

THE MULTI-DISCIPLINARY ROADMAP INTO THE FUTURE:

AI : THE LOTTERY COMMUNITY'S PATHWAY FOR BOTH PROTECTING PLAYERS AND ENHANCING THE PLAYER EXPERIENCE

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The emergence of Internet gambling in the 1990s was an important focus of Lottery conferences, and now provides the perfect looking glass into how the application of AI is likely to unfold in the coming years. Twenty-five years ago, the internet was seen as a communication and information-dissemination tool, but not so much as a channel for distribution, and certainly not as the paradigm-shifting innovation of the era. Nobody believed that the Internet would become the game-changer that it is today. The online market was first exploited by gray-area and illegal online gambling companies who were first to recognize the potential of the internet. It took years before the Lottery community understood the far-ranging impact that the internet would have on gaming, marketing, and business in general. By the time Lotteries realized the incredible potential for the Internet to connect operators with their players, online gambling companies had taken control of the majority of the market. Today, intense competition from illegal online gambling companies which are relentlessly finding new ways to circumvent the laws ... is an unfortunate reality that government-lotteries all are facing on a daily basis.

Thirty years later, the digital economy channels more and more market power to the most dominant players. We even have an acronym, GAFA, for the four companies (Google, Apple, Facebook, and Amazon) whose business is based on big data and machine learning. Witness the incredible success of Google Assistant with its 500 million monthly users and Amazon

Alexa which is installed in 100 million devices. Next-generation knowledge-management systems are based on AI technologies. Like the Internet in the 1990s, AI is indeed still an evolving technology and therefore it brings also uncertainty. But also like the Internet, we can predict with confidence the transformative impact that AI will have on business and every-day life. As Google's Larry Page said, "It's not about search. Artificial Intelligence would be the Ultimate version of Google." And Amazon's Jeff

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Bezos, "The development of Artificial Intelligence is a renaissance, a golden age."

The medical sector is an example where AI is strongly embraced on a global scale. Universities and Medical centers are developing powerful AI-based tools that can improve people's health by identifying disease, infections, and problems like brain tumors at an earlier stage) and anticipating cardiological problems that may occur during an operation. As always, technology has a magnificent potential to improve the well-being of human-kind, but society must be protected against the malicious use of the internet by criminals. It is therefore necessary and urgent to find the appropriate framework to allow the technology to develop further while society and consumers determine the most effective and appropriate measure of protection.

EU institutions are considering how to

regulate the uses and applications of AI. The European Commission has indeed the intention to come up with regulatory proposals in upcoming months. A lot of preparatory work has already been done by the High-Level Expert Group on AI, which is currently the only available guidance on the future of AI regulation within the EU. This High-Level Expert Group was comprised of experts appointed by the EC and had as their objective to support the implementation of the EU strategy on AI.

The High-Level group developed ethical guidelines that establishes several principles by which AI practices must comply in order to be ethical. Although not a legal instrument, it will be used by the EC when drafting the new AI regulation.

The Expert Group sets out 4 principles for an AI application to be ethical.

1. Respect for human autonomy, freedom to make decisions. Indeed we must be able to retain full and effective self-determination when confronted with AI applications. As AI gets better, it will be better at personalizing user experience (i.e. player experience for lotteries) and also be able to create a context in which humans' thinking patterns become a roadmap of how particular stimuli will lead to particular response and behaviour patterns. The Expert Group wants to ensure that this kind of deep insight will not be misused to undermine human autonomy, the freedom to make informed decisions without being inappropriately influenced by marketers with a commercial agenda.

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2. Harm must be prevented as much as possible. The potential victims and vulnerable groups include problem gamblers and underage consumers. These groups should therefore be identified, and appropriate measures taken to ensure AI causes no harm.
3. Fairness with a substantive and a procedural dimension. There is a requirement of absence of unfair bias, discrimination or stigmatisation. In practice it would mean assessing of costs and benefits to all stakeholders. Procedural fairness would mean that entity accountability for decisions taken by the AI is identifiable.
4. Explicability which means being transparent in its processes, openly communicated regarding its capabilities and purpose, and to make its methods explicable to all those directly affected.

