negative consequences derived from introducing AI in companies on a mass scale raises the question as to whether, in view of the progress in AI, the law should protect workers and promote human recruitment. It is clear that AI represents a systemic and global disruption that will make it necessary to adopt measures to benefit groups with special labour market integration difficulties. Therefore, we must highlight the risk of exclusion from the labour market that AI may pose for certain labour groups, particularly those who, due to their age or qualification, cannot be classified as 'digital natives'. We can conclude that it is not legally possible or even advisable to limit directly employers' right to decide on incorporating AI in the production process, even if this may negatively affect employment in certain companies, at least in the short term. However, the regulations on employment policy must play a role in organising and promoting the employability of workers most susceptible to suffering from the negative impact on their work prospects. It seems AI devices may have an effect of replacing people with programs in the short to medium term, particularly when AI becomes a central element of the organisation. For this reason, and although we remain wary in this regard, the debate about the need for measures such as applying a quota system or the obligation to pay contributions for AI systems incorporated in the company are being (and will be) raised in most countries. However, in the medium and long term, those protective measures, as we have already pointed out regarding robotics, will surely have negative effects, even in employment that, considering only the short future, is currently to be protected with these measures. That is why the obligations that labour market regulations may introduce as a result of AI development must focus closely, and without excluding some kind of additional unemployment benefits, on the training aspect, so that workers can acquire the new skills required in the workplace and, at the same time, neutralise any negative effects that this technology may have, promoting the redeployment of affected workers to different tasks. Moreover, we must conclude that the expansion of AI will lead to an increase in autonomous work, adopting different forms (one area will be the collaborative or gig economy, as we

can already see), as well as a necessary diversification in employment contract modalities. Therefore, temporary and part-time contracts, with the necessary guarantees and protection required, must continue to be present in labour regulations.

7. Right to (and duty of) training in AI skills: According to the preceding paragraph, we have to point out that this technology clearly evidences the need for ongoing professional training to be not only a right, as adequately provided in many countries, but also an obligation, the breach of which should be subject to serious penalties, both for the worker and employer. This means we should consider it a right as well as a duty to be trained to work with AI devices. Regarding this duty, as AI allows training to be integrated into work programming, ongoing training will mainly be carried out through AI devices, such as a chatbox, leading to the reconsideration of how that new reality would tie in with the present regulation on paid leave or adapted working hours for training purposes. Ongoing training will also be necessary for workers to be able to communicate with AI devices so that they (as well as the device's reaction) are understood. Also, it is necessary for the training to be ongoing and permanent because AI evolves at such a fast pace that any initial training received on how it functions may become obsolete before long. Furthermore, the characteristic of AI devices once initiated by the employer is that they behave differently in accordance with what their main interacting parties 'feed' them, so workers must have clear rules to ensure their interaction is aligned with law and the company's principles and values.

8. Discrimination and implementation of AI: With regard to the right not to be discriminated against at work due to AI, it must be highlighted that AI devices can provide greater control over discrimination because they can limit instances of discrimination considered 'indirect', which are more difficult to identify by the traditional ('human' and many times subjective) criteria applied to date. However, as people program AI devices, they can also act as a platform to reproduce and extend discriminatory biases and prejudices inherent to human nature. Among other aspects, implementing AI devices can cause an uneven impact on the workforce, resulting in certain groups of workers being indirectly discriminated against (eg, based on age and gender).

As well as causing new discriminatory conducts – an issue that also arises with robotics – the new development that AI presents is that, owing to its self-learning capacity, the employer will be responsible for ensuring the device does not learn or acquire discriminatory conduct through its relation with the 'feeders', be they employees, customers, providers or the internet. In relation to the predictive analytics applied to areas such as selection or promotion, we have to point out the need to avoid it being a basis for decisions leaning towards the homogenisation of and lack of diversity in the workforce, as those predictions are based on past and current conditions and reproduce current 'success' models that may not be adaptable to future circumstances.

9. IP and AI: With the implementation of AI, and since we are talking about another kind of 'intelligence' at the workplace, IP rights employers vis-à-vis employees acquire greater qualitative and quantitative importance as they become more intensive and extensive. Therefore, the attribution of IP rights will appear problematic, particularly when: (1) the improvements in the production process are the result of the cognitive evolution of AI; and

(2) a creation is produced through interaction with workers. In the first scenario, we should conclude that, in theory, an AI device cannot benefit from the protection granted by IP; rather, the party who has control over that device must hold the status of author. EU legislation is clear, as it requires that the author must be human for copyright protection to be granted, and the works must arise from the author's 'freedom to create', considering that the products generated by computers and software do not have that freedom. As regards regulations in most countries, when workers who create computer programs do so in the exercise of their functions, the IP rights will belong to the employer, even if some compensation can be granted to the 'creator'. Therefore, and in relation to AI, if that program generates creations on its own, we could consider either that, theoretically, the only possible author is the device, as its creations have not involved any human intervention, or that the creations attribute copyright to their creator, meaning what has been created by AI software could also be attributed to the creator of the device. From a comparative analysis (particularly taking British and EU regulations into account), we must conclude that an AI system's creations should be attributed to the person who made the adjustments required for the program to create, so the business owner would be the rights holder, insofar as the program has been created in the exercise of the worker's functions and following the company's instructions. In the second scenario, in most countries, neither the regulations nor case law currently contain criteria applicable to determine what happens with creations that do not arise from the device but from its interaction with the worker. Therefore, an effort must be made in the future to adapt the relevant law, as well as to undertake a profound review of the IP clauses in force in companies, taking into consideration the evolutionary character of AI's interaction with workers.

