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AI, Machine Learning & Big Data

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Contributing Editors: **Matt Berkowitz & Emma Maconick**

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Kevin Harnett & Claire Morrissey
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Trends

What artificial intelligence ("**AI**")/Big Data/Machine Learning ("**ML**") trends are you seeing in your jurisdiction? How has COVID-19 affected these trends, if at all?

Ireland is home to a vibrant open AI ecosystem, adopting the tagline "AI Island". Its reputation as the "Silicon Valley of Europe", its educated workforce, low corporation tax of 12.5%, R&D tax credits of 25%, and a 6.25% preferential tax rate on income derived from qualifying intellectual property (through the so-called "knowledge development box") ensure that Ireland is an attractive hub for AI investment. The AI ecosystem is composed of well-known corporations basing AI R&D and hubs in Ireland, home-grown AI companies attracting the interest of major investors and existing technology companies adding new skillsets and new products to their existing range. Ireland's leaders in AI include IBM, Movidius, Accenture, Veritas, Xilinx and Nuritas. These leaders are complemented by the AI presence of other multinationals in Ireland, including Siemens, SAR, amazon web services, Deutsche Bank, Fujitsu, Salesforce, Huawei, Dell, Intel, Mastercard and Cisco.

The COVID-19 pandemic rapidly accelerated the rate of technology adoption and innovation in Ireland. Up until that point, the use of AI was mainly focused on automating tasks. The potential for AI to have a greater impact across all sectors from fintech, medical diagnostics, entertainment/gaming and transportation has come more to the fore in response to the pandemic.

In 2020, Nuritas, an Irish company that uses artificial intelligence and genomics to produce healthier food, began to use its AI technology to help identify therapeutic peptides that might help those diagnosed with COVID-19. Nuritas has received a €30 million facility in late 2018 from the European Investment Bank and previously raised €16.8 million in a Series A round led by Cultivian Sandbox Ventures of Chicago.

The Centre for Applied Data Analytics Research ("**CeADAR**") is Ireland's national centre for Applied AI and Data Analytics. Its work focuses on developing tools, techniques and technologies that enable more people, organisations and industries to use analytics and AI for better decision-making, unlocking hidden insights and sustained competitive advantage. In 2020, this included offering help to businesses, government agencies and charities with AI projects aimed at tackling the spread of COVID-19 and making its portfolio of technology demonstrator projects freely available to license for tackling COVID-19. It also acquired its first supercomputer, giving it the capability to provide a powerful data science computer platform as a shared resource to its 90 industry members and for collaborative projects at national and European level.

Dublin is the home to IBM Research Europe, which assists with research on AI Security. IBM Ireland has a particular focus on the Watson AI platform. In December 2020, a County Council in Dublin partnered with IBM to develop a virtual agent to assist with answering

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common questions from the public about COVID-19. Based on the IBM Watson Assistant, the "COVID-19 Assistant" provides answers in English and Irish through the council's website.

Microsoft Ireland and Science Foundation Ireland ("**SFI**") announced the co-funding of a climate change project called Terrain-AI. The project will focus on improving the understanding of the impact of human activity on land use and how it relates to climate change. It will build AI models to inform more effective and sustainable management practices, leading to significant carbon reduction.

The challenges of AI were brought to the fore when a study by a researcher from Lero, the SFI Research Centre for Software and University College Dublin's Complex Software Lab resulted in the withdrawal of an 80-million image library that had been used to train AI and ML systems. The research found that the images in academic datasets, used to develop AI systems and applications, were contaminated with racist, misogynistic and other unacceptable and offensive labels and slurs.

How are companies maximising their use of data for ML and other applications?

Before the pandemic, Ireland had been slower on average than its European counterparts to adopt AI in business. In a survey published by Microsoft and Ernst Young at the end of 2018, just 40% of Irish companies expected AI to have a high impact on their core business, as opposed to an average of 65% across the rest of Europe.

