

WLA MAGAZINE

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IT security and responsible gaming certification

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Uruguay lottery leads the way on sustainability



EDITORIAL

Certification for sustainable lotteries



Luca Esposito
WLA Executive Director

In recent years, advances in technologies have helped to rapidly develop the entertainment industry, from music and movies to gaming and betting. In the case of the lotteries and sports betting operators, they offer an increasing number of online platforms that provide players with easy access to many products and services across diverse personal devices.

As more jurisdictions legalize sports betting and the number of sports and types of betting offers grows, players are spoiled for choice in an online world that unlike physical retail outlets, is not limited to opening hours.

This may be advantageous to the ongoing development of omnichannel and the ever-expanding online market, but it also raises some important questions regarding player safety, in particular, vulnerable groups, as well as the security of gaming and betting operations and player data.

The legal lotteries and sports betting operators have risen to the challenge of delivering fun, yet safe and responsible gaming environments. In fact, for many, Responsible Gaming (RG) is at the heart of their Corporate Social Responsibility strategies.

The WLA RG Framework was developed to assist WLA members that are beginning an RG program and those which continue to improve on what they already have established. Certification to the WLA Responsible Gaming Framework enables the lotteries and their suppliers to demonstrate that they adhere to industry best practices which protect the interests of their players, while balancing fund raising and providing fun entertainment. Over 90 WLA members are certified to the RG Framework.

Equally, the WLA Security Control Standard (WLA-SCS:2020) is the only global standard for the lottery and sports betting industry, which enables WLA members to address potential risks to their business operations, both online and physical. Around 50 percent of our members have certified to the

standard and almost the same number of our associate members. Its structure is aligned with the International Standards Organization (ISO) and International Electrotechnical Commission (IEC) standard – ISO/IEC 27001, Information Security Management Systems, and provides industry-specific controls for lottery operators, gaming system suppliers and operators, and multijurisdictional games. Certification to this standard allows businesses to show that they follow security global best practices.

In this issue, a member of the WLA Security Risk Management Committee (SRMC) task force for security will provide updates about the next iteration of the SCS, which is expected in the second half of 2024. We will also learn more from a member of the task force for risk management about key work and activities in this area.

It is always inspiring to hear about the varied and effective RG programs being developed by our members around the world. This time, we discover the ongoing work of Uruguay LaBanca, which has achieved the highest level of certification and continues to find novel ways to enhance its RG efforts, while Singapore Pools enlightens us on how the use of artificial intelligence as a preventative measure helps to better protect vulnerable players.

We will also get highlights from WLA and regional association events, which gathered global experts from our industry and beyond to discuss the concept of sustainable RG, with special focus on the responsible gaming normalization, youth, as well as gaming and social costs for lotteries.

We hope you enjoy this issue.

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INTERVIEW

Certification for secure, responsible gaming

WLA President, Rebecca Paul



As the applicability of artificial intelligence on gaming moves into our sector, we are seeing in-depth player behavior analysis and interaction designed specifically to protect that player.

Around the world, our industry works diligently to broaden the benefits it provides. As technology and customer preferences evolve, lotteries and their suppliers' products and services must be developed to ensure safe, secure and responsible gaming environments for all.

The World Lottery Association offers members effective tools to achieve this. Certification to the WLA RG Framework helps guide members in building initiatives into the structure of daily operations and realize many of their Corporate Social Responsibility goals.

Equally, certification to the WLA Security Control Standard, which is based on the ISO/IEC 27000 international standard for information technology security techniques, also comprises specific controls required by the lotteries and sports betting operators. This allows the security of digital and physical operations and establishes effective measures to protect player personal data.

No industry is safe from cyber breaches, which can have serious implications. Why is certification to the WLA Security Control Standard so important for members, and what key areas does it address?

Our industry relies wholeheartedly on trust. Without trust in the integrity and security of our products and services, we would not have players. And of course, without their support we would not be able to raise valuable funding for the good causes we benefit. Thus, WLA works diligently to provide a variety of strategies to instill confidence in the industry.

WLA's internationally recognized Security Control Standard (WLA-SCS) specifies the required best practices for an effective security management structure by which a lottery may maintain the integrity, availability and confidentiality of information vital

to its successful operation. These standards are established utilizing lottery security experts appointed by the WLA Executive Committee, and all standards are ratified by the delegates of the WLA General Meeting.

"Without trust in the integrity and security of our products and services, we would not have players."

Key areas include the use of cloud hosting for lottery gaming systems and controls for lottery technology suppliers, lottery operators and some multijurisdictional games. Controls cover a broad swath of relevant areas, including lottery systems security assurance, the development of

gaming system hardware, software and firmware, integrity measures related to printing of retail instant tickets, broadcasting/internet streaming of drawings and more.

Much work has been done to streamline the certification process and reduce redundancy, and I applaud the Security and Risk Management Committee for its ongoing work to assist us all.

In recent years, evolving technologies and consumer trends have greatly impacted lottery business strategies and product development. How does WLA support its members in keeping abreast of these to maintain secure operations?

The WLA Security Risk Management Committee (SRMC) follows technologies as they advance and considers potential issues and threats that may

arise. The WLA-SCS 2020 standard is the only global standard for the lottery industry and combines a comprehensive information security management baseline incorporating ISO/IEC 27001, an international standard for information security management, with additional lottery-specific security controls representing current best practices.

The SRMC updates the WLA-SCS every four years. As part of this work, it also aligns with any updates to the ISO/IEC 27000 standard and incorporates new guidance if relevant to lotteries. For example, as more lottery operations use cloud technology, the SRMC is analyzing and updating this key area.

The next version of the standard is due for release in October 2024, following in-depth revision of WLA-SCS 2020.

Responsible gaming is at the core of lottery and sports betting CSR activities. How does the WLA CSR Committee assist its members in achieving their goals of providing responsible gaming environments, while raising funds to support many good causes?

By providing a comprehensive Responsible Gaming (RG) Framework and certification process, the WLA has laid the groundwork necessary to create, grow and maintain a robust RG program. And with nearly 65 percent of member lotteries across the globe certified at Levels 2 – 4, it's clear that the program is proving extremely popular.

Recently, the Committee introduced a "buddy" program to support lotteries in the preparation of their certification submissions, and also revised the process to simplify Level 2 certification guidelines. Those activities have helped to increase participation in the program even more.

WLA is developing CSR best practices that will provide members with applicable advice on how to develop and enhance their policies and activities in the realm of RG and other CSR-related activities.

Ensuring customers a safe gambling environment across online platforms, products and services is a top priority for WLA lottery members. How are the lotteries making the most of technologies to achieve this?

It's no secret that digital technology has revolutionized our industry. The platforms from which the public can access games continue to grow — and so, too, do the opportunities to instill effective RG guidelines during play. Just as it is fast becoming convenient to play a game from a phone or tablet, that technology is evolving to include responsible gaming interaction driven by the operator. And as the applicability of artificial intelligence on gaming moves into our sector, we are seeing in-depth player behavior analysis and interaction designed specifically to protect that player.

Take a look at the article in this issue from Singapore Pools for just one

example of how technology is helping increase the instillation of RG best practices. Another is seen in Norway,

"The platforms from which the public can access games continue to grow — and so, too, do the opportunities to instill effective RG guidelines during play."

where technology provides a digital, personal dialogue interaction designed to prevent and reduce at-risk or problem gaming. This is accomplished by raising awareness of gaming habits and spending, creating reflection and motivating players to moderate further gaming if needed.