For practical purposes the principles were translated into 7 requirements for AI applications: human agency and oversight, technical robustness and safety, privacy and data governance, transparency, diversity, non-discrimination and fairness, societal and environmental wellbeing and accountability.

Very sensitive applications of AI should be guarded against: unjustified personal, physical or mental tracking or identification, profiling and nudging through biometric recognition (emotional tracking, emphatic media, DNA, Iris and behavioral identification, voice and facial recognition, and the recognition of micro-expressions). We expect all these matters to lead to a review of existing legislation and how that might be adapted for AI as it is used in the domains of consumer protection, data protection, and rules or cyber-security. Proposals based upon these principles will likely be submitted within the next few months.

Moving from the European Commission to the European Parliament, we see that the Committee on Legal Affairs (JURI) also pays attention to digitalization and its ethical and legal considerations in interconnection with AI and robotics. At the end of last year, JURI launched public consultations in the field of robotics and AI and it was helpful in addressing the ethical, economic, legal, and social issues.

This EU institutional approach can be inspiring for many sectors including the world Lottery community which may decide to initiate its own approach. A multi-

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disciplinary lottery “think tank”, not just a working group, involving the top lawyers, CSR, CRM, security and technology experts from various continents in the lottery sector is essential to develop a timely and comprehensive framework that can afterwards be used to convince the regulatory authorities to embrace this approach for the whole gambling sector.

But how can AI affect the lottery and gambling sector?

Last year, an AI bot called Pluribus developed by Carnegie Mellon University and Facebook beat world-class professional poker players. At the same time, Facebook announced that they won't release the code as it could cause 'a potential impact on the poker community'. Pluribus is an upgraded version of Libratus, which 2 years ago beat professional players. It is not hard to imagine the harmful ways in which AI could be applied to confer unfair advantages and seriously undermine the integrity of the games-of-chance industry. On the other hand, AI could indeed be used for positive purposes, like teaching people poker strategies with simulated play that would not cause them to lose money. And to interpret behavioural patterns for the purpose of helping to manage play responsible as opposed to exploiting insights to promote addictive behaviour.

In the horserace and sport betting sector, AI could be a serious game changer. Through the use of AI the outcome of the race/match could be predicted, thanks to big data analytics. AI could actually jeopardize, or possibly even destroy the integrity of horse race/sport betting. In other segments of the gambling sector, there are substantial risks for consumers who play with illegal online gambling operators who could use AI to influence players to play more, and to play irresponsibly. In the absence of a serious regulatory approach, adequate tools and trained staff as well as an enhanced law enforcement, AI could be a dangerous tool in the hands of illegal and unscrupulous operators and seriously undermine consumer protection. That will negatively impact government lottery

as it will tarnish the entire games-of-chance industry.

On the other side, AI could be useful for both enhancing Responsible Gaming, CRM, and player experience in a strongly controlled and legal environment. Player preferences and potential risks can be predicted faster, more efficiently, and more effectively, and potential problem gambling identified before it starts. Medical and psychological experts can substantially improve player protection technology to focus on prevention rather than waiting for gambling and addiction problems to take hold before trying to apply curative remedies.

Machine learning can also be tailored to collect and process player data, with due respect for their privacy, to provide much deeper insights into player preferences which inform game development. Broadening the portfolio of games with attributes and playstyles that we know appeal to the players is a good recipe for profitable growth. AI would enhance the ability to evolve the games to be both appealing while not being addictive and over-stimulating. The safer gaming experience gives players a better and more satisfactory and personalized experience, promotes loyalty and repeat play that is the basis for sustainable and responsible business growth.

We are entering a new era of gambling. The lessons from the internet of the 1990s provides a looking glass into the transformative impact that information technology has on business and life. The impact of AI promises to be just as significant as the internet. The main difference is that it won't take fifteen years to unfold – it is already happening at warp speed. Lottery has the opportunity and responsibility to lead the charge to ensure that the application of AI benefits players and society.

Lotteries have all capabilities to set the world standard for integrating AI into Customer Relationship Management, Responsible Gaming, and a new age of enlightened game development for the benefit of players, society, and lottery beneficiaries.