COVID-19, however, seems to have had a galvanising effect on businesses' attitudes to AI in Ireland. With the *en masse* transition to remote working in many sectors due to the COVID-19 pandemic, many Irish businesses seem to be rethinking their use of AI. In Expleo's Business Transformation Index 2021 Report, which surveyed 200 businesses and IT leaders, it is projected that two-thirds of businesses in Ireland will be using AI or ML by 2023. This is a significant increase from the 22% of businesses who currently use such technology. This change is directly linked to the pandemic, as 40% of businesses state that they automated more processes as a result of the pandemic. An additional 17% believed that automation could help reduce backlogs caused by COVID-19.

What is the government view with respect to the adoption of AI?

The Irish Government is supportive of the development, adoption and use of AI and is positioning Ireland as an international leader in the field. This is reflected in Ireland's membership of the Digital 9+ – those countries in Northern Europe ranked by the EU's Digital Economy and Society Index ("**DESI**") as being ahead of their peers in the use of robotics, ML and AI and ranking within the DESI.

There are two state agencies promoting AI in Ireland. Firstly, the Industrial Development Authority ("**IDA**") is responsible for securing foreign direct investment into Ireland and highlights Ireland's AI capabilities as part of that brief. Enterprise Ireland ("**EI**") is the government organisation responsible for the development and growth of Irish enterprises in world markets. It works in partnership with Irish enterprises to help them start, grow, innovate and win export sales in global markets.

The Technology Centre Programme is a joint initiative between both the IDA and EI to facilitate Irish companies and foreign multi-nationals working together on market-focused strategic research and development projects in collaboration with research institutions. This led to the establishment of CeADAR (see above). Insight, Connect, Lero, ICHEC, the Tyndall National Institute and ADAPT are examples of other research bodies that have contributed to 25 years of AI research in Ireland. The Government has also established a team on AI Standardisation led by the National Standards Authority of Ireland.

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The Department of Enterprise, Trade and Employment ran a public consultation process on AI in Ireland in 2019. Adoption of a national AI strategy was expected after this consultation. The strategy has not, however, been published as of yet – this is expected in 2021. It is understood that, when published, the strategy will have seven strategic pillars. These are: (i) addressing societal opportunities and challenges of AI; (ii) driving adoption of AI by Irish enterprise; (iii) boosting public sector use of AI; (iv) ensuring a strong AI innovation ecosystem; (v) fostering AI education, skills and talent; (vi) ensuring supportive data, digital and connectivity infrastructure; and (vii) establishing an appropriate governance and regulatory framework which takes account of human rights and ethics.

For further detail on anticipated regulation and implementation, see the below section "Regulations/government intervention".

What industries/sectors do you see being leaders in the development and adoption of AI?

Ireland's proliferation of technology companies will be key to future AI development. In particular, Ireland has an attractive infrastructure for start-ups, with many such start-ups specialising in the development of AI.

Ireland is also home to world-leading universities providing education on computer science, programming and engineering. Research centres and programmes affiliated with Ireland's education centres, which provide avenues for industry academic collaboration, will be the other leaders in development.

Various sectors will find AI particularly useful to its everyday operations, particularly financial services. In response to a survey conducted in 2020 by the Deloitte Center for Financial Services, 43% of respondents in the finance function expected increases in investment spend on artificial intelligence. AI and automation have been an important consideration in this sector during the pandemic, for example with respect to retail banking, customer service "chat bots", and online payments.

Ownership/protection

When a company creates an AI algorithm, who is the owner?

While intellectual property law can address some of the ownership aspects of AI, it most likely cannot be used to cover all of them. Therefore, absent any changes to current law, ownership may have to be a combination between intellectual property rights and contractual arrangements.

What intellectual property issues may arise regarding ownership?

Copyright

Section 17(2) of the Copyright and Related Rights Act 2000 ("**Copyright Act**") affirms the existence of copyright in literary works, the definition of which includes computer programs. Copyright can only be owned by a legal person – effectively an individual, company or partnership. It essentially has to be created by an individual (works created by an individual in the context of his/her employment being owned by the employer). Therefore, a machine that is creating content cannot be the legal owner of that content.

