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**Global Legal Insights
AI, Big Data & Machine Learning
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Introductory Remarks

Artificial intelligence (“**AI**”) is all around us, affecting many aspects of our everyday lives. In the last few years, the UAE has positioned itself as a leader in innovation, with initiatives such as Smart Dubai, which is a government-led initiative looking to achieve a smart way of life for the residents and visitors of Dubai. Smart Dubai looks to empower strategic partnerships between the public and private sectors to ensure maximum technology innovation. Smart Dubai has also teamed up with IMB to launch an AI lab to look into ways in which an AI can improve and transform certain business functions.

Adoption of AI in the UAE

One of the areas we are starting to see an increased adoption of AI is the education sector, with JESS Dubai introducing an AI-based platform (called CENTURY) which personalises a learning pathway for each student, allowing teachers to teach all children in a class differently yet simultaneously. In addition, HBMSU recently launched a new smart building in Dubai that connects smart systems with AI, such as power and efficiency control, lighting systems, air conditioning and other facilities on campus.

The Dubai Electricity and Water Authority is also leading the way with regard to smart buildings with its new headquarters, Alsheraa Building located in Al Jadaf, Dubai set to be the largest and tallest net zero energy building in the world. The building will have over 16,500 m² of photovoltaic solar panels producing over 3,500kWp, over 10,000 m² of building-integrated photovoltaics producing over 1,100 kWp, and the total renewable energy generated by the building will be over 7,000 MWh annually. The building will also adapt the latest energy and smart technologies, which is hoped to result in an energy use intensity of less than 70 kWh/m²/year.

Why is the UAE well placed to lead the charge?

One of the identified global “blockers” for the development of AI and the implementation of truly integrated AI is the issue of connectivity, namely the worry that mobile connectivity will not be powerful enough to process the flow of required data fast enough to fully take advantage of the capabilities of both AI and integrated technologies.

The rollout of 5G in the UAE is at an advanced stage, with UAE-based telecom providers set to launch 5G networks as early as late 2019. 5G connected technologies will help deliver the required capacity and increased connectivity to end users. It will also provide the ability to access applications from “any platform, anytime, anywhere”.

The improved broadband infrastructure will also shape the environment for the growing adoption of IoT and integrated smart city platforms, enabling them to become a way of life for many end users.

As a result of the expected rollout of 5G, the UAE government and business alike are focusing on utilising and extending their use of AI to ensure they are ready and well placed to take advantage of 5G following the rollout.

Ownership issues

The issue of ownership of an AI algorithm and the ownership of works created by AI and machine learning tools is a topic that has generated a great deal of discussion amongst intellectual property practitioners globally, including the UAE. Securing intellectual property (“IP”) rights in an algorithm is particularly challenging, as the algorithm is constantly changing as it is fed more data and continues to learn and develop. As such, even if the algorithm was protected at the outset – for example, by way of patent protection – the algorithm is likely to have significantly changed from what was patented to begin with.

Traditional IP protection methods can be utilised to protect AI and its creations, with examples including computer programs potentially being protected as copyright works, graphic elements of AI being protected by industrial design (i.e. the industrial look – brand protection by use and registration of trade marks, e.g. stickers on computers), and through patents granted for machine learning and other AI. However, although traditional methods can be utilised, these are not suitable in all scenarios; and, in the UAE, as with other jurisdictions, the current IP laws are not well suited to deal with the ownership of assets created by AI technology.

Who owns the IP in works created autonomously?

With continuing advances in this field, AI technology is capable of creating so many things, including innovative technology, software, artwork, musical works, etc., which would be protected by IP laws if a human had created them. With the latest developments in AI, the computer is no longer just the tool, but is actually making the decisions involved in the creative process without human intervention. This creates an interesting situation as there is no “human” or “person” creating the work, a requirement under UAE copyright law.

The current IP laws and systems do not offer an answer to this scenario; i.e., where IP rights cannot protect assets that are the product of an autonomous AI tool. This has led to a very interesting debate as to how to adapt existing IP laws to better cope with assets created autonomously by an AI tool. Options discussed include enabling the autonomous AI tool itself to be granted status as a legal person, so as to own the IP in the asset (an option that is inextricably linked to the question of accountability of the AI tool); and future laws giving AI tools and/or autonomous AI tools legal status akin to that of a child – i.e., a human would still be

responsible for the AI tool/robot in the same way a parent or guardian is responsible for a child, although this would require further consideration as to the limitation on the control of the parent/legal guardian.