These developments are encouraging and open the door even wider for opportunities to provide a safe environment for players.

Throughout the year, WLA offers seminars and also holds events with regional lottery partners around the world on the important topic of responsible gaming. During the October WLA Responsible Gaming webinar week, what were some of the key takeaways?

The inaugural Responsible Gaming Webinar week was a great success and attracted over 300 attendees.

During the three days, we heard very interesting perspectives on how the lotteries and other groups are addressing different aspects of RG in the WLA regions of Asia and The Pacific, Europe and North America.

Over the past 12 years, the WLA Responsible Gaming program has grown and improved the tools it provides. Today 78% of WLA membership is certified level 2 or higher and 78% of membership represents 94% of revenues generated by WLA members. This is a testament to the strength of WLA and Regional Partners in being able to educate and exchange information to have best practices applied in all five global regions. It also demonstrates how the program's concept of continual improvement has caught on with WLA members.

Some key takeaways from the session

included: expanding the holiday Gift Responsibly Campaign, a collaborative initiative with McGill University's International Centre for Youth Gambling and the National Council on Problem Gambling (Washington), to raise awareness about the risks of underage lottery use, at any time of the year. Over 50 WLA lottery members participate in this program.

Another interesting concept in Canada was the development of mandatory online training for retail employees, accessible via lottery terminals and the web. The ability to offer easily accessible training more frequently is particularly interesting, given the high turnover of retail workers.

We learned how working with external partners has been effective for Lotto New Zealand, to better understand the challenges faced by indigenous and

vulnerable groups. Feedback received from diverse stakeholders enabled the lottery to improve the effectiveness of the language and content of its awareness raising campaigns.

We heard from researchers concerning their insights on problem gambling among US military veterans. Their presentation focused on the increased risk for gambling addiction and other addiction issues, and the need for prevention and treatment. These include standardized screening for addiction issues, addressing potential gambling issues early and emphasizing healthy behaviors for coping mechanisms.

We also learned about various strategies to ensure responsible game design including developing a comprehensive approach that includes responsible gaming principles early in the game design process.



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WLA security standard builds confidence in the lottery sector

Interview with SRMC – Anton Stiglic

When it comes to maintaining public trust and confidence in lottery games, effective security of operations plays a key role. The WLA Security Risk Management Committee (SRMC) is responsible for managing the continuous improvement of the Security Control Standard (currently WLA - SCS: 2020), which it first developed over 20 years ago.

It is the only internationally recognized standard for the lotteries and sports betting operators, and their suppliers, which aims to assist WLA members to achieve a level of security control that is aligned with generally accepted best practices.

Anton Stiglic, General Manager of IT, Loto-Québec, Canada, and member of the WLA SRMC Technical Working Group, discusses some of the developments and work done to update the standard, due to be released in October 2024.

What areas of the standard have you looked at?

The committee works hard to ensure this global standard is of world-class quality. Our aim is to make the standard as clear and simple as possible.

Some of the basic changes we are working on are around general criteria that can be applied to any lottery. The WLA - SCS: 2020 standard is based

on the international ISO/IEC 27001, Information security management systems (ISMS)- Requirements, standard, which was updated in 2022.

The beauty of an ISMS is that it requires an organization to establish governance and continually improve. More specifically, ISO/IEC 27001 tells organizations that they need to have an information security policy; individuals must have responsibilities for

various aspects of information security; specific threats to an organization need to be continually identified, and controls established to manage those threats. It also provides a list of security controls that must be considered in Appendix A.

We looked at the main differences between the 2022 and previous ISO/IEC 27001 version to see if any controls needed to be modified in our standard.

We have also carefully considered the controls for cloud security. Feedback from WLA auditors and software provider partners indicates that there has been some of ambiguity around the controls for suppliers and cloud security.

Not all providers consider that they have a cloud solution, rather, they use managed solutions. With this in mind, our main objective is to secure any gaming component that runs in a managed service via cloud, or whatever other type of managed solution.

We are revisiting the cloud security controls to make it clearer that they are applicable to any managed service in general. We also want to clarify the requirement regarding hosted gaming services and their compliance with ISO/IEC 27017 security standard, developed for cloud service providers and users, to make a safer cloud-based environment and reduce the risk of security problems. ISO/IEC 27017 is in fact based on ISO/IEC 27001 with additional specific requirements for managed services.

How do new technologies impact the industry and the standard?

The lottery industry is very adept at adopting cutting-edge technologies in its offerings. Thus, part of the Committee's work is to follow new technologies, such as blockchain and artificial intelligence (AI), to see how they affect our sector, and whether or not we need to include additional controls or modify existing ones to cover the new threat landscapes.

The lottery industry is very niche, with the specific requirement that a high level of importance be placed on the integrity of games. If we uphold our reputation, it means that players will trust the integrity of draws and games which is fundamental to lotteries.

Digital technologies bring many benefits, but they also facilitate illicit activities, such as fraud. We are working with a Task Force on fraud management. A survey we conducted on the topic revealed that the lotteries are looking for a platform where they can share information, best practices and learn from each other.

We will also work to raise awareness through fraud management seminars, with the goal of providing the best advice possible, for lotteries to manage different types of fraud, which continue to evolve.

How important is supply chain security for the lotteries?

Increasingly, lottery organizations are leveraging technological solutions from various suppliers. It might be for one or several parts of the gaming system, or the entire gaming system. As more lotteries move from retail to digital, the lotteries are looking at omnichannel experiences and how the traditional anonymous lottery players can become identified players, in line with each jurisdiction's regulation.

This speaks to the point that lotteries are very good adapters of technologies and that many lotteries deploy a multitude of third-party solutions in their gaming systems. They may be managed directly in the lottery operator's data center, or by third parties either in the cloud or in a managed service setting. It is paramount that we have controls to cover all these situations.

Supplier management doesn't just include a traditional lottery gaming system supplier. You may have components, such as customer identification, authentication, external solutions for know your customer (KYC), fraud detection or responsible gaming solutions. The term 'gaming system' covers many aspects and it is a very composable architecture, in other words, an ecosystem that contains independent systems and components that communicate with each other. So the question becomes: How do you manage a whole ecosystem that needs to be secure?

Supply chain management is crucial to ensure that threats are managed properly. The lotteries, their suppliers, and the suppliers' suppliers all need to establish their security management systems, to continuously evaluate all

types of threats and manage them. One key aspect to this is requiring security certification from third parties.

The majority of attacks to cloud services occur because of misconfigurations. This means that the organization using the cloud service misconfigures the service, which allows a way in to breach the system's integrity.



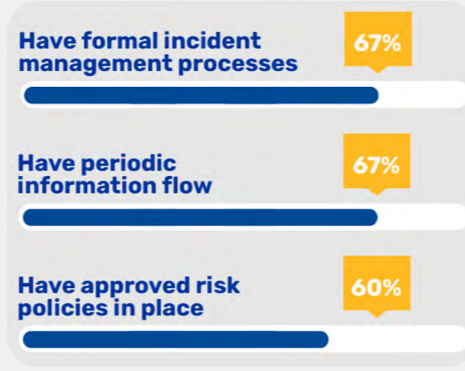
Human error is an important point to consider, whether resulting through a lack of knowledge, or use of best practices for the cloud security service being deployed.