10. **Standard employment contractual covenants and AI:** The central implementation of AI in companies may intensify the need to regulate certain employment contractual covenants envisaged in many countries, such as minimum term at the company, full commitment or exclusivity and post-contractual non-competition. Introducing AI in the 'core' functioning of companies increases the potential damage that they may suffer if a worker reveals aspects of the know-how related to AI. Permanent contacts with workers and AI systems allow the company's know-how, considered as its principles, values and culture, to be more frequent and broadly accessible. This entails the need to review essential aspects of the law to make those duties and covenants related to the genuine know-how of a company more effective. For example, it will be necessary to redefine and extend the concept of employers' 'industrial interest', granting those clauses to give a broader justification to cases of disclosure of information or of incompatibility of work related to the interaction of workers with AI. Another implication resulting from the appearance of AI with respect to standard covenants is that, to be effective, their content must be individualised according to the circumstances and functions of each employee or group of employees, rather than standardised. The question also arises as to whether the maximum term of the covenants, which is one or two years in many countries, will be sufficient to avoid or effectively limit potential damage. Therefore, the minimum-term and full-commitment covenants may appear more frequently in employment contracts as a result of the greater investment companies must make to provide their workers with AI training, and it will be necessary to determine how satisfactory the traditional limitations and requirements for having those clauses applied to date will be in this context.

As companies will train their workers in the specific functioning of their AI systems, workers will acquire knowledge on how AI works and on these companies' specific operational aspects. This may lead to companies preferring that their workers only interact with their own AI. Also, non-competition covenants applicable on terminating the employment relationship are likely to increase when AI systems are introduced in the labour market, in which case, considering the characteristics of AI (which make it difficult for there to be two identical AI systems or software in two different organisations), an effort will be required to redefine the scope of the company's 'industrial interest' legally granting those clauses. Besides those covenants, with respect to the legal prohibition of unfair competition by employees during the contract, a traditional consequence of the contractual duty of good faith, it may become more relevant with AI, either because the company produces AI devices and must keep its production process confidential or because the company is a pioneer in using those devices, giving it an advantage in the market, which could be impaired as a result of its own workers using its techniques in rival companies or for their own activities.

11. Data protection and implementation of AI: From the data protection viewpoint, we must reiterate, as in the case of the IoT, that AI and DPL are almost always in a path of permanent collision. After all, as in the case of the IoT, but even more so, AI 'lives' off data, which is its very 'blood', and this is a point that is clearly at odds with most DLP principles. To take a recent and relevant example, the GDPR introduces a series of business obligations, the fulfillment of which must be assessed and programmed due to the quantitative and qualitative leaps and bounds taking place as a result of applying AI devices to the production process, labour activity and, particularly, workers. At the same time, it is noteworthy that the essential principles of DPL may be at odds with the faculties usually derived from management's rights. In particular, a business decision to implement AI intensively in work organisation and its interaction with workers may challenge that regulatory framework on data protection for several reasons:

- The principle of 'data minimisation', which entails that excessive data cannot be compiled, only the minimum amount required for the purpose for which it is collected, clashes with the very logic behind AI, as it is based precisely on the analysis of massive amounts of data and the intrinsically expansive character of AI, without which we would be unable to extract the knowledge enabling us to uncover (previously) hidden facts and make more accurate staff-related decisions. AI is based on a continuous evolution fuelled by the introduction of new data, necessary for it to work, which explains the importance of determining the data employers need for their workers to enter into a contract – data for which workers' consent is not required – and which is superfluous.
- The principle of 'limitation of the purpose' is a challenge, as over time AI may well reuse data collected for an initial purpose for a different purpose. This purpose of processing is seldom known in advance, while the GDPR establishes that personal data must be collected with certain explicit and legitimate purposes and not be subsequently processed in a manner incompatible with those purposes. This could very well hamper some working methods being

developed, such as agile methodologies, which require continuously modifying the purpose of data collection and its availability.

- Also, as AI is based on the collection, storage and management of large masses of data for a period that tends to be undetermined, it raises problems regarding the breach of the principle of quality and the periods of data conservation.
- With AI, data anonymisation (now called ‘pseudonymisation’) presents limitations from a dual perspective. First, as a measure to ensure privacy during the processing of data, because it is simpler to re-identify individuals: by increasing the quality and diversity of the information, the re-identification of workers is easier, even after having been anonymised. Second, from the organisational viewpoint, the extraction of information resulting in more accurate and efficient decisions on HR is driven precisely by collecting ‘personified’ data, thus limiting the use of AI if it is not possible to identify the worker behind the pseudonymised data.
- Additionally, AI facilitates making the technical possibility of ‘automatic decision-making’ more viable, which means major decisions in the labour relationship, such as promotions or dismissals, may be subject, at least in theory, to automated processes. The problem arises when the data analysed by means of the base algorithms of those processes is not accurate or true, but the workers do not have incentives to correct it because they are not aware it is being used to make decisions that affect them. Consequently, as that possible lack of information would considerably hinder the exercise of the rights of access, rectification, cancellation and opposition in the workplace, companies must strengthen these rights.
- A consequence of the legal complexity that implementing AI causes managers and interested parties is that it becomes more necessary to institutionalise the figure of a company-neutral ‘adviser’ with specialist knowledge who would provide support and assistance when workers wish to exercise those rights. This is the figure of the data protection officer, introduced under the GDPR. This figure presents two issues for our purposes. First, given the expansive character of AI, its extensive implementation in a company may entail the added requirement that, besides being a data protection specialist, the adviser must also be specialised in AI. Moreover, the fact that the company has AI systems that are in continuous evolution and always require new data that may require the data protection officer’s permanent presence, rather than only in initial stages, is now considered in most cases by the GDPR.

12. Right to privacy and audiovisual means integrated in AI systems: As in robotics, but even more so, implementing AI systems in the production process can entail a process of continuous machine-human intercommunication with significant legal implications. This is accentuated by the fact that, to increase their functions or performance, AI devices can be

equipped with audiovisual means, allowing the company to record images and conversations of workers constantly.