Another issue raised in relation to IP is what happens if an AI tool, acting autonomously, infringes third party rights. To the extent that existing laws do not extend liability to an AI tool/robot, then the most likely scenario is that a stakeholder, such as the owner or developer of the AI tools, may be held accountable.

Protecting AI algorithms

Fast-paced innovations and development of advanced skills in the technology field has also led to a need to change how businesses protect the algorithms powering their AI tools. It is often thought that, without having knowledge of the algorithms powering the machine learning model, a competitor will not be able to replicate the technology. In the past, business have sought to rely on maintaining their back-end code and datasets under strict confidentiality in order to prevent competitors from using their algorithms. However, such algorithms may be at risk with the advent of reverse engineering. The latest research into this area clearly shows that it is more important than ever to ensure that all proprietary machine learning models or data is either protected or kept secure. As a form of intellectual property protection, trade secrets can be weak, as once the information has lost its confidential nature, the trade secret is lost and the valuable information is available. As a result, companies investing in AI and machine learning are better off looking towards patent protection, where, in return for disclosing the nature of their invention, it is possible to secure up to 20 years' protection against the unlicensed use of the disclosed machine learning architecture.

Concluding remarks

In the absence of a suitable legislative and regulatory framework, we are required to find the most sensible and pragmatic approach to safeguarding the IP created to the greatest extent possible within the existing frameworks. With regard to works created autonomously by AI tools, one such pragmatic approach is for the IP ownership to vest in the person who commissioned the assets that have been generated by the AI tool.

With regard to AI tools that are developed as a result of the input of data from third parties, one commercial solution is for the AI developer to retain the rights to the AI tool and, in return for providing the data required to augment the tool, the parties that provide such data are provided with clean data sets by the AI tool developer. This "clean" data can then be commercialised separately.

Antitrust/competition laws

The UAE has its own Competition Law Regime under Federal Law No. 4 of 2012 Concerning Regulation of Competition ("**Competition Law**"), which has been drafted to: (i) curb monopolistic business practices and boost competition in the economy; (ii) prohibit restrictive agreements and business practices that lead to an abuse of an entity's dominant position in the market; and (iii) monitor and restrict economic concentration that may adversely affect competition in the economy.

Using AI in combination with big data can create economic efficiencies and pro-competitive effects; for instance, by making it easier to identify what customers really need and, at the same time, reducing the costs of production and distribution. However, under certain circumstances, the use of AI in combination with big data may also be a factor contributing to competition concerns, including: (1) increasing market power; (2) increasing market transparency and facilitating collusion; (3) giving rise to various exclusionary practices available to organisations with a dominant market position; and (4) merger control issues.

Competition issues could therefore arise in a market like the UAE, where there is a relatively high level of concentration. For example, where access to a large volume or variety of data is important to a particular market and that market is heavily concentrated, such access can form the basis of market power and arguably a dominant position. As a result, new entrants into this same market may arguably face barriers to entry as they try to build up their own data sets to be able to compete with those already in the market in possession of this data. New entrants may collect data directly from their customers or may also buy access to customer data from third parties (a practice prevalent in the UAE). However, collection of data from scratch can be difficult. Where a company attempts to build these data sets through its own customers, it may struggle if an established company has already developed a significant network which has won the trust and/or favour of a significant number of consumers. Equally, a new company cannot rely on purchasing data sets from third parties, as they may not be willing to part with these assets to competitors.

The increasing transparency of prices and characteristics of goods and services can have a positive impact on consumers, giving rise to more informed choices – e.g., certain e-commerce sites in the UAE allow consumers to compare prices and conditions offered by its hosted retailers.

However, the greater availability of information online may also limit competition by facilitating price coordination: in transparent markets, companies can more easily monitor each other's actions, and frequent interactions enable them to punish deviations. Coordination is more likely to take place in markets where large volumes of pricing data are publicly available and products are relatively undifferentiated – in particular retail, consumer-oriented businesses.