Section 21(f) of the Copyright Act states that copyright in computer-generated software is owned by the person by whom the arrangements necessary for the creation of the work are undertaken. A "computer-generated" work is defined as work that is generated by a computer in circumstances where the author of the work is not an individual.

It may be difficult in the context of an AI system to establish the involvement of a human in the creation of content. Some AI tools or systems will have the capacity to create content

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themselves. In such a scenario, it will be difficult to identify the individual who undertook the "arrangements necessary for the creation of the work", in order to satisfy the authorship test in Section 21 of the Copyright Act.

In addition, a computer program is defined in Section 1 of the Copyright Act as being a program which is original, and which is the author's own intellectual creation. It could be difficult to argue that "self-taught" content produced by an AI system was any individual's own intellectual creation.

It would seem that until such time as there is new legislation on the point, or until case law establishes some precedent, ownership of content created by an AI system may have to be covered contractually in order to provide some certainty. So, those entering agreements for the development or use of AI systems or content arising from them should consider relevant clauses to cover ownership, assignment and licensing.

Another point to bear in mind is that under Section 30 of the Copyright Act, protection is afforded to a computer-generated work for 70 years from the date it is first made available to the public. Where a copyright work is produced by a person, under Section 24 of the Copyright Act, copyright subsists for a period of 70 years after the death of the author, irrespective of when it is first made available to the public.

Patents

Section 9(2)(c) of the Patents Act 1992 (as amended) ("**Patents Act**") states that a computer program is not capable of patent protection. The same is the case for mathematical methods or methods for performing a mental act. However, this does not prevent the granting of patents for inventions involving the use of such programs or methods, as long as a technical effect is achieved by its implementation. Such a "technical" effect may, for example, be found in the internal functioning of a computer itself.

The Irish Patents Office follows the strict criteria set out in the European Patent Convention ("**EPC**") when considering patents for registration, including its guidance on the technical character of inventions. While this technical element has been the subject of case law in the UK, no such judicial guidance exists in Ireland, though of course there is considerable case law at the EPO level.

Similarly to copyright, Section 15 of the Patents Act states that legal persons only may apply for and therefore own a patent. However, there is no equivalent concept of computer-generated content and ownership. So, to be successful, an applicant would have to prove that it was the inventor of the underlying algorithm, and that if it is based on a computer program or mathematical method, it had a technical capability that met the EPC criteria. If the subject of the patent application was found to be invented by the AI system itself and not by the underlying creator of the AI system, it should follow that it would not be patentable and would fall into the public domain.

For that reason, it seems to us that, similarly to copyright, the legal position on AI owning patents is unclear. Therefore, it would again seem prudent that AI contracts should include provisions in respect of ownership, assignment and licensing of AI-developed content.

What are the applicable laws with respect to data ownership, security and information privacy?

AI is closely linked to the use of Big Data and, of course, that can include personal data. Therefore, the use of AI will be subject to the General Data Protection Regulation (Regulation (EU) 2016/679) ("**GDPR**") and the Data Protection Act 2018 in Ireland.

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As well as a controller's (or indeed processor's) general obligations to take appropriate technical and organisational measures to safeguard personal data under the GDPR (Article 24), there are two specific requirements under the GDPR that will need specific attention.

Firstly, Article 35 of the GDPR states that, where a type of processing uses new technologies, and, taking into account the nature, scope, context and purposes of the processing, it is likely to result in a high risk to the rights and freedoms of natural persons, the controller must, prior to the processing, carry out an assessment of the impact of the envisaged processing operations on the protection of personal data. In particular, instances of automated processing on which decisions are based that produce legal effects must be the subject of such a data protection impact assessment.

Secondly, Article 25 of the GDPR obliges controllers to build privacy by design and default into any new systems. Recital 78 of the GDPR states that, in order to be able to demonstrate compliance with the Regulation, the controller should adopt internal policies and implement measures which meet, in particular, the principles of data protection by design and data protection by default.

One of the measures suggested for achieving this is the minimisation of personal data, a concept a controller must commit to in any event in accordance with Article 5. However, minimisation seems at odds with the concept of Big Data.