Emerging cyber security threats include more cases of ransomware hitting lotteries and casinos.

These and other new threats did not exist a decade ago. This is why the Committee's work to manage and continually evolve the standard and adapt it to the new technologies is crucial. All controls in our standard are based on different risks. The risks continue to evolve, and we work to find the best controls to mitigate them.



23% Have 1-2 team members
27% Have 3-5 team members
30% Have 6-9 team members
10% have 10+ members and 10% said 'Other'



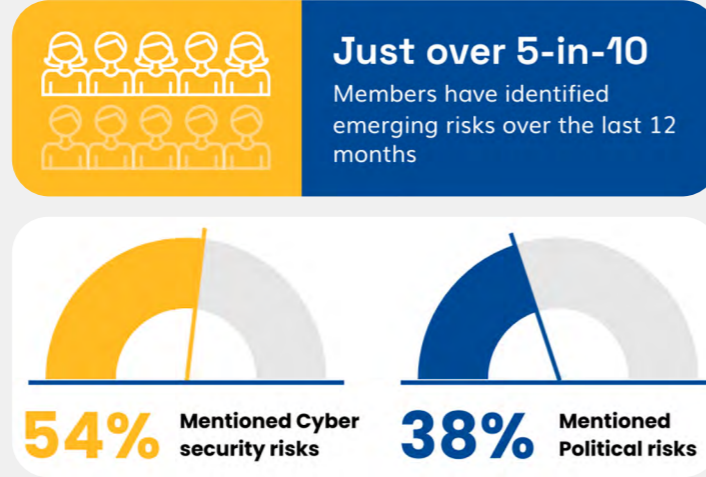
COLLABORATION AND EDUCATION are two key areas Members would like WLA to focus on in the future

Assistance by providing best practices and enterprise risk management tool kits in addition to regular updates and webinars

Education

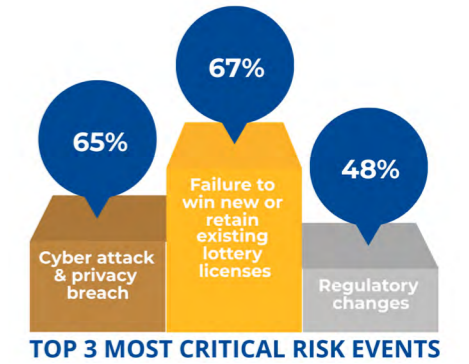
Collaborate with colleagues from different Lotteries to gain a holistic understanding of lottery risks and potential interdependencies

Collaboration



- Over half confirmed that risks have emerged in the last 12 months. Of these, half mentioned cyber security risk and over a third political risk.
- When asked to rank those areas where WLA could support members, risk identification and assessment were identified as the most critical followed by controls assessments. Risk culture also ranked highly.
- Members suggested that the WLA should focus on education for members and facilitate collaboration between members.

- Identification and development of risk management guidance tools.
- Engagement with members through updated website content and other activities.
- Collaboration with regional associations to recognize any localized risks and support the building of risk management expertise, noting this has already commenced with the European Lotteries Association.



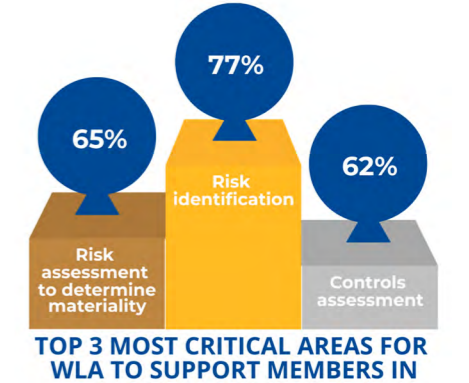
Where to next?

Having socialized survey results with members of the Security and Risk Management Committee and the Executive Committee, next steps planned will include:

- A refresh of the Lotteries Risk Register.
- Identification of material risk categories for deeper review and the development of supporting risk profiles.

How can members be involved?

Members are encouraged to utilize the resources currently available via the WLA website and keep an eye out for website updates and other collaboration opportunities. Visit the resource material here:
www.world-lotteries.org/services/industry-standards/security-and-risk-management/enterprise-risk-management



To share ideas or provide feedback on work completed or planned, please contact via WLA - Security: security@world-lotteries.org

The WLA is committed to the development of risk management resources to support members

This effort commenced in 2020 with the conduct of a survey of members to understand risk perception and priorities. Members were challenged at that time by the impact of the COVID-19 pandemic. Following the analysis of survey results a Lottery Risk Register was developed to provide the WLA community with comprehensive documentation for establishing, implementing, or monitoring risk management processes.

To assess the current risk landscape, a second survey was conducted in 2023. This survey, released in late May, targeted risk management specialists. The objective of the survey was to bring insights that would help the WLA better understand risk management

maturity across the membership base, to refresh the Lottery Risk Register and to better target risk management support offerings for members.

Survey responses were analyzed through June and July, and results are now available to share with members.

Survey responses highlighted that:

- More than half of members have a dedicated risk team.
- Where such a team exists, most report to their Chief Executive Officer or Chief Financial Officer.
- While the role of risk management specialists within member

organizations may vary, all are focussed on monitoring, assessing, and managing risk.

- Two-thirds have formal incident management processes in place and report upwards to a senior management committee or Board.
- Half utilize formal risk management methodologies and have risk appetite statements in place.
- When asked to rank a list of risk events, failure to win new or retain existing lottery licences and cyber-attack and privacy breaches were ranked most highly. Political risk also ranked highly.



Build a **digital communication platform** at retail. **Engage with players** where it matters most.

Automate targeted content, from prizes and live games to winner info and responsible gaming messages.

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Lottery Retail Modernisation



Uruguay lottery leads the way on sustainability

Uruguay's Banca de Quinielas de Montevideo, (LaBanca), prides itself on delivering entertaining, responsible and safe gaming experiences to its customers, whose well-being is a top priority. It continues to deploy innovative technology and adopt international best practices for the benefit of all its stakeholders, and the country as a whole.

It has adopted the WLA Responsible Gaming (RG) Framework as one of the company's strategic pillars, and since 2015, has achieved and maintained Level 4 certification to the WLA Responsible Gaming (RG) Framework.

In addition to this, LaBanca has begun to implement a sustainable policy across its business model. This includes assessing and broadening its Corporate Social Responsibility (CSR) commitment, to consider aspects related to the protection of vulnerable groups, climate change and its ecological footprint, to ensure transparency and enhance business operations in the long-term.

Sandra Conde, General Manager at LaBanca, discusses the organization's responsible gaming and broader CSR strategy and policies.

How important is responsible gaming to LaBanca?

In recent years, and especially having lived through the global pandemic, it has become more important for businesses to play their role in the well-being of all their stakeholders while becoming more sustainable. Responsible Gaming is at the heart of our business strategy and part of our DNA. It is integrated into every

business decision and our day-to-day operations.

We have defined a general RG strategy with policies that cover: employees, research, retailers, game design, remote gaming channels, marketing and advertising communications, player education and information, treatment referral programs, stakeholders engagement, as well as measurement and reporting.