The capture of images with AI systems must comply with: (1) the criteria established by courts in most countries for recording and using surveillance cameras in work centres and; (2) the DPL, since these images are personal data. In the case of AI devices that incorporate microphones or sound-recording systems, there are several fundamental rights that may be particularly affected, which is why, in most countries, courts take a particularly cautious approach to them, given that there is a greater risk of infringing these rights through listening systems than by means of image capture. The courts consider that recording is justified if its purpose is to monitor correct work performance or improvement and personal comments are not recorded. The capture of biometric data by means of AI systems, such as facial recognition or eye scanning, is tightly protected data under the GDPR. The fact that this data is tightly protected (being sensitive data) imposes the obligation to obtain the express written consent of the affected party. If this consent is not obtained, the data may be captured if its purpose is of general interest or provided by law. The reason for this is that biometric data can reveal sensitive data of the worker (eg, ethnic origin and race).

13. **The impact of AI systems on working hours:** AI can achieve much greater efficiency when managing new working methods and, consequently, the legal provisions on work performance, which have become increasingly complex, making management of these methods and performance more complicated. Aside from other benefits regarding professional upgrading, AI fosters a more efficient management of working hours, ensuring greater clarity for the purposes of legal limits in the irregular distribution of the working day and in flexible working hours and enabling a better work–family balance. This is particularly applicable to part-time contracts, given the difficulty in managing that partial commitment, particularly where development and overtime are involved. Currently, the institution of set working hours is undergoing significant changes. There is a tendency towards reducing working hours, particularly in certain sectors, which, in turn, is frequently combined with an irregular distribution of working hours. In view of this flexibility in working time, the big challenge is to ascertain how effective working hours can be accurately calculated in weekly, monthly or annual terms, as discussed in the present extensive debate on the legal control of working hours. This difficulty is reflected when it comes to combining working hours with a satisfactory work–family balance. This difficulty increases when the traditional working hours/workplace binomial is broken because of digital connection and teleworking, an option that will be increasingly fostered as AI develops. The issue here is how AI influences all the changes that are occurring in relation to working hours. Beyond AI, potentially resulting in a decrease in working hours, on which there is still no scientific evidence, what seems clear is that software does not need to rest, as it can be active 24 hours a day and is accessible from any location, without employees who work with AI software having to work specific hours in a specific place. This change of configuration could affect workers' rest because, if they are not confined to a specific schedule and their workspace is not separated from their private space, they would not have a set rest time between working days or at weekends. With respect to monitoring the fulfillment of working hours, we may conclude that AI can contribute to a simpler and more rational management of working hours, as all labour activity will pass through the AI

systems, which will become the company's central 'supervisor' for these purposes. AI software is capable of calculating the hours required to carry out a specific project, a calculation that can serve both the employer, to ensure the worker's hours are correct, and workers, enabling them to organise themselves in a flexi-time framework and to account for the hours classified as overtime. This tendency towards greater 'dissolution' of the traditional limits of (mainly daily) working hours, which began with the widespread use of the internet and smartphones, and which AI has accentuated, is easily applicable to the workplace as a 'geographical' legal reference, as we consider that AI will reinforce the tendency towards the rupture of the physical work centre as a predominant place of supply of services. Therefore, workers are increasingly likely to be able to work from any location, making AI move closer towards becoming the universal 'workplace'. Wherever there is connectivity and a smartphone will be a suitable place to perform even the most collectivised or complex tasks by means of AI, without prejudice to the fact that, as the evolution of teleworking shows, companies may consider regular physical contact between their workers necessary as a way to highlight certain organisational advantages of personal contact. In any case, we underline that the extensive organisational application of AI will open new channels to strengthen the work-family balance, in a way that, if the so-called right to disconnect is properly established, the desired balance in this regard can be effectively achieved.

14. **AI and professional classification:** Although, amid the uncertainty in this regard, it is not envisaged that the predominant upshot of AI, at least in the medium term, will be the massive replacement of workers, their functions are expected to change substantially, along with their professional classification. Functions directed at routine and bureaucratic tasks may gradually disappear due to AI devices' high storage and data-processing capacity. In return, the demand for resource training, maintenance and technical monitoring functions may increase. Therefore, it is foreseeable that present tasks, functions, professional specialisms or responsibilities assigned to workers will undergo considerable changes with the extensive and widespread use of AI as a work organisation tool. Thus, it will be necessary to consider whether the professional classification system contemplated by law and collective agreements in many countries will still be valid, insofar as the current professional groups may disappear or become confused or limited, given that working with tools that incorporate AI may generate new tasks and, particularly, a greater and structural functional versatility, in the sense that workers will not perform one function alone, as all of these functions, or the vast majority, will be partially carried out by the company's AI systems. This may give rise to contradictory effects, resulting in workers' de-professionalisation or super-specialisation as AI devices assume the most basic or routine functions. Therefore, the main tasks left to the staff would be supervision and decision-making, which would make most workers become managers. In conclusion, regarding professional classification, we must ask ourselves whether our current definition of professional group will still be valid when, with the extensive implementation of AI, along with a profound redefinition of tasks, functions and specialisms, we are working towards greater functional versatility or mainstreaming.
15. **AI and remuneration:** As well as facilitating the management of working hours and functions, AI can be an effective tool for the management of another essential labour condition, namely remuneration, which is acquiring greater complexity in content and structure. This will permit

greater transparency of the remuneration system, enabling the efficient and legally clearer and non-discriminatory management of the salary structure, particularly with respect to variable add-ons. One noteworthy benefit of AI associated with the remuneration system, as we have seen, is the closer control of working hours that AI permits, thus promoting the setting of results-based remuneration. In effect, the value of the workers' results could be measured by an AI device that, in turn, would help with the task assigned to the worker. Intelligent software will be capable of measuring the time invested in the project and comparing it with the time that the project would have required if it had been carried out in the most efficient way possible. Information could also be provided on workers' conduct, their relation with the device and other workers (and, therefore, their level of contribution to the project) and the reaction speed when faced with problems raised. This information would be available to the employer, who would be responsible for setting the remuneration. Therefore, AI permits a greater salary diversification. At the same time, as AI will facilitate work comparisons, it will be very useful to avoid discrimination, particularly indirect gender discrimination, helping to reduce the difficulties in tackling the gender wage gap.

