AI: a foundational technology for gambling

Artificial intelligence holds great potential for both gaming and the gaming lawyer but Dr. Ian Gauci argues that its adoption into the mainstream may not be straightforward.

The impact of artificial intelligence (AI) on digital businesses has been profound and internet gambling is no exception. Its use already helps organizations learn habits and patterns of behaviour (sometimes even emotions) to maximize the potential reach of services and products offered to consumers. There are particularly powerful applications in the online gambling arena and these look set to develop rapidly as the potential of the technology is realized. It is conceivable that AI could introduce new forms of gambling or social betting, it could automate and create odds and set the pay-outs as well as target atypical segment users for this form of betting/gambling.

The gaming industry is also heavily regulated and is already exposed to Regtech, Suptech as well as CompTech. AI technology is a formidable ally here as it can optimize customer service, prevent fraud, and automate some regulatory compliance including AML and CFT checks. It can be used for on boarding, age controls, geolocation etc. AI is used as well to control behaviour of players to be able to monitor problematic gamblers and intervene before they elect to self-exclude. The self-exclusion process can also be handed through AI and the technology helps mine the opportunities in customer data more fruitfully, building better products and more personalized experiences for the players. Its full potential is still untapped, and we anticipate wider industry use of AI in the gambling sector over the coming years.

AI and the gaming lawyer
The gaming industry works hand in hand with the legal profession which is likewise affected by developments in this field. A multitude of applications in the LegalTech industry are also opening up opportunities of AI for

algorithms, and natural processing language is already used to assist in delivering court judgments abroad. Applications such as IBM's Ross, dubbed the first AI lawyer, allegedly answers legal questions posed by users with astonishing accuracy, even providing citations and suggestions for further reading. A Law firm in the USA has also recently announced that they are employing IBM's AI Ross to handle their bankruptcy practice[1].

There are legal futurists like Benjamin Alarie who predict that AI will bring legal singularity (a hypothetical point where computational intelligence and decision-making capabilities exceed those of human lawyers, judges and other decision-makers) borrowing the term "singularity" from Vernor Vinge, He suggests it will replace the existing legal regime through an automatic interactive process between the algorithmic systems of governments, lawyers, corporations, and solve all legal woes in the process[2].

Max Tegmark, a physicist, and co-founder of the Future of Life Institute, to this end opined that: "Since the legal process can be abstractly viewed as computation, inputting information about evidence and laws and outputting a decision, some scholars dream of fully automating it with robo judges; AI systems that tirelessly apply the same high legal standards to every judgment without succumbing to human errors such as bias, fatigue or lack of the latest knowledge.[3]"

Despite the recent advancements

in technology however, AI is still somewhat narrow in its application, and from a technological perspective it is unlikely that we have reached a juncture where an AI expert machine or a cluster of such machines is able right now to replace a whole legal system or our judges. Having said this, we cannot exclude the possibility that, through the attainment of Artificial General Intelligence and more connected expert machines or other new technologies, there could come a time when software artifacts can outperform intricate legal work exclusive to the domain of lawyers or judges.

On the latter point, Judge Posner does not exclude the inception of AI judges *a priori* albeit he playfully posited that "The judicial mentality would be of little interest if judges did nothing more than apply clear rules of law created by legislators, administrative agencies, the framers of constitutions, and other extrajudicial sources (including commercial custom) to facts that judges and juries determined without bias or preconceptions. Judges would be well on the road to being superseded by digitized artificial intelligence programs.[4]"

When Deep Blue (the computer chess player) defeated the then reigning grand master, Garry Kasparov in 1997, it did not replicate the way he played, but rather used the strengths of the machine (fast, precise, infallible memory) to play better than a human. It is not farfetched to think that the same could happen to law. Technology could introduce new approaches and

techniques which are not available to humans due to our limitations, but which would give better results[5]. Several legal scholars have also remarked that, rather than challenging the existing shortcomings in the legal system, singularity here promises to recode these and automate their logic. According to them, this would, in turn, affirm and reproduce their designers' and users' subjective assumptions and ideological priorities as well as their accompanying societal contexts and structures through feedback loops. One would need to ponder here what role and rights citizens would have with legal singularity in this new environment. As Hart observed, this is critical to "preserve the sense that the certification of something as legally valid is not conclusive of the question of obedience, and that, however great the aura of majesty or authority which the official system may have, its demands must, in the end, be submitted to a moral scrutiny.[6]"