Who benefits from LaBanca RG activities?

RG is the core component of the main sustainability and CSR strategy of

La Banca. We consider the impact our company operations have in three contexts: social, economic and environmental. We respond to the material issues of our organization and stakeholder needs, for instance, market research with customers and the community; work climate studies with employees; supplier evaluations, and training and workshops with problem gambling treatment centers.

This means that our RG activities benefit the whole of society. The well-being of people is at the core of our work and greatly influences our CSR policy.

We develop and offer our games, taking all RG recommendations and best practices on board, so that we can guarantee the protection of vulnerable groups and minimize any possible harm.

Have you experienced any challenges along the way to achieving level 4 and how did you overcome them?

We have faced challenges from the outset, as we began to adopt the WLA RG Framework in 2010. At that time, we studied and benchmarked ourselves with other lotteries in Europe and Canada, who were more advanced along the certification path than us.

During this process we evolved and transformed with a vision founded on solid ethical values, where philanthropy was very important. We are a company with a vision of sustainability, and being responsible for the impact we have on society. We try to minimize negative effects and enhance benefits

to have as positive an impact as possible. This is a very big challenge and there is much to be done to continually improve.

This vision of sustainability is necessary to transform the paradigms of traditional business forms, allowing for the integration of a holistic and comprehensive view of the needs of all stakeholders – employees, clients, retailers, owners, and regulators.

A challenge we face today is to raise awareness about the risks of gambling among our legislators. We must do this to ensure that when they develop regulations, the principles of RG are on the table so that we can provide our market with adequate gambling offers, while RG policies remain effective.

Another important issue for RG is to implement effective measures to combat illegal gambling. This can be done by blocking websites and advertising, stopping the use of certain payment methods, and issuing fines to those acting illegally.

Do you use technologies such as AI or others to develop safe, responsible gaming environments for your customers?

One of the outstanding characteristics of our company is its own game development and technology.

When designing our games, we apply specific tools to measure the risks they may have for vulnerable people, and we apply the necessary RG measures to adjust those characteristics of

the game. We also provide different self-limitation and self-exclusion tools for our online users, and other mandatory limits and alert messages.

We are currently incorporating behavior monitoring software, developed locally in Uruguay, with the advice of international experts. These are based on preventive algorithms that raise awareness of potential issues, by sending alerts and recommendation messages so that players know how much time they have spent online, and the amount of money lost, as well as taking measures other than alerts to prevent harm.

What are some of the key RG aspects you will focus on in the year ahead?

We have some very interesting projects ahead. But one of the main programs we are focusing on, which I really like, is prevention, in particular, a youth addiction prevention workshop.

We have just started a cycle of workshops offered in educational centers of Uruguay, with a well-known psychologist, who uses an excellent approach in social networks. These workshops are carried out at three levels, for: parents, educators and adolescent students. They aim to raise awareness about the problems of addictions, in particular, of gambling.





The team behind Singapore Pools' Nudge Model. Clockwise from bottom left: Leemon, Senior Director, Corporate Strategy and Customers; Soeren Hougaard Mulvad, Data Scientist; Chan Li Long, Data Scientist; and Li Jing, Data Scientist.

Singapore Pools uses AI to enhance player safety

By Matthew Spinks, I.T., Data Analysis & Research Consultant
and Li Jing, Data Scientist, Singapore Pools

Online betting and gaming come with a wealth of player analytics that can be used to understand player behavior and engagement. The data scientists at Singapore Pools have harnessed the power of player analytics, and artificial intelligence (AI) to develop a program that promotes responsible gaming by gently 'nudging' players in the right direction when short-term deviations from normal gaming behavior like anomalous spend patterns are detected. The Nudge Model application won the 'Best Flagship Award' for Responsible Gaming at the 2022 World Lottery Summit.

The emergence of online gaming

It is widely recognized that people around the world enjoy various forms of gaming, including lotteries, sports betting, and casino-style games. In recent years, the advent of the Internet and Internet-enabled technologies such as tablets, smartphones, and the World Wide Web has led to a

proliferation of online gaming platforms, whereby people can play games for wagers and bet on sporting events at their convenience and from the privacy of their homes. This has resulted in an entirely new digital delivery channel, which has enjoyed significant growth over the past decade.

As a channel, online gaming is differentiated from in-person gaming – viz. gaming in-person at a physical outlet

like a convenience store (where a customer buys lottery products) or casino – and has its own distinct characteristics. In particular, the ease and convenience of access to online gaming, together with the ability to place bets in rapid succession with little to no effort, mean that online gaming has the potential for problematic play. It is well known that, for a minority of people, gaming can be problematic to the point of addiction.

Responsible Gaming (RG) occurs in a regulated environment where the potential for harm associated with gambling is minimized, typically by enabling people to make informed decisions about their participation in betting and wagering. Preventing problem gaming through RG is the most critical element of the lottery and sports betting sector's commitment to Corporate Social Responsibility (CSR). By facilitating responsible play, WLA lottery and sports betting members grow their sales – and hence returns to good causes – in an ethical and principled way. In addition, by channeling the natural impulse for gaming into regulated gaming markets, they play a crucial role in fostering the continuity of public order and the fight against illegal gaming and match fixing.

Ensuring responsible play in Singapore

Singapore Pools is Singapore's sole legal operator of lottery, sports betting, and horse race wagering, whose surplus from gaming turnover is returned to the community and public good. Formed in 1968 to combat illegal

gaming activities and to channel surplus earnings to benefit the community responsible gaming has been a pillar of Singapore Pools' regulated gaming offer since its inception. As such, the company institutes a comprehensive range of measures to encourage responsible play, including restricting play to adults, prohibiting betting on credit, and providing safe (regulated and alcohol- and smoke-free) environments for wagering. Other RG measures actively promoted by Singapore Pools include safer play reminders such as "Play Responsibly" messages in all the company's communications, and self-control mechanisms such as setting deposit and betting limits, as well as voluntary self-exclusion.

For the small cadre of problem gamblers, voluntary self-exclusion offers gamblers a choice to ban themselves from particular land-based gaming venues, or online gaming platforms. This individualized (as opposed to a population-wide) harm reduction measure aimed at preventing gamblers from further financial, social, and psychological distress, has some measure of success. Nonetheless,

self-exclusion is a 'blunt instrument' that comes with a number of documented inadequacies. For example, because the decision to self-exclude is an individual choice, customers that should self-exclude may not. Equally, self-excluded customers may continue to gamble at providers that are not covered by the exclusion.

In Singapore, the issues associated with self-exclusion are seen in practice. Individuals may apply to exclude themselves from gambling activities through the National Council on Problem Gambling (NCPG). However, such customers make up a very small subset of the customer base. Typically, individuals do not recognize that they are at risk of spending above their means; or, if they do, they often lack the self-control to act upon that knowledge. This situation gives rise to a challenge when it comes to identifying potentially problematic gaming behavior automatically, as it creates a so-called class imbalance problem that hinders the accuracy and effectiveness of traditional supervised machine learning approaches.