Other aspects of the GDPR that a controller may have to consider before using AI in respect of personal data include its obligations in respect of transparency (Article 5) and, where automated processing is undertaken, its obligation pursuant to Article 22 (and the European Data Protection Board's Guidance on that Article) to explain the logic behind the automated processing. This may be difficult where the AI system itself is making the rules pursuant to opaque processes that the controller may struggle to understand, much less explain.

Antitrust/competition laws

What happens when machines collude?

Businesses are increasingly using algorithms to automatise processes and enhance efficiency, e.g. in forecasting and predictive analysis. A particular concern of machine collusion is where businesses use pricing algorithms that lead to anti-competitive behaviours. This is known as "algorithmic collusion".

One form of anti-competitive algorithmic collusion already exists where humans agree to implement a joint pricing algorithm. This is not significantly different to traditional anti-competitive practices.

However, another form exists where an AI-based pricing algorithm itself colludes with competitors. This may occur, as stated in the OECD paper on Algorithms and Collusion, without formal agreements or human interaction. This raises questions as to whether pricing algorithms specifically should be regulated and algorithmic collusion may result in fundamental changes in how competition law is conceptualised and enforced in practice.

As discussed further below, algorithmic collusion raises the question of whether liability still rests with the entity using the algorithm when the pricing decisions are made by the AI. While there are indications from the Commission that liability will remain with the company using the algorithm, the OECD paper importantly notes that the link between the algorithm and its creator becomes weaker as the AI develops, as does the scope of what is reasonably foreseeable. This approach to liability may therefore become unsustainable once an AI reaches a certain level of maturity.

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What antitrust concerns arise from Big Data?

Competition law in Ireland is governed by the Competition Act 2002 and the Competition and Consumer Protection Act 2014. The two most important tenets of that legislation for the purposes of this chapter are the prohibition on anti-competitive practices set out in Section 4(1) of the Competition Act and the prohibition on the abuse of dominance set out in Section 5 of that Act.

AI is a relatively new world for competition authorities, and perhaps some of the perceived threats of AI acting independently and breaching competition laws by themselves are less facts than fiction. Nonetheless, it is possible to see situations where, for example, a company could become dominant through the compilation or acquisition of a large and unique set of Big Data. If it were to use its position to discriminate against competitors or customers, it might be found to be abusing that dominant position. There have been cases in other jurisdictions where artificial intelligence, in the form of automated re-pricing software, was programmed by competing online sellers to ensure that one competitor did not undercut another. This was, unsurprisingly, seen as being anti-competitive collusion.

As mentioned above, an AI system may itself introduce the anti-competitive practice. The European Parliament adopted several resolutions in 2020, including a legislative resolution that proposes a strict liability regime on operators of high-risk AI systems. The Expert Group on Liability and New Technologies also previously published their Liability for Artificial Intelligence report in 2019, which proposed that producers of an AI product should be liable for damage caused by defects in the product (while operators should be strictly liable for damage resulting from the operation of the product). Irish competition law is based on and subject to EU competition law, and it seems unlikely that a similar set of circumstances would be interpreted any differently.

Board of directors/governance

What governance issues do companies need to be aware of, specific to AI and Big Data?

Certain financial institutions operating in Ireland are subject to governance by the Central Bank of Ireland ("**CBI**"). The CBI has issued guidelines such as the Cross Industry Guidance in respect of Information Technology and Cybersecurity Risks (September 2016) and the Outsourcing Discussion Paper – Findings and Issues for Discussion, published on 19 November 2018. Updated Cross-Industry Guidance on Outsourcing is expected in 2021. Companies or financial institutions using cloud-based AI systems would be subject to these outsourcing requirements. As a result, they would be obliged to include certain provisions in contracts with service providers including rights of audit for the CBI.

The CBI's Innovation Hub allows fintech firms to engage with it on new technologies outside of existing formal regulator/firm engagement processes. In 2020, the Innovation Hub identified an increasing shift toward a more data-driven financial sector. It saw a subset of AI called Natural Language Processing deployed to extract the insights from online news sources to help measure and manage non-financial risks. It also saw AI deployment supporting non-traditional Account Information Service Provider ("**AISP**") use cases, such as accounting firms looking to register as AISPs to help auto-import financial accounts.