16. **AI and its possible beneficial impact on amending working conditions processes:** One of the most controversial and yet significant subjects in the employment law of many countries refers to the distinction between material and incidental amendments of working conditions by employers. The latter are included within management's faculties – not requiring causation or proceduralisation to make changes – while the former must usually comply with complex procedures of consultation and be based on some sort of legal justification. Therefore, in a similar sense to the case of IoT, we could conclude that the intensive organisational use of AI in the company makes it possible to quantify more accurately the notion of 'material' amendment of working conditions, distinguishing them from merely incidental amendments, particularly in relation to working hours, functions and remuneration, enabling companies to act with greater legal certainty when introducing necessary and regular changes in work performance or organisation. At the same time, AI raises the issue as to whether a more precise material amendment of the working conditions would be possible, in the sense of being able to pre-program the causes and the substance of the procedure by collective agreement, without the need to strictly apply in all coming circumstances the complex procedure specified by law, which justifies companies' right to have the maximum knowledge on work performance.
17. **Performance, productivity and AI:** Regarding the performance required from workers, if we take AI's full performance of its functions as a basis, it is to be expected that in a partially automated workforce it will be necessary to redefine performance and productivity levels, particularly if there are shared, complementary or similar tasks between workers and AI. Also, as we can see with the IoT, it can facilitate an unprecedented parametrisation of labour activity, giving greater precision to fundamental labour regulations for companies' competitiveness and productivity, which, due to their current lack of determination, cause frequent conflicts of interpretation and application. Indeed, AI applied to work organisation and the production process obtains more accurate measurements and subsequent analysis of activity, as well as specific worker performance, making each worker's individual contribution to that productivity more quantifiable. This makes AI an unprecedented determination channel of such vital references for the employment relationship, such as performance or productivity.

This particularly applies to collective bargaining or, in its absence or as a complement, the employment contract itself, which plays a fundamental role here for the precision of those elements based on the data provided by the AI application in work organisation and the production process.

18. **AI, promotion and the impact of predictive analytics:** One of the greatest benefits of AI for companies is that it can carry out predictive analytics on workers' professional and personal data, a technique that, applied to HR, involves analysing current and historical data to make predictions on possible staff evolution. Aside from the issues regarding privacy and data protection associated with predictive programs, the main legal problem raised is that the software could make incorrect predictions, potentially resulting in control and investigation issues and, in an extreme case, decisions that are incorrect, inaccurate or even discriminatory. More specifically, in the workplace, these systems of predictive software will make it possible for promotions and other decisions (or wage rises) to take place taking into account workers' future performance based on their historical results and successes in the company. The employer is mostly free to promote workers in terms of position or salary, provided these decisions are not discriminatory, so the predictive software must be adjusted to criteria and systems that seek to guarantee a total lack of discrimination, whether direct or indirect. As additional limits, promotions within the professional classification system must take place in accordance with the provisions of the applicable collective agreement and taking into account the workers' training, accomplishments and seniority. In any case, we have already pointed out that, at least currently, one negative aspect of predictive analytics is that they reproduce parameters that may have or have had positive results in the present or past, but that will not necessarily continue to do so in the future given new circumstances that are difficult to predict (precisely).

This may spiral if it triggers, due to selection or promotion decisions based on those predictions, an inertia to reproduce homogenising continuity in workforce's or executive staff's characteristics based on previous or current criteria that goes against the promotion of adequate future diversity.

19. **AI, medical privacy and prevention of occupational risks:** From the viewpoint of the prevention of occupational risks, the features of AI may entail new psychological risks or mental stress because one form of action of intelligent devices involves their capacity to analyse workers' conduct constantly (24 hours a day, seven days a week). This capacity can incur the risk of workers adapting their conduct to the device's action, generating behaviours of technological alienation or dependence that may affect workers professionally and personally. The greater intensity of work (working with a machine that becomes progressively more intelligent than the worker, generating a sort of constant challenge) can also lead to psychosocial disorders. At the same time, paradoxically, AI can itself be used as a mechanism to avoid risks and reduce conditions such as work stress or excessive workload, due to its capacity to analyse large amounts of data and extract conclusions and its predictive capacity which allows it to construct personalised future risk profiles for each worker based on their medical history in the company. Moreover, AI's capacity as a more powerful health management mechanism, capable of personalising each worker's health status, means we must

consider to what extent the introduction of these systems may lead to the internalisation of health issues in the company, complementing the tasks external entities currently perform (eg, determining health statuses and granting sick leave).

- 20. Outsourcing, subcontracting and AI:** From the perspective of business insourcing/outsourcing and with most of our comments being applicable when dealing with robotics and the IoT, in the interaction between AI and the subcontracting system, it is reasonable to expect a greater need for cooperation between companies and between companies and specialised self-employed workers. In this regard, it will be necessary to take into account the ‘workplace’ in which subcontracted workers will provide services. Therefore, if the subcontracting relation between two companies is merely based on the connection of AI systems – without an effective provision of services by workers at the ‘physical’ location of the company – we could be dealing with a sale and purchase or commercial lease of software, which does not generally involve subcontracting workers in a labour law meaning. Therefore, introducing AI may reduce the need to subcontract and increase service provision agreements, as AI will favour remote cooperation between companies. This is the case if we assume that AI does not necessarily require there to be a common physical workplace, as the workplace is located precisely in the AI. AI experts that render services in the main company’s physical location being contracted as self-employed workers is a different matter, in which case, the case law criteria on decentralisation of the production activity acquires special significance.
- 21. Subrogation (TUPE) of companies and AI:** Regarding this vital corporate aspect, we must mention that, assuming AI may be fundamental in more and more cases due to its centrality or predominance for the development of companies’ production activity, transferring this activity in the framework of business succession could raise two essential legal issues in many countries. On the one hand, a practical problem: if there are workers in the assigning company who are heavily linked to AI, the possibility of transferring only the AI systems could be very difficult, insofar as the assignee company could not operate the AI systems without the help of the assignor’s specialist workers and so it would be necessary to also transfer these workers. On the other hand, regarding the existence (or not) of the phenomenon of subrogation, the question is raised as to whether the simple transfer of the AI system of the assignor to the assignee may be considered a transfer of an ‘economic entity’ when no other assets are involved, whether tangible or intangible, or, conversely, whether the absence of transfer of the AI – when this is fundamental for the assignor’s development of the production activity and will be so for the assignee – can determine that there is no business succession. In theory, it seems clear that if the assignor has a high level of automation and the AI software occupies a central position in the company, its presence (or absence) can determine that there is (or not) a company succession. In all cases, it will be key to determine on a case-by-case basis how AI software influences the determination of the existence of an ‘economic entity’. Moreover, one corollary to be considered is what will happen when the assigning company, even if the AI is transferred, has no interest, due to its levels of specialisation and knowledge, in transferring workers linked to it up until then. In theory, and in most European countries, the transfer of workers is compulsory for employees when there is a clear situation of transfer of undertaking, but one possible outcome is that the transferor may refuse to