In an online environment, the development of sophisticated algorithms has further increased the likelihood of collusion. Algorithms have now been developed which monitor, analyse and even anticipate competitors' responses to current and future prices. As algorithms become more sophisticated (e.g. with machine learning) and data sets become more readily available, the prevalence of such online collusion is likely to increase.

Given the recent development of the Competition Law framework in the UAE, for the time being, the rise of big data in combination with AI is unlikely to change its fundamentals. However, given the rise of AI adoption in the UAE, the Competition Authority is likely to become more attuned to tackling anti-competitive uses of big data and AI, and therefore those businesses not subject to exemption under the Competition Law should be mindful of: (i) using pricing algorithms for the purposes of collusion; holding and using unique big data sets which hold significant value to their market and limiting third-party access to that data; and (iii) finally in terms of merger control inquiries, the size of data sets held by parties may come under consideration in determining whether the combined firm will become the only party to hold a key data set, and therefore be deemed to have significantly increased its market power and overall dominance.

Board of directors/governance

There are currently no laws in place in the UAE which provide a legal or regulatory framework of the use of AI. As such, the interrelationship of AI and governance must be looked at within the context of the current legal framework.

Governance issues

When looking at the relationship between AI and governance, it is important to look at the impact of AI on the pillars of successful corporate governance, namely: accountability; fairness; transparency; leadership; stakeholder engagement/management; and awareness of relevant laws.

AI is only as good as the data fed to it. As such, reliance on poor or biased data will result in poor decision outcomes which can adversely affect a business. Therefore, reliance should be placed on assessing the quality of the data being fed into the tool, and whether the data is suitable and/or even relevant for the specific AI tool. Record keeping is another key requirement from a governance perspective and, therefore, there needs to be a tangible chain of analysis that leads to any particular decision.

Effect of AI and big data on the due diligence process for boards of directors

There is great potential for the application of AI to streamline the due diligence process, such as streamlining document production and analysing documents to flag issues requiring further specific attention. This streamlined due diligence process will lead to reduced review time, which in turn will reduce costs. Examples of where AI has been successfully used in this way include the identification of contracts that include change of control provisions. In addition, AI can go beyond assisting with due diligence, as it can offer alternative deal opportunities by searching various platforms. AI can look at data and conclude correlations between potential buyer(s) and seller(s) based on what is publicly available and whilst considering the market outlook.

How does AI and big data affect the board's fiduciary duties?

Under UAE Federal Law No. 2 of 2015 (the "**Commercial Companies Law**"), there is no express fiduciary requirement (as would be recognised in other jurisdictions, such as under English Law). However, there is a general requirement for directors to act in accordance with the company's objectives and in the best interest of its shareholders. Directors are to act in accordance with the powers granted to them in line with the resolutions and/or powers of attorney in place. This obligation extends to oversight, which requires directors to have effective reporting or monitoring system in place that allows them to detect potential risks to the company.

It therefore follows that, in order for directors to comply with their duty under the Commercial Companies Law, they must have an understanding of how data is obtained and maintained in order to conclude whether the assessment reached by the AI is accurate or whether changes to data management and storage are required.

In accordance with the directors' duty to always act in the best interests of the company, directors have a responsibility to balance the use of AI to make the business more efficient, whilst also ensuring that the right level of human intervention is deployed as required.

Examples of some of the key questions for directors to consider include:

- What is the impact of AI on the business model as a whole?
- What opportunities and threats/risks will AI present?
- How is the company using AI technology and new data for governance and risk management?
- Is there a talent strategy for recruiting in place to retain people with the necessary skill set to manage AI-related projects?
- In what business units will AI be implemented?
- What data will be fed to AIs and for what purpose?
- Has the board asked management to assess how the adoption of AI will impact the integrity of its financial statements?

AI ethics board

One of the trends we have seen coming out of international organisations that have been doing a lot of work in the field of AI and machine learning is the set-up of internal AI ethics boards, to provide thought leadership and guidance on how the organisation researches and exploits AI technology and associated data. A key property of an AI ethics board is that it should be accountable to another body so that it can be challenged if there are doubts as to its behaviour. An internal AI ethics board could be structured so that it is accountable to the board of the overall organisation. Alternatively, an AI ethics board such as the one set up as DeepMind Health's ethics board, which comprises external consultants, could potentially be held accountable to the public due to its published annual reports.