Regulated financial service providers in Ireland are not subject to any general prohibition on the use of AI. However, they must comply with their general data protection obligations under the GDPR. This includes regulation of automated processing under Article 22.

How does AI and Big Data affect a board's fiduciary duties?

Section 228 of the Companies Act 2014 lists the fiduciary duties of a director in Ireland. These include obligations to act in good faith, and honestly and responsibly in the interests

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of the company. There is also a duty to exercise the care, skill and diligence that would reasonably be expected of someone in their position.

While recognising the benefits of AI for improving a company's performance, company directors, in order to fulfil their fiduciary duties, must also be aware of its dangers. For example, if an algorithm is based on a pre-existing bias, then an AI system is likely to compound it. If an AI system is hacked, algorithms could be changed to alter decision-making to the detriment of the company. Company directors must also consider the ethical issues surrounding the adoption of AI solutions. Directors should not delegate tasks to AI without adequate monitoring, as they will continue to owe primary duties to the company, regardless of any delegation.

How is AI and Big Data affecting communication plans to shareholders, vendors, etc.?

Big Data and AI are increasingly being integrated into company communication plans. This practice may allow companies to be more flexible in their communication plans. A recent example is Broadridge Financial Services, Inc.'s use of ML services to provide investors and regulators with proxy voting data from meeting agendas and regulatory documents. Any such use of Big Data in Ireland will be subject to general data privacy considerations. This will entail compliance with GDPR obligations, including the general principles of fair, lawful and transparent processing of data.

Regulations/government intervention

Does your jurisdiction have specific laws relating to AI, Big Data or ML?

There are currently no rules or regulations that apply specifically to AI in Ireland and the advent of AI, Big Data and ML presents novel issues for which the Irish legal system is at best only partially equipped. Like technology in general, while the AI evolution moves ahead apace, the law is slow to catch up. However, Ireland is expected to publish its National AI strategy in early 2021. In addition, as will be explored in greater detail below, the call to create or adopt a regulatory framework for AI is gathering steam within the European Union.

Are any laws or law reform authorities considering specific laws relating to AI, Big Data or ML?

The conversation in the EU on how to best develop and regulate AI is advancing. The EC published its proposal for an AI Regulation on 21 April 2021. The proposal seeks to strike a balance between enhancing trust in AI and ensuring the protection of fundamental rights, and strengthening investment and innovation in the EU. The proposed Regulation defines an AI system as '*software that is developed with one or more of the techniques and approaches listed in Annex I and can, for a given set of human-defined objectives, generate outputs such as content, predictions, recommendations, or decisions influencing the environments they interact with*'. The Annex I techniques and approaches include machine learning approaches, logic and knowledge-based approaches and statistical approaches. Concerns have been raised about the expansive nature of this definition.

The draft Regulation focuses on high-risk AI systems and provides for a voluntary code of conduct for providers of non-high-risk AI systems. There are two main categories of high-risk AI systems:

- AI systems intended to be used as a safety component of products that are subject to third party *ex ante* conformity assessment; and
- other stand-alone AI systems with mainly fundamental rights implications that are explicitly listed in Annex III. Examples of these systems include educational or vocational training, employment, essential private and public services, law enforcement, migration, and critical infrastructures.

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Providers of high-risk AI systems must meet obligations in relation to data, documentation and traceability, transparency, human oversight and robustness and accuracy. The proposal prohibits AI systems that pose a clear threat to the safety, livelihoods and rights of people, that allow for social scoring for general purposes done by public authorities and that make use of 'real time' remote biometric identification ("**RBI**") systems in publicly accessible spaces for the purpose of law enforcement unless certain limited exceptions apply.

Several provisions to support SMEs have also been included such as the creation of regulatory sandboxes. Concerns have been raised, however, about the capacities of national authorities to create and maintain the proposed regulatory sandboxes.

It is proposed that governance will take place at Union level through a European Artificial Intelligence Board, and at national level through a designated national competent authority.