carry out that transfer because of the negative implications for the know-how of the company. Under most current regulations, it will be difficult for the assigning company to avoid this scenario if the workers express their resolute desire to be transferred.

- 22. ‘Group of companies’ and AI:** As is known, the extension of labour liabilities among the companies of a corporate group of companies or to the group as a whole takes place by application of a well-founded thesis created by case law, according to which, and assuming the lawfulness of the legal figure of a ‘corporate group of companies’ and the separate liability of the companies that comprise it, the presence of a ‘pathological’ element in addition to the existence of the corporate group as such is necessary to admit its labour significance as a censurable entity, that is to say, in which all the companies may be liable from a legal perspective regardless of which is formally the employer. In this regard, we may indicate that the implementation of AI, in relation to the companies of the corporate group, will tend to be unitary, in the sense that those companies, at least those dedicated to similar activities, can organisationally develop a single program or programs that are the same in this regard, making the most of that synergy. We must also consider the legal significance as a new criterion that the unitary implementation of given AI software may have and to what extent it may give rise to the establishment of the existence of a labour group of companies as a unique employer. Specifically, it will be necessary to determine whether, for example, the fact that the companies of the group use single AI software may suggest a single employer, as it is the case when we have a confusion of assets, unitary management or external unitary appearance. The foregoing is framed in the context of a more general issue, also with legal repercussions affecting the group for labour purposes, namely the centripetal consequences that the extensive application of AI in companies can trigger, that is, if it entails a tendency towards the centralisation of certain aspects of business management – not compatible with areas of decentralisation – which may alter corporate governance and, therefore, lead to greater presence of the group itself. Of course, this would cause the AI to acquire legal significance as a manifestation of a unified operation, although it all depends on its scope and whether the autonomy of the companies comprising the group is lost. The aforementioned issues have an even greater relevance when the group of companies is observed from an international perspective, in relation to multinationals.
- 23. Impact of AI on collective labour rights (trade union freedom, collective bargaining, strike and out-of-court means for the settlement of disputes):** From the perspective of the impact of AI on union freedom of association and on the representation of workers at the company level, as in the case of robotics, we could point out that the process of replacing workers with machines, generally known as automisation, has generated and will generate reticence, to a lesser or greater degree, initially or continuously, among workers’ representatives, particularly when this results from a unilateral decision without previous reporting or consultation processes. From the affiliation perspective, although implementing technological innovations such as AI is likely to create jobs in the medium and long term, the fact could be that, in the shorter term, for the trade union it may represent either terminations of its members’ contracts or the transfer of these members to new sectors – such as companies in the technological or collaborative economy sector – in which the level of trade union influence or affiliation is more limited or non-existent. Examined from the perspective of a specific company or work

centre, a business decision to establish AI extensively will probably have a negative impact, under current regulations, on the trade union or workers' committee representation if a more or less significant number of workers are laid off. This does not mean, of course, that the decision to introduce AI must be legally extracted from the area of business management faculties. However, it does mean certain information and consultation rights must be taken into account when considering the introduction of such a disruptive technology, the effects of which are uncertain and the content of which is unknown.

However, as pointed out, the most important challenge trade unions may face with respect to AI, which, although initially attributable to the company's internal 'hyperconnectivity' resulting from the digital means of communication, may now gain momentum, is the extent to which direct and personal contact between companies and workers will acquire even greater intensity. In other words, the representative work of trade unions – or of other bodies such as the workers' committee representation – is mainly based on an intermediation that identifies and integrates interests to be defended before the company, interests the company is not always prepared to recognise or assume. If the extensive organisational development of AI represents a qualitative leap in the levels of company-worker direct knowledge as an exceptional vehicle of personal communication between them, then that representative function of trade unions may be in serious need of redefinition, acquiring new dimensions beyond that of mere reporting or grouping of interests.

With respect to the right to collective bargaining, the true challenge it must currently face is determined by the systemic and global disruption that new technologies in general and AI in particular cause or may cause in labour relations. Specifically, as aforementioned, AI may bring about a marked change in the functions to be developed by workers, in working time and in the remuneration system. Therefore, the content of collective bargaining can and must undergo significant regulatory changes, just as it must face the challenge of shifting towards the new sectors of economic and business activity that arise from that technology. Moreover, if the organisational implementation of AI is as extensive as other technologies or even more so, this will affect the relation between collective bargaining and other regulatory sources such as state regulations, employment contracts and company internal codes of conduct. Most of the essential elements of the collective bargaining system must be reconsidered, such as the subjects regulated by collective bargaining, the different legal types of collective agreements, duration and techniques in the negotiation process, the matters to be negotiated and the continuity in the tendency towards decentralisation with respect to levels of negotiation. All these elements must be redefined if that system aims to continue to play a central organising role in future labour relations and not be subject to potential regulatory marginalisation. We must conclusively indicate that, in the context determined by technologies such as AI, it is necessary to be prepared to forestall or at least shift some of the most dogmatic stances on the traditional system of collective bargaining. AI can provide a great opportunity to increase the current centrality of the collective bargaining system, which may benefit from it on different levels, but to do so, there must be a willingness to acknowledge the need to innovate those essential elements that have largely defined the system inherited from the 20th century. Opposition to those innovations, or 'overprotection' of those aspects that have provided or provide some of the system's traditional features, can have the opposite effect to what is

pursued, that is, strengthening its marginalisation as a governance instrument of the neo-technological system of labour relations.