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Since 2016, Singapore Pools' players have been able to play the lottery remotely and bet on sports and horse racing digitally, via individual online accounts. Singapore Pools was aware of the potential impact of problem gaming arising from the digital channel, and the limited efficacy of self-exclusion in particular, as a mechanism to support problem gamers. In 2018, it set out to find an alternative way of implementing harm reduction measures for assisting gamers at risk from online gambling. Exploiting player analytics

gathered through its online gaming portal, Singapore Pools developed an application, called the 'Nudge Model', which applies AI techniques to player analytics to generate insights into player behavior. These insights are fed back to players as a series of prompts that 'nudge' them into adopting good habits of responsible play.

Extensive analysis and evaluation of the Nudge Model application has demonstrated its efficacy since its production launch at the end of 2020.

The Nudge Model

The idea of the Nudge Model is simplicity itself. Players are assigned a gaming profile, based on observed transaction data and analysis. The gaming profile is updated every month using a 'traffic light' system featuring a green, amber, or red risk indicator bar and corresponding nudge messages, encouraging safe gambling habits.

Customers can view their zone and the corresponding nudge message in both a pop-up message and layer dashboard when they login to their account on any platform.

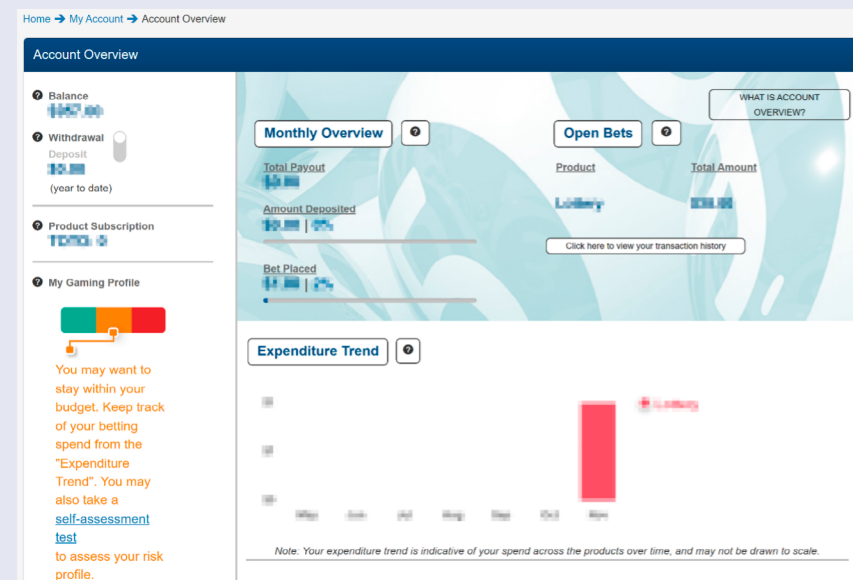
Internationally recognized, the Nudge Model won 'Best Flagship Award' for Responsible Gaming at the World Lottery Summit 2022. It was hailed by the judging panel as a 'great submission, using data technology to better understand player behavior as part of their RG commitments', and further praised Singapore Pools' core commitment to CSR and RG for their 'very dedicated [RG] program' and the Nudge Model as 'a great example for the use of advanced technology' to support the playing public.

Origins behind the application

Besides ease and convenience of play, online gaming also distinguishes itself from play through the bricks and mortar retail network by enabling the collection of player analytics, such as information about player engagement. With physical gaming, such data tends to be either largely anonymous or simply unavailable. Following the decision by Singapore Pools to initiate the Nudge Model project, the company's data scientists, at the time, all led by Leemon, Senior Director, Corporate Strategy and Customers, were tasked with leveraging the power of player analytics to implement new harm reduction measures for players who could be at risk from online gambling.

The team began by exploring existing uses of AI driven by player analytics in promoting RG best practices. They found that most AI models exploiting player analytics are trained with customer betting behavior data derived mainly or exclusively from Western markets. This was potentially problematic, because it did not reflect local market conditions. For instance, there could be differences in the betting behavior in Western markets compared

Nudge Model Zone	Player Status	Nudge Model Messages
Newly onboarded player	(Not enough data)	Initial message: My Gaming Profile serves as a reminder to always keep track of expenditure. Before setting the Expenditure and Deposit Limits, why not use the Affordability Calculator? You can view your Gaming Profile here when it is ready.
Green Zone	Player behavior normal	Promote positive habits, e.g.: • Keep track of spending • Keep up with responsible play.
Amber Zone	Player behavior check	Promote self-awareness of gaming habits, e.g.: • Stay within your budget • Remember, it's just a game.
Red Zone	Player behavior adjustment	Alert player to gaming habits, e.g.: • You have been spending more than usual. • Learn to play within your means by using Singapore Pools' bespoke Affordability Calculator.



The Singapore Pools' online player account dashboard front-end showing a Nudge Model Yellow Zone message. (Parts of the dashboard are redacted to preserve commercial-in-confidence.) The Nudge Model message is conveyed to end users in their preferred language as per their personal account settings.

What is unsupervised learning?

In unsupervised learning, aka unsupervised machine learning, a computer program uses unlabeled data to learn by itself without any human supervision or intervention. Roughly speaking, unlabeled data is data that has not been classified, characterized, or otherwise identified. It does this by analyzing and clustering the unlabeled data sets to identify or observe hidden patterns or groupings in the pool of data. The ability of unsupervised learning to identify similarities and differences in information makes it the ideal solution for applications in (for example) image and pattern recognition, for customer segmentation applications, and for exploratory data analysis.

to that in Singapore. A more serious shortcoming in existing AI applications was that, generally speaking, they did not sufficiently consider seasonal variations in player behavior. For example, gamblers' betting behavior can change over time as their financial situation and the prize pool, matches or races being offered change; the FIFA World Cup soccer tournament held every four years is the exemplar of an external event driving significant changes in seasonal play.

Following this review, Singapore Pools decided to build its own in-house RG model. Additionally, it concluded, as a result of a literature survey, that unsupervised learning was the best approach to capture the subtleties in player behavior, leading to the Nudge Model.

How the Nudge Model works

The Nudge Model uses unsupervised learning methods to train the transactional data of Singapore Pools' online customers and form dynamic probabilistic cohorts. If any players have a spending trend vastly different from their designated cohort, a nudge message is sent to encourage them to moderate their spending.

The Nudge Model selects those customers who have: (i) had their player account with Singapore Pools for at least 12 weeks; and (ii) who have placed at least one bet in the past 12 weeks. It then groups the resulting customer base into several probabilistic cohorts using an unsupervised clustering algorithm. In particular, the algorithm forms two layers of cohorts: a first layer cohort, based on customers' product preferences; and then a second layer cohort for all the first layer cohorts based on customer spend in each of the past 12 weeks.

The model then computes the customer's and cohort's spending slope

separately, by fitting a regression line to the last six weeks' weekly spending. It then further computes the deviation between the customer and the cohort, which is the difference between their spending slopes. Finally, it computes the deviation score for each customer.