Theory into practice

That said, there are several barriers which would prevent a transition from this theoretical possibility into everyday use. There are already strong views on the use of AI in courts, especially by the CCBE[7] (Council of Bars and Law Societies in Europe) which attest that such AI systems would, amongst other things, fall foul of the existing rule of law if they:

1. Use data and elements that have not been the subject of adversarial debate.

1. https://futurism.com/artificially-intelligent-lawyer-ross-hired-first-official-law-firm
2. B Alarie, 'The Path of the Law: Toward Legal Singularity' (2016) 66 University of Toronto Law Journal 443, 445, papers.ssrn.com/sol3/papers.cfm?abstract_id=2767835
3. M Tegmark, Life 3.0: Being Human in the Age of Artificial Intelligence (Allen Lane, 2017) pg 105
4. (RA Posner, How Judges Think (Harvard University Press, 2008)
5. For further reading see also the case of chess champion Marion Tinsley who refused to play against the machine, Chinook see, "One jump ahead : computer perfection at checkers" by Jonathan Schaeffer.
6. HL Hart The concept of law pg 21
7. https://www.ccbe.eu/fileadmin/speciality_distribution/public/documents/IT_LAW/ITL_Position_papers/EN_ITL_20200605_CCBE-Response-to-the-consul-tation-regarding-the-European-Commission-s-White-Paper-on-AI.pdf

2. Exploit conclusions that have not been obtained through the reasoning of the judge.
3. Lack transparency of the process, since it will be unclear what should be attributable to the judge and what to the machine.
4. Undermine the principle of impartiality due to the impossibility of neutralising and knowing the biases of system designers.
5. Breach the principle of explicability due to the existence of results that are beyond human reasoning and cannot be traced.
6. Remove or dent the notion of a level playing field (equality of arms).

Ugo Pagallo and Quattrocolo Serena also focused on the use of AI and automated evidence gathering, raising issues with Article 8 (right to a private life and also right to a fair hearing)[8] In the case of Wisconsin vs Eric Looms[9] the use the automated COMPAS (Correctional Offender Management Profiling for Alternative Sanction) was like wise attacked on lack of principles of due process (Fifth and Fourteenth Amendments).

In Europe, aside from rules on due process, we already have laws like the General Data Protection Regulation, which would prohibit a decision taken by an AI judge based solely on automated processing. Article 11 of Directive 2016/680 on Data Protection in Criminal Matters is even stricter on this issue as it prohibits them *in toto*, unless authorized by the respective member states.

It is against this backdrop that the European Commission has introduced draft AI regulation which, if implemented, would apply to a wide range of AI use cases. As has been noted above, gambling operators are

both users of AI and see its future potential and will need to follow the developments of the new draft EU regulation closely. The draft AI regulation has been proposed to address the use of a family of technologies to ensure that such technologies are not used to the detriment of society. To achieve this goal it envisages a mandatory regime for the captured AI, it also classifies the types of AI which will be banned, as well as those which will be required to follow a pre-set of obligations before being introduced to the European Market.

Gambling operators might need to assess if certain AI systems they deploy or plan to deploy could either fall within this category of High-risk AI in Annex 3 of the EU draft regulation (See Figure i below).