We have already mentioned that, as well as causing innovative effects on collective bargaining, AI can be an essential tool to help negotiators to find areas of agreement faster and in a more satisfactory way, thus speeding up the negotiation process and increasing the regulatory quality of agreements and collective agreements. Social partners should be increasingly aware of the new possibilities of being open to have AI software helping them in the bargaining process.

With respect to the right to strike, as in the case of robotics, the main issue will be the question of ‘technological strikebreaking’ in companies with an extensive implementation of AI. We must draw attention to the fact that, at present in many countries, there is no doubt that employers’ freedom, with respect to their powers of organisation and management of workers, is restricted by the exercise of the right to strike, but the law also considers that there is no precept that prevents employers, during the exercise of that right by employees, from using the technical means usually available to them in the company to keep its activity running. Based on this, we must conclude that, in the future, using AI in ‘normal’ conditions during a cessation of work would not, in many countries, infringe the right to strike, as they are technical means available in the company, even though the effectiveness of the right to strike, understood as a measure of pressure on the employer, may be limited. This could mean that unions should look for other, more innovative measures of pressure, such as freedom of speech in relation to social networks.

As regards to out-of-court means to conflict resolution, such as mediation or arbitration, we should point out the imperative need to strengthen them if AI is extensively used in the organisation of work, both due to their capacity to reach agreements adapted to the circumstances of each company faster – ahead of judicial resolutions when it comes to agility and specification – and due to the help that, as in the case of collective bargaining, AI can provide as an auxiliary tool when seeking those solutions. This entails reviewing the regulation of mediation and arbitration to make them more effective with the help of AI, which could be vital for achieving quicker and more effective solutions to labour and employment conflicts, which will not be able to wait for their resolution for many months or even years in an organisational context of continuous and radical changes, including working conditions.

- 24. Corporate liability derived from damage caused by an AI device:** In view of the absence in most countries of a general legal model for liability for potential damage caused by AI systems, academics and experts have proposed: (1) attributing electronic liability; (2) equating the liability of AI devices with that of animals; and (3) creating insurance that would be mandatory for the owners of the devices. Of those three alternatives, currently, the most fitting appears to be the third, which involves creating mandatory insurance for AI devices. This would avoid raising complex issues on the capacity and autonomy of the AI agent, assigned directly to a policy that covers damage caused by it, establishing a regulation formula similar to that of motor vehicles, so that, just as it is necessary to take out minimum insurance for a vehicle to travel legally, insurance must be taken out for an AI device to be used. In any case, in the

area of labour relations, the liability, by definition, will fall on employers in most countries, and in certain areas, such as liability due to accidents or occupational illnesses, designing that coverage will be very complex, even in an organisational context governed by AI.

At the same time, in this context, it must be assumed that the possibility of the worker being liable for the improper use of AI that is harmful to other workers or third parties will be limited to cases of clear disobedience of instructions or gross negligence, and even that will not release employers from liability for the injured parties, without prejudice to the subsequent right to file a claim against that worker for the damage caused, in addition to the adoption of disciplinary measures.

25. **Management's rights and AI:** From the perspective of management's rights, as is the case of other technologies, we must highlight that the employer is accountable for the decision to introduce an AI system in the production process, replacing or complementing the work up to now developed exclusively by workers, although its consequences on employment or the working conditions must be subject to information, consultation or negotiation with workers' legal representatives. Moreover, during the execution of the contract, employers will be able to delegate to the AI program their faculties to give instructions to employees, which will not cause any new legal problems with existing rights and obligations when they are conveyed directly by managers to whom employers have delegated the faculties to instruct employees on their duties at work. Therefore, from the disciplinary perspective, if the instructions for the execution of work come from the AI device through the programming carried out in this regard, their breach could also be subject to disciplinary sanctions and likewise categorised as indiscipline or disobedience with respect to the employers' instructions. With respect to the employers' rights of control over workers' performance and behaviour at work by means of AI, their limits will be mainly based on those currently established concerning surveillance cameras and access to corporate digital tools to protect their fundamental rights, such as their privacy.
26. **AI and labour compliance:** We must highlight the progressive development in most legislation of specific figures and roles that ensure regulatory compliance in companies. AI can contribute hugely to this tendency in the future, effectively confirming that organisational models and conduct are perfectly adapted to that regulation, guaranteeing the efficiency of labour compliance management systems. Therefore, the capacity of this technology to trace workers' labour activity, perform programmed reasoning of performance and quality of the work performed (through algorithms) and execute these decisions makes it possible to show, with a transparency unknown to date, which criteria are taken into account, and to what extent, to make a business decision. Moreover, AI systems can increasingly be used as a whistleblowing channel (internal or external) that allows the automatic notification of potential breaches of the company's internal rules or enforceable legal regulations or both. These systems would help companies to establish the necessary investigative measures and sanction all identified punishable events. Finally, the possibility of carrying out predictive analytics of data by means of AI, as well as facilitating the assessment, monitoring and constant follow-up of compliance with labour regulations, will make it possible to identify and prevent risks derived from breaches by workers much sooner (eg, the analysis of the current and historical data of the workforce – such as warnings or preliminary sanctions – would determine that workers need greater training in the prevention of harassment in the company).

C. Key recommendations on the future regulation of work and AI

In view of the stated conclusions regarding the impact of AI in labour relations, we can make a series of recommendations considering the future regulation of work. A group of them (five) is mainly directed at the state and the social actors as regulators. Another group (ten) consists of a series of practical recommendations for companies.