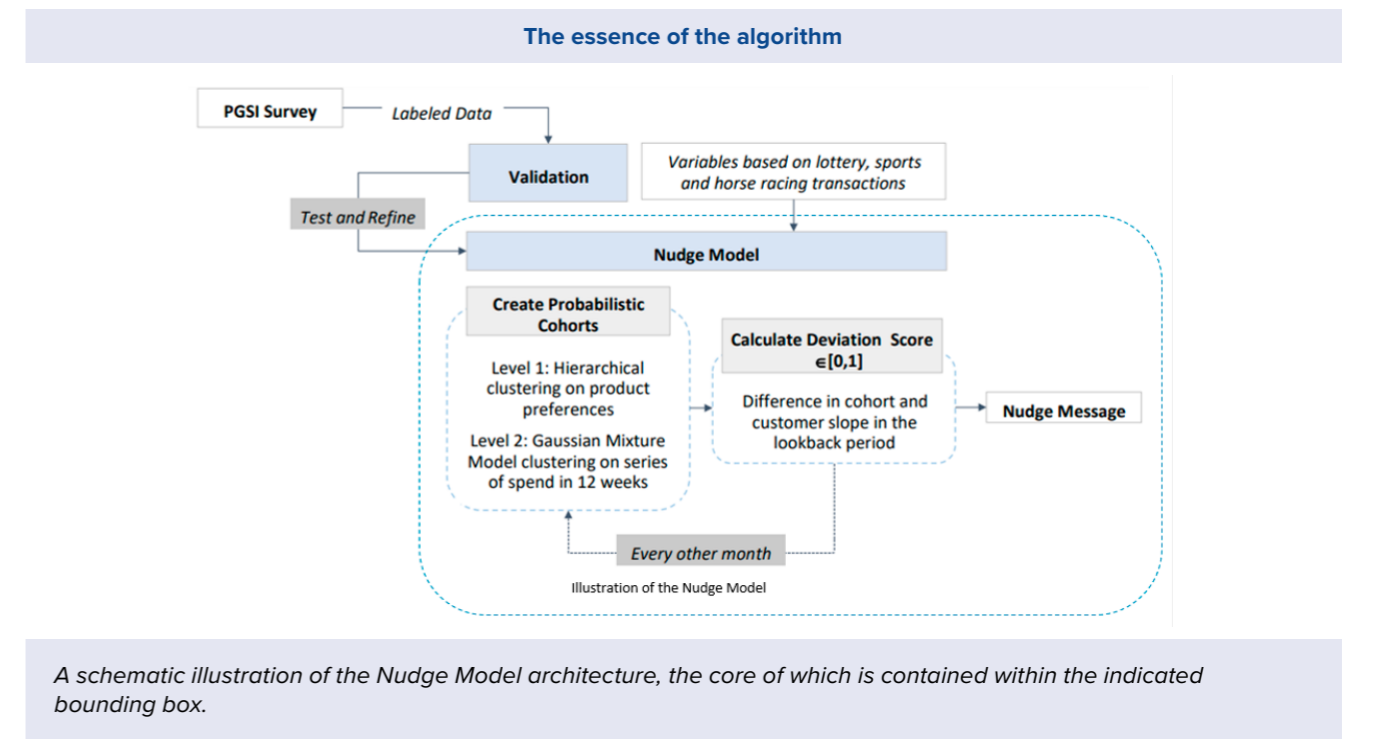
Based on the customer deviation score, customers are classified into the three 'traffic light zones' identified above, viz.:

- **Green zone.** Player behavior is normal compared to cohort.
- **Amber zone.** Player behavior is flagged as potentially concerning compared to cohort.
- **Red zone.** Player behavior is flagged as potentially problematic compared to cohort.

The assigned zones are refreshed each month. Customers then receive the same nudge message until the next month refresh.

Evaluation of results

In each month, customers are clustered into 30 to 35 cohorts in total. On average, 83% of them are in the Green Zone, 15% are in the Amber Zone, and 2% are in the Red Zone. Commenting on the efficacy of the 'traffic light' system for nudge messages, Singapore Pools data scientist and project lead



A schematic illustration of the Nudge Model architecture, the core of which is contained within the indicated bounding box.

Li Jing said, “Based on an analysis we have conducted, receiving a Red or Amber Zone nudge message led the customers to drop their spending in the same month by respectively 37% and 20% on average. Besides the total spending, both the bet frequency and the frequency with which customers attend a draw, a match, or a race also dropped significantly.”

Empirical evidence shows that nudge messages work best for sports betting and the least well for lottery. Interpretation of the data suggests that this is because the Red Zone average spend on sports tends to be much higher than the average spend on lottery. Receiving a Red Zone or Amber Zone nudge message led customers to drop their sports spend by respectively 39% and 28% on average respectively and to drop their lottery spend by 31% and 15% on average respectively in the same month. These results are statistically significant.

The data scientists at Singapore Pools have invested heavily in evaluating and validating the Nudge Model application. For instance, to validate the analysis result, one month an A/B testing was conducted by randomly choosing a small sample of customers classified as Red Zone customers and placing them in the Green Zone instead; by randomly serving end users two versions of the player portal that differ only in the selection of Nudge Model Zone, the relative efficacy of the Zones and hence the Nudge Model messages can be measured. The team found that the group that received the Red Zone nudge message dropped its spending 26.6 percentage points more than customers in the sample group that received the Green Zone nudge message.

Five percent of customers fall into the Red Zone repeatedly. This indicates that nudge messages not only have the potential to assist in moderating customer spending in the short term, but also to modify behavior in the longer term through continuous reinforcement of good behaviors via nudge message reminders. Commenting on the potential for longer term application, Li Jing said, “When we first presented the model internally at Singapore Pools, one concern raised was the hypothesis that customers could increase their spending, receive the nudge message once and then migrate to a high spending cohort. They might

do this repeatedly, migrating to a higher spending cohort again, and thus ‘normalize’ their increased spending pattern in the long term. However, when we analyzed the data, we could see that this phenomenon did not happen to our repeated Red Zone customers. The compounded monthly growth rate among those customers is statically significantly lower than customers who have never been in the Red Zone or in the Red Zone exactly once.”

The data science team at Singapore Pools has also monitored the model for illegal operator cannibalization. Account closure rates among customers that are in the Red Zone are tracked closely. To date there has been no sign showing that nudge messages encourage customers to close their Singapore Pools account and bet with illegal operators.

A survey has also been undertaken asking Singapore Pools’ customers whether nudge messages influence behavior. More than 2,000 customers participated in the survey and 74% agreed that the nudge messages encouraged them to bet responsibly.

Outcomes and next steps

The Nudge Model represents a significant improvement over conventional methods to address problem gaming:

- Self-exclusion is a key tool for controlling problem gaming using conventional approaches to responsible play. However, individuals may not recognize that they are at risk. The Nudge Model addresses this by inferring the trajectory of player gaming from exhibited behavior.
- Self-excluded customers traditionally make up a very small subset of a gaming entity’s player base, creating a class imbalance problem. The two-layer clustering approach of the Nudge Model addresses this by grouping customers who place bets on similar products and with similar spending patterns, thereby identifying low, medium, or high deviations relative to the cohorts in question.
- Conventional approaches to problem gaming are limited in their ability to reflect seasonal behavior. In contrast, the Nudge Model recognizes that the intensity of play by seasonal customers varies considerably and

may even be quite high during specific periods like the FIFA World Cup. As customers are compared against their cohort, this prevents seasonal customers from being categorized as potential problem gamblers.

- By the time players reach the stage of requesting self-exclusion, they may already have suffered significant negative personal, family, or other social consequences. The Nudge Model aims to pick up early signs of high-risk betting behavior before said customers suffer distress and ‘nudge’ them back to a safer level of gaming. If customers continue to exhibit at-risk behavior (i.e. stay in the Red Zone), direct interventions can also be made.