High-Risk AI Systems under the draft regulation in turn must follow:

(a) *Ex ante* **technical parameters and transparency**
1. Risk management systems: Providers must establish, implement, document, and maintain a risk management system, including specific steps

such as the identification of foreseeable risks of the AI System and analysis of data gathered from a post-market monitoring system. The risk management system must ensure that risks are eliminated or reduced as far as possible by the AI System design and development and adequately mitigate risks that cannot be eliminated.
2. High quality data sets: The Draft Regulation requires High-Risk AI Systems to be trained, validated, and tested by high quality data sets that are relevant, representative, free of errors, and complete. This requirement must be ensured by appropriate data governance and data management.
3. Technical documentation and record keeping: The design of High-Risk AI Systems must enable tracing back and verification of their outputs and the Provider is obliged to retain technical documentation reflecting conformity of the AI System with the requirements of the Draft Regulation.
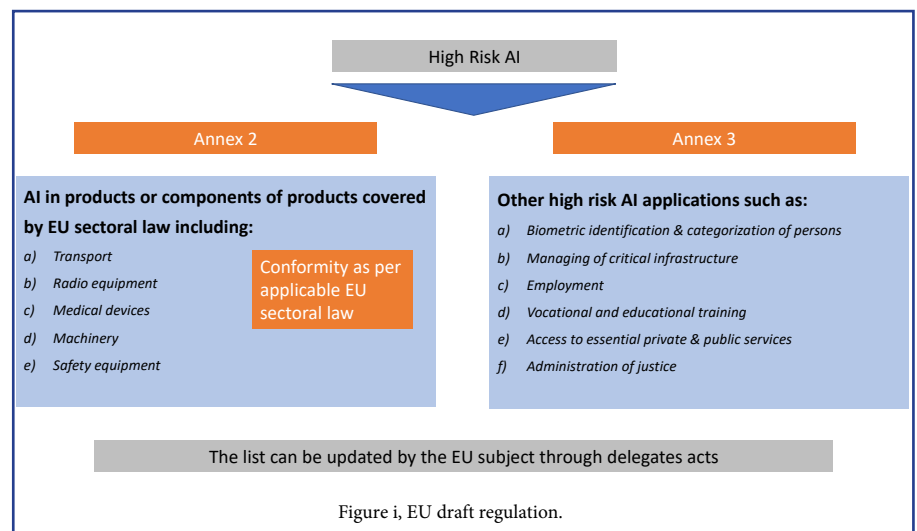4. Quality management system: the

Figure i, EU draft regulation.

High Risk AI

Annex 2

AI in products or components of products covered by EU sectoral law including:
a) Transport
b) Radio equipment
c) Medical devices
d) Machinery
e) Safety equipment

Conformity as per applicable EU sectoral law

Annex 3

Other high risk AI applications such as:
a) Biometric identification & categorization of persons
b) Managing of critical infrastructure
c) Employment
d) Vocational and educational training
e) Access to essential private & public services
f) Administration of justice

The list can be updated by the EU subject through delegates acts

8. Pagallo, Ugo; Quattrocolo, Serena "The impact of AI on criminal law, and its two fold procedures" [2018] ELECD 1416; in Barfield, Woodrow; Pagallo, Ugo (eds), "Research Handbook on the Law of Artificial Intelligence" (Edward Elgar Publishing, 2018
9. https://epic.org/algorithmic-transparency/crim-justice/Wisc-Brief.pdf

Provider is required to put a quality management system in place.

5. Transparency and information for Users: Users must be able to understand and control how a High-Risk AI System produces its output.

6. Human oversight: High-Risk AI Systems must be designed in such a way that they can be effectively overseen by competent natural persons and the draft regulation introduces the notion and function of a kill switch.

7. Robustness, accuracy, and cybersecurity: High-Risk AI Systems must be resistant to errors as well as attempts to alter their performance by malicious third parties and meet a high level of accuracy.

8. Authorized representative: Providers established outside the EU must appoint an authorized representative.

The draft regulation also introduces the concept of certification and mandates certification which will have an EU dimension and will rely on the existing process for CE marking. Under the proposed EU model, the conformity and certification are imbued with a principle of EU equivalence as well as passport ability. The Provider must indicate the AI System's conformity with the regulations by visibly affixing a CE marking so the AI System can operate freely within the EU. Before placing it on the market or putting it into service, the Provider must also register the AI System in the newly set up, publicly accessible EU database of High-Risk AI Systems.