C.1 KEY RECOMMENDATIONS FOR REGULATORS

- 1. AI reveals areas in which short-term state regulation will be necessary and will serve as a precedent for subsequent ordinances in areas such as labour relations:** Currently, AI presents various areas of development – for example, the automotive sector and securities market – some of which have required or will require close regulatory intervention, given the impact they may have on the fundamental rights of people and on economic and social systems. Those regulations may serve as a reference to some essential problems that the extensive implementation of AI in work organisation could pose from the perspective of HR and labour relations – for example, liabilities. However, beyond the obvious need to preserve the fundamental rights of workers and third parties in view of the potential harm that implementing AI in workplaces may cause, it is advisable to maintain positions of maximum regulatory caution until more elaborate techno-organisational developments occur that clearly pinpoint those risks and the legal effects resulting from implementing AI on working conditions. In any case, the application of AI in the regulations development process, also applicable to collective bargaining, may entail a leap in the regulatory quality of these regulations, which may have a distinctly positive effect on labour relations.
- 2. Labour regulations must be based on AI being used to co-manage, with employers and unions, the essential working conditions in the labour relation:** The essential elements of the employment contract, such as working hours, remuneration, professional classification and functions, may be largely managed by the employer and unions with significant support from AI, which will permit greater efficiency given the degree of complexity reached in those conditions as regards their structures and content. The legislator must reconsider the labour and social security regulations to strengthen and not hinder that (co-)management capacity, including the promotion of AI for a more efficient development of the processes of consulting and collective bargaining and autonomous (ie, in-house) resolution of collective and individual conflicts.
- 3. Legislators must not only regulate the challenges that society must face with the extensive use of AI in the workplace, but also identify and promote its great benefits to avoid unjustified prejudices:** Unlike robotics, which is mostly embodied in an identifiable physical figure, many sectors of society may consider AI a soulless entity that is difficult to understand. Therefore, it is necessary for public authorities, along with companies and unions, to promote the advantages and benefits of AI actively and the measures established to avoid possible risks, including the relevant qualitative leap in the improvement of working life, that AI could bring about, eliminating not only the most repetitive jobs, but also those that are highly dangerous or stressful.

4. **AI and constant supervision:** Public authorities must require of businesses that opt for the extensive implementation of AI a responsible development, strict compliance with legislation and constant supervision of AI to avoid unforeseen and negative effects from that implementation, particularly with respect to the fundamental rights of employees. The initial regulations on the application of AI to HR and labour relations, insofar as there will be many unprecedented aspects, must be submitted to frequent assessment and review processes. The constant supervisory role that companies and workers' representatives may perform will be essential to identify potential negative developments, placing special emphasis on those on fundamental rights, such as privacy, mental health or prohibition of discrimination, that may be most affected.
5. **Public-private collaboration, social dialogue and the implementation of AI:** In the scope of a permanent public-private collaboration on the consequences of AI for society, regulations on the impact of this technology on HR and labour relations must also have essential support in social dialogue (tripartite and bipartite) and in collective bargaining. The law must promote, at national and international levels, the capacity of public authorities, social agents and companies to overcome and neutralise undue damage arising from the necessary implementation of AI in the area of labour relations, a capacity that must be strengthened by the regular promotion of consensus that must exist in this key area to avoid a dramatic backlash ('neo-Luddism') from employees and unions.

C.2 KEY POINTS FOR COMPANIES AND UNIONS

1. **The extensive implementation of AI in the company represents a qualitative techno-organisational leap with multiple legal consequences in the labour area:** AI is the most disruptive of new technologies and it has profound legal effects in companies that opt to place it as the operational centre of all or the main production processes and of their workers' main functions and tasks. Those legal effects manifest themselves most visibly in labour relations and so companies and unions must prepare themselves for what may be foreseeable in relation to those effects and, more importantly, establish protocols to follow when less foreseeable or unexpected effects arise.
2. **The main cause of the disruption that AI represents in the legal framework of the organisation of the work in general and labour relations in particular is its potential to adopt autonomous and predictive decisions:** If AI can adopt autonomous decisions in the company's processes, then the essential legal difference to other technologies is that it can conduct automated and innovative processes when adopting decisions, without them being pre-programmed in advance. This autonomy of AI is combined with its predictive capacity, which, if applied to labour relations, would entail that the key decisions on staff – such as selection, promotion and remuneration – may be based on probabilities of future developments, with the risks that this can entail for the reproduction of homogeneous models potentially contrary to innovation and diversity. Furthermore, to equip AI with that autonomous and predictive decision-making capacity, it will need an increasingly vast accumulation of the data the organisation may supply, including those of its workers, which will require a constant, progressively complex balance with the increasingly incisive DPL.

- 3. The company must assume that, given the implications of AI for fundamental workers' rights, the regulatory framework will increasingly channel those autonomous and predictive decision-making possibilities by AI, so that it must be continuously adapted by employers to those limitations:** Based on the possibility of autonomous and predictive adoption of decisions, which has significant consequences for the fundamental rights of workers, in the future all companies, with the help of unions, must make two significant decisions to give themselves legal certainty with respect to the extensive implementation of AI. On the one hand, the employer must accept responsibility for the 'legal and socially responsible behaviour' of AI in its organisation, ensuring it also effectively transmits to it the principles, values and legal duties for a compliant operation at all times. The code of ethics and CSR must be 'internalised' by AI, particularly when it is initially created by a third party from whom the company acquires it, which may have parameters and algorithms not aligned with those principles, values and duties. On the other hand, the employer must establish a permanent supervisory procedure so that AI does not deviate from those principles, values and duties in its decision-making process. Companies must particularly consider that AI will be fed with information, data and opinions by workers or third parties, which, if unsupervised, could cause the AI to deviate from those principles, values and obligations in its proposals and opinions. In the current, practically experimental phase of the organisational application of AI, its conclusions must reflect a further 'opinion' in the decision-making process to be adopted by the employer and not the single and deciding 'opinion'.
- 4. The main 'teachers' of AI in the company will be its workers, who must be prepared and trained for it, particularly with respect to the (legal) limits of that interaction with AI:** The workers, who are the main feeders in the organisational development of AI in the company, need both ongoing technical training in their interaction with AI and clear rules so that this interaction is aligned with legality and with the principles and values of the company. Beyond its initial programming – to be carefully verified by the employer – AI will essentially behave in accordance with how its main interacting parties want it to, equipping it in that continuous interaction process with its own cultural, organisational and productive characteristics. This will also apply to third parties, including workers of contractors and self-employed workers, who, particularly in the application of new working methods (eg, agile methodologies) may interact with the company's AI. This will acquire full meaning not only if it is envisaged from the perspective of the application of the 'compliance' policy in the company, but also when it is concluded that the employer is ultimately liable for the potential illegal consequences of AI.
- 5. Workers and unions must have maximum information on what AI is and its role in the organisation:** In the decision to adopt AI and in its implementation and based on its enormous technical complexity and the current level of limited social information in this regard, the company must offer its workers and their representatives maximum transparency, not only to address AI's role in the organisation, but also to accentuate its great benefits and identify the measures adopted to limit or eliminate its possible negative effects. Even more than in the case of robotics, companies must adopt an adequate and regular communication policy to prevent delay to its implementation based on prejudices that must be eradicated or at least limited. This not only applies to the initial moment of organisational implementation of AI, but given its evolutionary dynamism, to the whole subsequent development period, as a permanent policy.