Overview of the UAE position's on AI

Following the launch of the UAE AI strategy in October 2017, AI has become a hot topic locally. The UAE AI strategy has five main aims:

- achieve the objectives of UAE Centennial 2071;
- boost government performance at all levels;
- use an integrated smart digital system that can overcome challenges and provide quick efficient solutions;
- make the UAE the first in the field of AI investments in various sectors; and
- create new vital markets with high economic value.

In addition, the UAE AI strategy focuses on nine sectors: transport; health; space; renewable energy; water; technology; education; environment; and traffic. With such a wide remit and scope, we are seeing a continuing rise of the deployment of AI tools throughout the UAE.

As recently as 21 April 2019, the UAE reconfirmed its commitment to AI by launching its National Strategy for Artificial Intelligence to improve customer services, assess government performance, increase living standards and to harness AI technology in the transport, tourism, health and education sectors. The National Artificial Intelligence Strategy 2031, aimed at positioning the UAE as a global leader in artificial intelligence by 2031, has been seen as a demonstration that the UAE is moving ahead with its vision and plans set out in the UAE Centennial 2071. The strategy implementation is to be overseen by the Emirates Council for Artificial Intelligence and Digital Transactions, which will also coordinate with a number of local and federal entities.

AI related legislation

In an attempt to bridge the gap between the drive for innovation in the field of AI and other futuristic technologies and the current lack of a suitable legal framework in this field, in November 2018, President His Highness Sheikh Khalifa Bin Zayed Al Nayhan issued a Federal Decree Law No. 25 of 2018 on Futuristic Projects (the “**Futuristic Projects Law**”). Under the Futuristic Projects Law, the UAE Cabinet can grant an interim licence for implementing any innovative project which is based on modern futuristic technologies or artificial intelligence where there is no UAE regulatory authority for such a project. The licences granted will be for a limited period only and will provide the UAE with an opportunity to test controls, conditions and procedures. The intention is that this opportunity will provide valuable insight and information that will form the basis of a new legislative framework for futuristic projects.

On 24 April 2019, the Dubai government issued a new resolution to regulate autonomous vehicle testing in Dubai. This is the first phase of a legislative framework being created in the UAE to ensure efficiency, reliability and security of smart mobility. The Dubai Autonomous Transportation Strategy aims to transform 25% of the total transportation in Dubai to autonomous operation by 2030, so it is great to see the first steps of a legislative framework being put in place for this rapid growth industry.

With regard to big data, the UAE government has issued a draft data protection law which draws largely from the General Data Protection Regulation, and it will be interesting to see the final form of this law and how it is implied in practice to regulate big data in the UAE. There are current very tight privacy provisions in the UAE which can be difficult to navigate for technology companies looking to use consumer data to augment their AI tools.

Implementation of AI/big data/machine learning into businesses

In addition to the Futuristic Law and Dubai’s resolution to regulate autonomous vehicle testing, there are other federal laws that businesses looking to incorporate AI functionality need to be aware of. Arguably the most important of these are data laws, or in the case of the UAE, the sources of data protection provisions such as the strict privacy provisions in local legislation.

The first issue to consider is that of data collection; i.e., was the data used to augment the AI tool collected in accordance with local law. Although some of the data collected for the purposes of developing and using AI is aggregated or anonymous data, and therefore is unlikely to fall under the definition of “personal information” (which is most likely protected by law), for many AI tools such “personal information” is vital for

the AI to develop. Where “personal information” is being collected, the relevant data controller will likely need to ensure that either: (i) the person has consented for their data to be used, for the purpose of developing AI; or (ii) ensure there is a legitimate interest for processing and using that individual’s personal information.

Consent could be achieved through a pop-up where an application is being used, or in employment contracts; the legitimate interest rationale could also be used.

Dubai Data Law

Both developers and businesses looking at deploying AI solutions should remain astutely aware of the current legislative environment around data use in the UAE. Law No. 26 of 2015 (the “**Dubai Data Law**”) continues to impact the use and deployment of data-dependent AI solutions in two specific ways: (i) all the development of an “open data” landscape can help organisations garner valuable data needed to develop their particular solution; and (ii) if identified as a “data provider”, a number of obligations may be triggered for an organisation to collect certain types of data as per the Dubai Data Law, and to store, share and/or publish such data.