What are governments considering and what should governments do to prevent adverse outcomes (e.g., the "AI robots take over" problem)?

The Irish Government is currently preparing its national AI strategy which is due to be published in 2021. In the development of this strategy, the Government is conscious of the need to enable investment in, and development of, AI without compromising fundamental principles of openness, transparency, inclusiveness, while at the same time balancing the need for proportionate regulation of AI. For further detail on the Government's national AI strategy, see the above section "What is the government view with respect to the adoption of AI?"

Civil liability

What are some of the liability considerations when using AI technology?

Contract

In the context of AI, a formal contractual agreement could determine who would be legally responsible for the acts of the AI system in question. Typically, the vendor of the AI system would, in return for payment, undertake a series of obligations, and in the process provide representations and warranties. This has already been a feature of the marketing of AI products, with the CEO of Volvo announcing that the company would accept all liability for harm caused by its cars when they are operating autonomously. As market conditions shift and as consumers become more comfortable and even dependent on AI technology, it may well be that the balance of bargaining power will also shift and vendors will move towards limiting their liability (subject to the constraints of consumer protection laws), as opposed to offering sweeping warranties and indemnities.

Thus far, there has not been a profound tension between the law of contract and AI. Since the age of the internet, automated contractual systems have been commonplace – from consumer sales of airline tickets to high frequency trading of financial instruments. At present, these systems conclude contracts on behalf of recognised legal entities.

Blockchain technology (a system of automated records, known as distributed ledgers) now opens up the possibility of self-executing contracts which proceed on an "if/then" basis – contracts that can be executed without the need for ongoing human input. This raises the question as to where liability should rest in a situation where AI is brought to bear in such scenarios and concludes a contract without direct or obvious instructions from a recognised legal entity.

It has been argued by some that the legal entity responsible for the tool is also responsible for the results obtained by its operation (see earlier comments on machine collusion, for example). This proposition may be satisfactory in the context of the standard automated

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contractual systems already in operation in most online retail platforms. But it may not fully cater for the potential of future AI systems which may conceivably learn and develop independently of their original inception, and thereby act as an agent in their own right.

As a result, there have been calls for the creation of a separate legal personality for AI systems. This is a radical and not easily digestible proposition. While the issue of separate legal personality may be part of the future legal framework regulating AI systems, it is hard to see how it could be a workable concept at this early stage in the evolution of AI. Even if conceptually sustainable, the imposition of such a legal personality would seem to imply the assignment of assets to each AI system, a proposition that could act as a disincentive to those considering investing in developing new and potentially beneficial AI systems. The concept of separate legal personality could also have profound implications for criminal law, where the principle of *mens rea* (i.e. the knowledge component of a crime) is a key element.

Contract law in Ireland is primarily a creation of the common law system and thus, in principle, is inherently sufficiently flexible to evolve to some extent to cope with the issues raised by AI through further judge-made law. However, this principle of common law flexibility has its limits, and it would seem highly likely, for example, that any move in the long-term towards introducing a concept of separate legal personality would either be a function of the Oireachtas (Irish legislature) or may even fall within the competency of the EU as an aspect of market harmonisation.

A further obvious limit of reliance on contract law to regulate liability for AI is that, under Irish law, a contract only places obligations on those who are a party to the contract. Contract law is therefore of limited use in regulating the activities of AI systems where those systems come into contact with third parties, as they often do (for example, the self-driving drone that delivers mail to an individual will likely cross the path of various other parties on the way).

Product liability

It has been argued that foreseeability issues around autonomous AI systems could be resolved through use of the product liability framework in place at both EU and national level.

Under the Irish Liability for Defective Products Act 1991 (giving effect to Directive No. 85/374/EEC), a product is defective when it does not provide the safety that a person is entitled to expect, taking into account all the circumstances, including:

- the presentation of the product;
- the use to which it might reasonably be put; and
- the time when the product was put into circulation.