To further enhance the responsible gambling initiatives, the data scientists have planned additional analyses and interventions targeting customers who have consistently been in the Red zone for multiple months.

Another current limitation of the Nudge Model is that all customers within the same zone receive the same nudge message. One possibility is to customize nudge messages even further based on the customer’s demographics, assigned segment, product preferences, or any other factors. This could also be useful in the future to change messages from time-to-time to reduce message saturation.

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WLA Virtual Events

WLA launches successful Responsible Gaming webinar week

The inaugural Responsible Gaming (RG) Webinar week attracted over 300 attendees and provided diverse perspectives on how the lotteries and other groups in the broader community address different aspects of RG in parts of Asia and The Pacific, Europe, and North America.

Opening the event, WLA President Rebecca Paul emphasized that Responsible Gaming is a top priority and essential part of lottery CSR activities, which ensures player safety and instills confidence in the industry. The importance of this topic was the motivation for launching this new annual event.

The WLA Responsible Gaming program has greatly evolved over the past decade, enhancing the tools it provides. Currently 78% of WLA membership is certified level 2 or higher, across the WLA five global regions. Each year, lotteries continue to initiate and advance their certification to the WLA RG program which has four levels.

Speakers from the lottery and other groups covered one theme per day as explained below.

Theme: Running lottery holiday campaigns with attention to minors

Dr Jeffrey Deverensky, Professor Emeritus with the International Centre for Youth Gambling Problems and High-Risk Behaviors at McGill University in Montreal, Canada discussed the Gift Responsibly Campaign, which is a collaborative initiative between McGill University's International Centre for Youth Gambling and the

National Council on Problem Gambling (Washington).

Studies undertaken by Deverensky showed that the earlier people participate or are exposed to gambling, the more likely they are to develop a gambling problem later in life. Although under aged people are prohibited from regulated forms of gambling in most jurisdictions, international research suggests they are engaged in different forms of gambling.

The Gift Responsibly Campaign aims to raise awareness of youth gambling, educate parents and communities on potential dangers of buying lottery tickets for underage children, and support RG practices, while remaining neutral about legalized gambling. Over 50 WLA lottery members already participate in this program.

Several lotteries presented their RG programs with respect to raising awareness of underage gambling, and their participation in the holiday Gift Responsibly Campaign.

Accessible online training for retail employees

Loto Québec has developed online training for retail employees, which is available via lottery terminals and the web. Offering easily accessible, more

frequent training is particularly interesting, given that in recent years, there has been a high turnover of retail workers.

Broadening communications campaigns

The Hoosier Lottery noted that when educating the public about underage gambling, it had continued to expand its campaigns from the initial logo and message, to cover billboard advertisements, radio ads, TV commercials, draw station interviews with its Executive Director, Sarah Taylor, as well as digital media campaigns across the web, social, and its app.

Increase lottery participation worldwide in the Gift Responsibly campaign

The Austrian Lotteries underscored the need to raise awareness that adults buying lotto products must not gift them to minors. It noted that increased lottery participation in Europe would help to raise a greater societal awareness, that lottery customers who may be parents, aunts, uncles, and grandparents must think twice about the intended recipient of their gift.

It was also underlined that the campaign could be applied beyond the holidays, because minors could receive lottery product gifts on different occasions throughout the year.

Theme: Demystifying and assessing priority groups

This session looked at specific priority groups and what work is being done by some lotteries and other groups provide them with improved support.

Vulnerable communities in New Zealand

The audience heard how Lotto New Zealand and Dioscuri – a consultancy agency dedicated to working within indigenous and vulnerable communities to develop stronger and sustainable futures for them – developed a successful partnership that has worked to better comprehend the challenges faced by vulnerable or so-called priority groups.

Dioscuri co-owner and managing director Jeremy Logan explained the importance of understanding how communities think and function, and to consider broader aspects that can affect them, including socio-economic and cultural.

By bringing the lotto and community together, with diverse stakeholder participation, including people from

priority groups, the feedback received enabled Lotto New Zealand to improve the effectiveness of its awareness raising campaigns.

US veterans

Presentations from Shane W. Kraus, Ph.D. at the Department of Psychology, University of Nevada, Las Vegas and Joshua Grubbs, Ph.D. at the University of New Mexico, Center on Alcohol, Substance use, and Addictions, shone a light on the priority group of US veterans.

A key takeaway from their work was that lottery play is a common form of problem gambling in veterans receiving treatment for gambling disorder, and it is associated with specific clinical problems. Additionally, research shows US veterans have higher rates of gambling disorder compared to the civilian population, which was also the case in Australian and UK studies.

Theme: the importance of RG in game design

Anne Pattberg, one of three CSR/RG international expert members of the Independent Assessment Panel, which reviews all applications for WLA RG

Framework levels 2-4 and forwards its certification recommendations to WLA, shared insights on the importance of RG in game design.

Firstly, it ensures that game developers are aware of issues from the outset, and can design attractive and responsible products. It also feeds into the planning of marketing activities, and provides information that could be significant when discussing the launch of new games with regulators.

Additionally, the use of tools to evaluate factors, such as the event frequency, sales channels, game mechanisms, and jackpot size, to identify a game's attractiveness to vulnerable groups, enables developers to adjust the game as required, depending on the evaluation results.

The British Columbia Lottery Corporation talked about its commitment to supporting safer play through designing and deploying risk mitigation strategies, with its Player Health Approach that is people centered and health focused. It also noted that staff was trained on the criteria for assessing new products, marketing, and changes to game environments.

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Why Scientific Games' 50th Anniversary Matters

How vision and innovation helped the trusted lottery partner evolve the science inside its commitment to good cause funding

In her book, *Seeing Around Corners*, Rita McGrath, Columbia Business School professor and corporate consultant, contends that inflection points in business may seem sudden but are not random. Smart businesses can see around corners to what has been building for some time, arming themselves with strategies to succeed during disruption. This kind of foresight has been Scientific Games' mindset since the beginning – anticipating what's next and identifying insight-backed solutions so lotteries around the world can rest easy knowing the company is future-proofing good cause funding.

"With many long-tenured experts in the lottery business, they know the evolutionary contributions that Scientific Games has made over our 50 years. But for those who may not know, it's important to understand some of the advances that enable them to successfully do their jobs today. As a company, we will continue with our future thinking to invest in what's next," said Pat McHugh, CEO.

Whether through organic innovation or innovation by acquisition, the company's rich history demonstrates how seeing around corners has enabled Scientific Games to innovate market-leading solutions in games, analytics, technology and more, generating hundreds of billions of dollars for lottery beneficiaries.



A Heritage of Organic Innovation

It all started with a board game. While at the University of Michigan, John Koza, a Game Theory graduate student, and Bill Behm, an Aeronautical Engineering undergrad, invented a board game called *Consensus*. The game was based on the U.S. electoral college system – the process by which voters select the U.S. President. Naming their fledgling company Scientific Games Development Corporation, the two mathematically gifted students somehow raised enough money to bring their board

game to market.

Upon graduation, fate brought Koza and Behm together with Dan Bower who had been working in the promotional supermarket scratch-off game business. Together, the game designers and the coupon guru saw around the first corner to an opportunity. They combined their expertise to develop scratch-off games for lotteries.