In addition to the Dubai Data Law, businesses must also pay special attention to the relevant legal provisions protecting personal data by way of the privacy laws, including the DIFC Data Protection Act and the UAE Cybercrimes Law.

Another key issue for businesses to be aware of is data storage. During the development of AI, data will need to be collected and stored. This will most likely be facilitated using electronic storage, through cloud solutions.

Currently, the legislative environment both within the UAE and across MENA is moving towards the localisation of data, namely the requirement for organisations utilising cloud or third party data solutions to ensure certain types of data are stored onshore in the relevant jurisdiction in which they were collected. Specific examples of this movement towards data localisation can be seen in the Digital Payments Regulation and the proposed Central Bank Outsourcing Regulations. This legislation requires certain categories of data to be retained onshore within the UAE, and for banks/service companies and anyone providing certain financial/cloud services to obtain certain categories of licence from designated regulatory bodies (such as the Central Bank in the UAE) to operate or even use these types of service.

Developers and organisations in certain industries looking to utilise AI in tandem with cloud solutions will therefore have to remain aware of the regulatory landscape governing the type of data they wish to collect and utilise, and to deploy solutions and relevant data centre architecture appropriate to these regulatory requirements.

Civil liability

AI and Civil liability considerations

When a software is defective or where a party is injured following use of a software, the party suffering harm is likely to bring a claim for negligence. There are three elements that will need to be demonstrated to raise a claim for negligence: (i) that defendant had a duty of care; (ii) that the defendant breached that duty of care; and (iii) that the breach caused harm to the claimant.

The cause of an AI system's failure to perform can give rise to:

- a breach of duty of care in negligence claims;
- a breach of an express or implied term under contract; and/or
- a link between a defect and damage suffered in consumer protection liability claims.

In the absence of legislation relating to AI, redress for victims suffering harm following failure of an AI is likely to be a claim for the tort of negligence. The claimant would need to establish the three elements raised above to raise a claim for negligence. The liability for negligence would fall with the persons or entities who caused the damage or who may have foreseen such a damage or defect when the product was used in that manner.

Where does liability fall when AI fails?

There are many parties involved in an AI system, including but not limited to the data provider, manufacturer, designer, developer, programmer, user and AI system itself. In order to address the question of who will be liable, the following questions should be considered:

- Was the damage caused when the AI was in use? Were instructions followed? Were there limitations (either general or specific) that came with the AI system? Were these limitations communicated to the purchaser? Depending on the responses, the user or owner may be held liable.
- Was the AI system still learning when the damage was caused? Depending on the responses, the developer or data provider may be potentially liable.
- Was the AI provided with open source software? Depending on the response, the programmer may be held liable.
- Can you trace the damage caused by the AI failure back to the design or production stage or was the error due to implementation by the user? Depending on the response, the designer, manufacturer or user may be held liable.

It is safe to predict that the role of AI is likely to increase in the future. Local laws, more specifically Federal Law No. 5 of 1985 (the "**Civil Code**"), have been developed to regulate the action of natural persons and not AI. Therefore, it is imperative that appropriate legislation be implemented to plug this clear gap.

Criminal liability

AI and criminal liability

Short of granting the AI tool legal status, it is difficult to see how criminal liability could vest with the AI tool. Even if such legal status was granted, this would pose issues as to establishing that the AI tool had the "intent" to commit the crime and whether or not the AI tool knew that the action taken was "criminal". In the absence of any legal or regulatory guidance on AI tools, the liability for the actions of the AI will most likely vest in the programmer or company behind the AI tool, i.e. with an action akin to corporate manslaughter.

Conclusion

The UAE's recent launch of its National Strategy for Artificial Intelligence 2031, aimed at positioning the UAE as a global leader in artificial intelligence by 2031, confirms the UAE's continued commitment to the continued integration of AI.

From a legal and regulatory perspective, the Futuristic Law and Dubai's new resolution to regulate autonomous vehicle testing are clear demonstrations of both Dubai's commitment to AI, and its recognition that legislation is essential to provide a clear framework within which this exciting technology can continue to develop and be implemented.

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