Broadly speaking, an injured party can pursue any supplier at any level of the supply chain in respect of a faulty product. This makes the process of seeking compensation much more straightforward for claimants and would have the effect of encouraging consumer confidence in this emerging technology. Introducing a regime dealing with liability on an end-to-end basis in respect of a supply chain for AI products could have the benefit of encouraging safety and caution in AI development, in addition to providing more certainty to suppliers who could then price the risk of damages into the cost of the product, as well as allowing them to make more accurate actuarial calculations.

However, the law on product liability is not entirely fit for the purpose of regulating AI technology. First, Irish and EU law defines products as "all movables". It is clear that not all AI systems would come within this definition (for example, cloud-based AI systems). The second issue with applying the product liability framework to AI is that the product liability framework assumes the product does not continue to change. AI does not follow

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this paradigm, so it seems that the product liability framework would need to be revised to cater for the particular characteristics of AI.

The various different forms of AI may have to be accurately and precisely defined. It should follow that the EU definition of "product" will then have to be amended accordingly. It is possible that product liability law will not work for all forms of AI, and indeed it could undermine the structure of product liability law itself if its definitions were stretched too far in the attempt to regulate AI.

In addition, the law would likely have to take account of the fact that AI technology in a sense changes over time after the point at which it is released into the market. The extent to which the law allows for these changes and shifts liability accordingly will be a policy decision which ultimately will depend on where society and lawmakers believe the risk should rest in the production and use of new AI technologies.

Notwithstanding these issues, the use of a regulatory framework styled on the current EU product liability framework with bespoke provisions related to AI may be a good first step in regulating AI technologies.

What impact does AI have on negligence and malpractice (e.g., medical malpractice)?

When traditional technologies have been defective or caused injury, individuals have typically sought compensation in negligence. This requires proof of the existence of a duty of care, a breach of that duty, and that the breach caused the injury complained of. This set of rules has served the common law world well. However, its application to AI is not entirely clear.

It is well established in law that vendors and manufacturers of technology owe to their customers a duty of care. However, the question as to whether an AI system could be deemed to have caused an injury is much less clear. If the AI system recommends an action (for example, a parking aid system in a car warning a driver of obstacles around the car) then the technology user will have to act such that the chain of causation may well be broken, and the customer may then be solely liable for any injury caused by their use of the AI system. Whether there would be a basis for contribution against a vendor and/or manufacturer of the relevant AI system will be a thorny issue in this scenario.

If the AI system takes an action (for example, a fully automated car that automatically cuts out when it detects a hazard), the chain of causation ought not to be broken by any action on the part of the customer. However, given the multitude of scenarios in which a given AI system might operate, issues around reasonable foreseeability on the part of the technology vendor and/or manufacturer are likely to arise. For example, the automated car or other AI-enabled technology manufacturer may argue that it could not possibly foresee every eventuality in which the car might find itself. This may be particularly so in cases where AI systems have advanced ML capacity. The extent to which a machine, which is designed to learn, but whose designers may not fully appreciate where the learning journey takes the machine, raises profoundly difficult issues concerning foreseeability.

That being said, the law of negligence is inherently flexible, with the key concepts of proximity, reasonableness and foreseeability all being subject to the prevailing standards of the time, place and relevant protagonists, such that, as an area of the law, it may be unusually well suited to adaptation.

Discrimination and bias

What laws apply to AI or ML systems that produced biased results?

The potential for discrimination and bias is of particular concern in the employment law context given the broad prohibition on discrimination set out in Ireland in the Employment

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Equality Acts 1998–2015. Notwithstanding this concern, it would appear that employers are increasingly turning to AI in the recruitment of new employees.

In the recruitment context, an employer might use an AI system to accept and reject unsuitable candidates automatically. If an unsuccessful candidate can show that the decision to reject their application was based on any of the nine protected grounds (e.g. race, gender), then that employer may be held liable for unlawful discrimination in access to employment.

In Irish law, there is no defence to a claim of direct discrimination where a practice is deemed to be directly discriminatory. So, an AI filter which screens out candidates on the basis of age or nationality is directly discriminatory and unlawful.