(b) *Ex post* **market monitoring obligations**

The draft regulation also caters for post-market monitoring obligations. Providers must implement a

proportionate post-market monitoring AI System to collect, document, and analyze data provided by Users or others on the performance of the AI System. This is coupled with reporting obligations which, aside from covering the provider, also apply to the following: (a) Users' obligations for High-Risk AI Systems, (b) Importers' obligations for High-Risk AI Systems, (c) Distributors' obligations for High-Risk AI Systems, (d) Users, importers, distributors, and third parties becoming Providers.

The draft regulation under Article 5 also captures banned AI as shown in Fig ii:

In addition to Article 5, captured above, the draft regulation also states in Recital 16 that: *The placing on the market, putting into service or use of certain AI systems intended to distort human behaviour, whereby physical or psychological harms are likely to occur, should be forbidden. Such AI systems deploy subliminal components individuals cannot perceive or exploit vulnerabilities of children and people due to their age, physical or mental incapacities. They do so with the intention to materially distort the behaviour of a person and in a manner that causes or is likely to cause harm to that or another person. The intention may not be presumed if the distortion of human behaviour results from factors external to the AI system which are outside of the control of the provider or the user. Research for legitimate purposes in relation to such AI systems should not be stifled by the prohibition, if such research does not amount to use of the AI system in human-machine relations that exposes natural persons to harm and such research is carried out in accordance with recognized ethical standards for scientific research.*

For the time being the concrete analysis and identification of what exactly would be banned is very subjective, and there are no guidelines or additional criteria to assist in a proper and coherent interpretation. We hope these are crystallized before the draft regulation is rolled out in years to come. A scientifically-backed risk model framework and matrix could also be adopted to guide organizations in assessing risk, the probability of the risk and the severity of harm to see if the activity would be captured by the specific prohibitions mentioned above. This is crucial as, aside from the lack
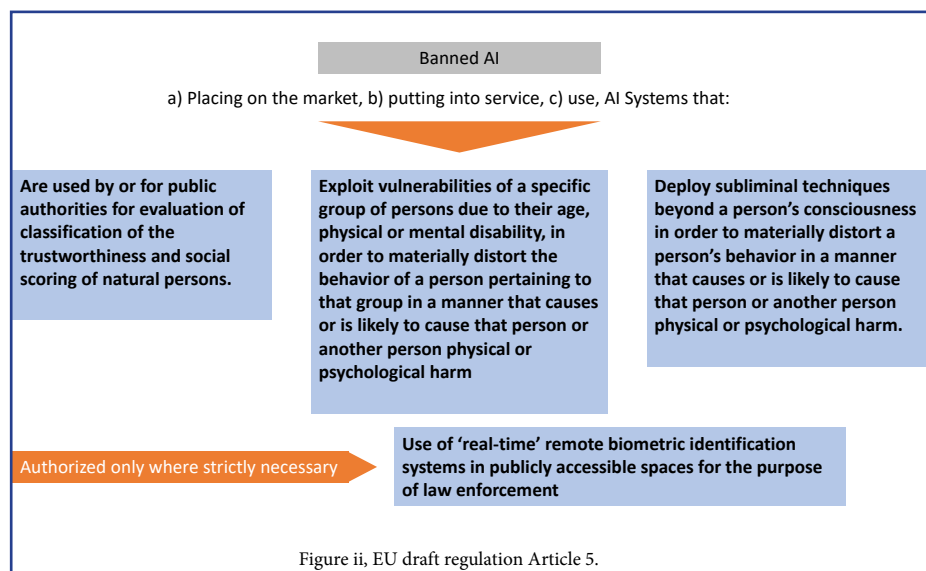

Figure ii, EU draft regulation Article 5.

of transparency, it would otherwise be left to organizations to define these subjective factors with the fear of massive penalties hanging around their necks.