6. **The benefits of AI in the organisation and in working methods are substantial and will affect the legal regulation of the main working conditions:** AI can represent vastly superior efficiency in the management of new working methods. Consequently, it may improve the main legal provisions comprising the completion of work that, in the present and particularly with the implementation of those new forms, have shown a growing complexity that complicates that management. Among those benefits, it is necessary to: (1) bolster those related to professional upgrading that continuous interaction with AI in permanent evolution and refinement can signify, strengthening the right and the duty to be trained in the workplace; (2) foster more efficient management of working hours, ensuring greater clarity for the purposes of legal limits in the irregular distribution of the working day and flexi-time and facilitating a better work–life balance; (3) provide greater transparency in the remuneration system, making the efficient and legally clearer management of the salary structure possible, particularly concerning variable remuneration; (4) define a better delimitation of the distribution of functions, facilitating mobility and versatility and ensuring necessary and profound innovations in the professional classification; (5) ensure a more adequate and precise measurement of productivity and performance, with the positive implications this has in areas such as promotion and remuneration; and (6) ensure the greater objectification of decisions that limit claims due to discrimination when the company makes decisions related to the recruitment or professional and economic promotion of workers.
7. **Aspects in the extensive organisational implementation of AI that may damage the rights of workers must be addressed from the outset:** The social characterisation of technology as ‘pathological’ based on possible initial irregularities in its implementation can create a reticence in workers that is difficult to eradicate at a later stage. In this regard, it is undoubted that workers’ regular interaction with AI can cause some negative repercussions on workers’ rights. This is the case of those related to their privacy, insofar as AI requires a continuous accumulation of personal data, including that of the workers who interact with it. It is also the case of those connected to psychological risks and mental stress, as a result of the permanent interaction with a ‘work colleague’ that becomes progressively more intelligent, does not suffer from tiredness and that, if it operates with facial or voice recognition and text processing, can represent for workers a ‘mental invasion’ of considerable dimensions. Therefore, the company must not permit the development of legally flawed initial guidelines and inertia of action that are difficult to correct at a later stage.
8. **The extensive implementation of AI at the workplace must have an impact on the greater significance of certain clauses in employment contracts, particularly of workers with a greater interaction with and influence on it:** The new legal situation caused by AI makes it necessary to pay special attention to covenants that are either not, at present, frequently included in the individual contract or are inadequate in their traditional formulation. The terms of the workers’ IP rights must also be clarified, given that the boundaries between the current delimitations – such as ‘service inventions’ – will likely become vaguer. Likewise, duties, such as that of refraining from unfair competition, or covenants, such as minimum term, exclusive commitment or post-contractual non-competition, acquire great relevance insofar as it must be understood that the AI will contain the essence of corporate know-how, which will distinguish it and give it margins of competitiveness with respect to other companies. By means of the effective formulation of those covenants, unlawful transfers of know-how, the effects of which can be very harmful, are avoided.

9. **Unions and other workers' representations, collective bargaining and conflict resolution may be significantly affected, in a positive way, by the extensive implementation of AI at the workplace:** From the perspective of collective labour rights, it is evident that a central operational implementation of AI may lead to innovation in the development of these rights, particularly in companies with strong union representation. It is evident that AI permits permanent contact with workers and a high degree of 'personalisation' for the purposes of information, individual presentation of complaints and the company's awareness of the most specific 'work environment' details, which can result in a redefinition of the intermediary role of workers' representatives. Likewise, AI can and must be used to increase the efficiency of consultation, collective bargaining and conflict resolution processes, such that the negotiators may use it to obtain reliable information, identify the areas of agreement and disagreement and ascertain how to reduce disagreements, giving a secondary role to traditional labour pressure measures.
10. **The legal effects of the impact of AI on HR and labour relations are in their initial stages, and employers and unions must be vigilant in view of the profound developments and changes that will occur as AI technically and organisationally matures:** Currently, we can only highlight some basic aspects of the legal consequences resulting from the extensive organisational implementation of AI in companies that affect employment contracts and labour relations. As we have seen, these aspects are complex – with respect to the right to privacy, avoidance of discriminatory decisions and preservation of the health of workers, among others – but the significant point is that, with the progressive extension and sophistication of the organisational impact on the workplace of constantly changing AI, in the future, those consequences will make quantitative and qualitative leaps. The company, as well as the regulator and the social partners, must be extremely attentive to those developments, not only due to the legal and contractual obligations regarding workers, but also because heavy legal contingencies and liabilities may arise, unknown until now in the labour field and with enormous significance for those obligations. The establishment and regular review of adequate supervisory protocols and continuous warnings that ensure the legal functioning of AI in the company may prevent those serious liabilities with respect to workers and third parties.



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