Sometimes discrimination is an unintended consequence of an action. In those cases, there may be a defence of objective justification where an employer has indirectly discriminated against a candidate. This defence requires an employer to show that the act or process that triggered the (albeit unintended) discriminatory consequences was a reasonable, proportionate and necessary measure.

In the context of AI, however, this may be a difficult defence to argue unless the employer can demonstrate that the programming instructions to the AI device were strictly confined to applying filters that are demonstrably non-discriminatory. For example, a lawful filter would include specific professional qualifications, specific experience that relates to the technical competencies of the role or the holding of a specific role.

As noted, the employer would need to take care that no discriminatory filters are applied, such as date of birth, gender or disability. The employer should also take care to ensure that it does not inadvertently use proxies for discrimination in the application of filters for recruitment. For example, the AI device may be programmed to screen for candidates who have a six-month break between assignments. That could have the unintended effect of screening out parents who have taken time out to care for children or it could screen out a candidate who had time out from their career due to illness. Another example of a proxy for discrimination could be a street address or postcode area, where that address or postcode is associated with a particular ethnic group.

In essence, if AI is being deployed to filter candidates, then the employer needs to carefully screen and consider the filters to ensure that the unintended filtering of candidates does not breach Irish employment law. This should be regularly reviewed in light of legislative and case law developments.

In a dispute, it is very possible that a plaintiff's lawyers could seek detailed information on how the AI device was programmed. It could, for example, have the effect of requiring the developer of the AI system to allow the employer access to its coding – something it is unlikely to do, given the commercial sensitivities in allowing such access. Moreover, even if a developer was willing to part with such commercially sensitive information, the employer may not be able to make sense of it, given the challenges associated with the explicability of complex AI systems. This problem is often termed "algorithmic opacity" or the "black box" issue. It also highlights the limits of what a developer could safely do without the close input of the employer in the digitalisation of the recruitment process.

An alternative option is for the employer to insist that the AI developer warrants that the operation and decision-making processes of the AI system comply with Irish employment law. In practice, this could be challenging. Employment laws change. Case law changes the interpretation of existing employment laws. As a result, developers may be highly reluctant to give such warranties in circumstances where the AI system is operating on a data set provided to it by the employer, which might itself contain biases.

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A possible interim solution then is for employers to adjust their use of AI systems to take account of the risks involved. This would require employers to retain their autonomy over the recruitment and other HR processes by stress-testing the AI process internally and appointing an employee to audit various stages of the process. Such human control over the AI system may be sufficient to allow the employer to take advantage of the defence of reasonableness available under the Employment Equality Acts.

The presence and effect of bias in AI systems of course extends beyond the realm of employment law. By virtue of humans creating AI, and selecting the data training sets for the AI, bias can be introduced into algorithms that are used on a daily basis in the provision of goods and services. The Equal Status Acts 2000–2018 may provide a legal basis to challenge AI discrimination in the provision of goods and services, on the basis of gender, marital status, family status, age disability, sexual orientation, race, religion, and membership of the Traveller community.

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Kevin Harnett
Tel: +353 86 781 6496 / Email: kevin.harnett@maples.com

Kevin Harnett is a Partner in the Dispute Resolution & Insolvency team at Maples and Calder, the Maples Group's law firm in Dublin. Kevin has extensive experience advising both domestic and multinational clients from diverse backgrounds on large and complex commercial disputes, including proceedings before the Commercial Court, as well as all forms of alternative dispute resolution. He has a particular focus on the financial services, technology, construction and property sectors.

Claire Morrissey
Tel: +353 87 468 5679 / Email: claire.morrissey@maples.com

Claire Morrissey is a Partner and head of the Maples Group's Data, Commercial and Technology practice at Maples and Calder the Maples Group's law firm in Dublin. Claire advises on data, digital, cyber and technology across all sectors including emerging technologies such as AI/ML and IoT. Claire also regularly advises on commercial contracts, outsourcing and technology, IP and data aspects of joint ventures and mergers & acquisitions.

Maples Group

75 St. Stephen's Green, Dublin 2, D02 PR50, Ireland
Tel: +353 1 619 2000 / URL: www.maples.com

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