The Draft Regulation, like the GDPR regime, provides for substantial fines in cases of non-compliance as follows:

- Developing and placing a blacklisted AI System on the market or putting it into service (up to €30 million or six perecent of the total worldwide annual turnover of the preceding financial year, whichever is higher).
- Failing to fulfil the obligations of cooperation with the national competent authorities, including their investigations (up to €20 million or four percent of the total worldwide annual turnover of the preceding financial year, whichever is higher).
- Supplying incorrect, incomplete, or false information to notified entities (up to €10 million or two percent of the total worldwide annual turnover of the preceding financial year, whichever is higher).
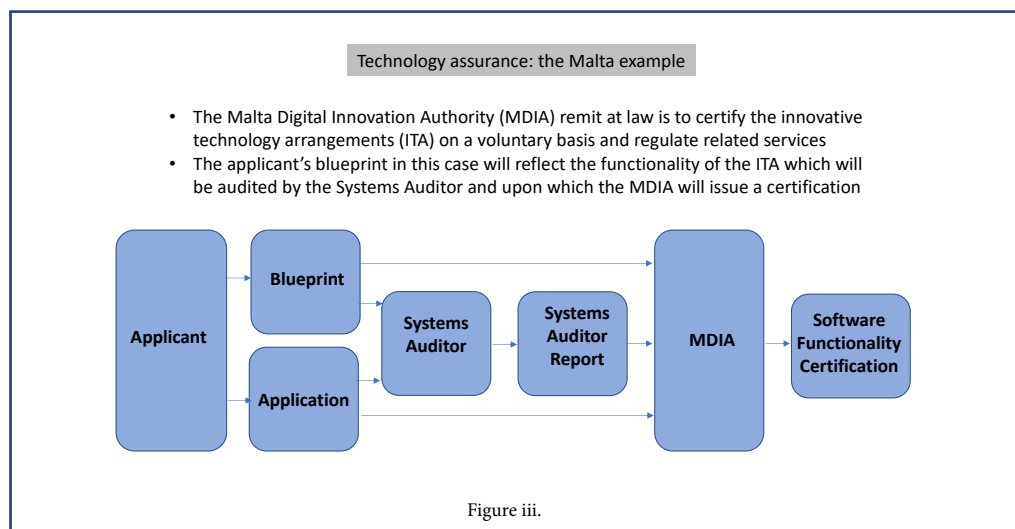
Operators should thus also monitor any specific measures implemented by member states like Malta which already cater for certain elements in the draft regulation in their national Law and could thus serve as a test bed to increment the regulatory capture of the proposed regulation. One such measure in the draft regulations is the AI sandbox proposed in Article 53 (1):

AI regulatory sandboxes established by one or more Member States competent authorities or the European Data Protection Supervisor shall provide a controlled environment that facilitates the development, testing and validation of innovative AI systems for a limited time before their placement on the market or putting into service pursuant to a specific plan. This shall take place under the direct supervision and guidance by the competent authorities with a view to ensuring compliance with the requirements of this Regulation and, where relevant, other Union and Member States legislation supervised within the sandbox.

This is similar to the Maltese model of the technology sandbox which is already fully operative in Malta through the Malta Digital Innovation Authority, one of the first authorities to offer a comprehensive technology assurance regime and certification, also covering AI, which in essence would be as follows:

Online gaming, like other areas transiting to a Society 5.0, is already being affected by technological innovation and AI is going to be a main catalyst. The gaming industry will need to evolve and find the freedom to operate in the new reality. *Alea iacta est.*

Technology assurance: the Malta example

- The Malta Digital Innovation Authority (MDIA) remit at law is to certify the innovative technology arrangements (ITA) on a voluntary basis and regulate related services
- The applicant's blueprint in this case will reflect the functionality of the ITA which will be audited by the Systems Auditor and upon which the MDIA will issue a certification

Figure iii.

Dr Ian Gauci is Managing Partner of GTG Advocates and Afilexion Alliance. He is an IMGL member and lectures on Legal Futures and Technology at the University of Malta.