With a simplified name, Scientific Games was established in 1973. None of the trio could have known then that the company would grow to power a USD 348 billion global lottery industry.



What they did know was that combining their understanding of what kind of game play excited people with scratch-off coating technology innovation was a path worth pursuing.

And what a journey it's been. In 1974, Scientific Games and the Massachusetts Lottery introduced the world's first secure instant "scratch-off" lottery game. This was no small event. Until then, lotteries only sold games based on scheduled drawings. Consumer demand for the colorful games based on algorithms quickly grew and by 1981, Scientific Games was a supplier to 85% of the U.S. lottery market.

Instant scratch games were one of many industry-first organic innovations designed and commercialized by the company over the decades. In 1985, Scientific Games' leaders looked around another corner and saw lotteries were experiencing an increasing need for assistance growing good cause funding due to government operating constraints. The result was the creation of a 'shared risk' model, with the New York Lottery partnering as Scientific Games' first *Cooperative Services Program* customer.



Advancing Instant Products

Today, CSP has evolved to *Scientific Games Enhanced Partnership*, a data-driven program that optimizes instant products through portfolio management and game design services, analytics, advanced logistics, licensed brand services, and retail sales and marketing support. SGEIP is used by more than 20 lotteries, including 10 of the Top 20-performing instant game lotteries worldwide. While no one could have foreseen the full extent of what was around the corner in 2020, SGEIP lotteries benefited tremendously from the program's existing infrastructure, with instant game sales levels hitting record highs despite a global pandemic.

Over the years the company has consistently enhanced the instant scratch game experience by adding augmented reality, premium inks, specialty papers and product enhancements, 3-D play symbols, and advanced game security with the new, patented KDS360 software and robotics system, extending instant game protection from data generation through prize balancing to the final delivery of the game to retailers.

Players around the world continue to embrace the science-backed games, with Scientific Games now touting 70% market share of USD 113.7 billion in annual retail sales in 2023.

Revolutionary Lottery Retail Technologies

During the 1980s and '90s, Scientific Games aggressively pursued technology-driven breakthrough innovations including the industry's first touchscreen self-service lottery kiosk. Seeing around the corner, its technologists began applying rapidly emerging computer science to the

retail point-of-sale environment. This improved access for players and flexibility for retailers proved revolutionary.

Today, the company's award-winning *PlayCentral* line of sleek, self-service terminals has helped lotteries around the world attract new retailers such as Walmart and adapt to changing consumer shopping behavior.

As the self-service world grew, so did consumers' desire to be less cash dependent. With an early view of a cashless society around the corner, Scientific Games innovated the first debit/credit card payment solution in the lottery industry to be integrated with a lottery system and was the first to receive Payment Card Industry Data Security certification for the secure, cashless purchase of lottery games.



In 2018, the company once again revolutionized lottery retail with *SCiQ*, the industry's first tech ecosystem offering instant game inventory management, enhanced security and real-time, store-level sales analytics. Over the next five years, *SCiQ* would be integrated into self-service and in-lane lottery purchases, offering consumers even more convenience and retailers easier lottery product category management.

Innovation by Acquisition

While many Scientific Games innovations were developed inside its own walls, others were intentionally pursued by acquiring companies to accelerate the expansion of products and capabilities to keep moving its customers forward.

In 1982, Bally Manufacturing Corporation, one of the most successful slot machine and video gaming companies in the world, purchased Scientific Games, strategically launching the company into the lottery draw game business. As new draw games such as Pick 3 and Lotto increased in popularity, Scientific Games became known as the industry's only full-service lottery company, a pivotal moment for customers who now had a partner with the same holistic view of their business.

With its roots in engineering, Scientific Games had assembled a global team of experts across several engineering sciences. The mid-90s saw the company's debut of AEGIS, a secure, open gaming system – technology that advanced over time and spurred development of the company's latest central gaming system, SYMPHONY, an open interface that easily integrates third-party solutions and content.



Scientific Games was purchased in 2000 by Autotote Corporation, a leader in the pari-mutuel wagering business and a provider of lottery draw game technology and services. Retaining its legacy name, the company now offered customers more options for central gaming systems technology. This event propelled Scientific Games to launch a series of innovations that would continue driving the industry forward, including the first lottery satellite communications network.



Throughout the early to mid-2000s, the company ramped up its innovation by acquisition strategy, further strengthening its position as a powerhouse provider of games, technology, analytics and services. Acquisitions such as IGT Online Entertainment, Oberthur Gaming Technologies, Essnet, GameLogic, and MDI Entertainment all set the stage for what leadership saw coming around multiple corners.

Brands, Marketing Services and Data

Autotote's purchase of Scientific Games led to an unexpected innovation – the company's *Marketing-Analysis-Planning* tool. Company leaders were already looking around the corner at the power of aggregating data and in 2001 saw an opportunity to piggyback off an existing handicapping platform designed for horseracing. This early version of business intelligence established the DNA of the company's own brand as the industry leader in analytics and insights. By gaining the cooperation of their customers to provide data, Scientific Games team members were able to give growth-leading insights back to those customers like they had never before seen. Today, MAP contains more than 3.5 million weeks of sales and 67,000 games and serves as the foundation for the company's enterprise business intelligence platform, *Infuse*.

Data was a key player in the acquisition of MDI Entertainment in 2003. Scientific Games' decision-makers knew that applying MDI's impressive library of licensed brands would add value to any lottery product because they had been using a unique combination of winners' files and geodemographic data to research those who had played branded instant scratch games. They knew that this expanded entertainment value would bring in new lottery players while also

engaging core players. Today, 100+ entertainment, sports and pop culture brands like *GAME OF THRONES*, *MONOPOLY* and *THE PRICE IS RIGHT* add excitement to the company's omnichannel games and promotions. Scientific Games evolved the industry beyond the game winnings by creating *Linked Games*, multi-jurisdictional instant scratch games enhanced by once-in-a-lifetime winners' events.

Combining branded games, like *WILLY WONKA GOLDEN TICKET*, with winners' events and data science drove massive industry growth in the instant game category in the coming decades. Scientific Games continues to apply this winning blend of art and science across both its traditional and digital games and solutions.

Global Growth and Expansion of Insights

The company's strong organic innovation and innovation through acquisitions panned out. Its science-infused products and services drove more growth than other offerings in the marketplace. As a result, more lotteries were choosing Scientific Games as their partner of choice which led to significant market expansion.

Throughout its history, Scientific Games' global expansion allowed the company to generate insights from new experiences and new markets. It's not a stretch to see around the corner to the opportunities presented through global expansion. The stretch, however, comes in being willing and able to localize alternative business models. And that's exactly what the company has done, particularly over the last two decades in places such as China, Mexico, Switzerland, the Philippines, the UK and so many more. To accommodate the growth, the company expanded its physical footprint with major facilities outside

the U.S. in Leeds, Vienna, Santiago and Montreal. All the while, a close eye was kept on the biggest corner yet. One that continues to redefine daily life. The Internet.

The Internet

Scientific Games had already launched the first internet lottery game in the U.S. in 2004. From there, innovation teams continued creating one-of-a-kind linked instant game winners' events as the company pioneered digital solutions in second-chance games, loyalty programs and mobile

apps that tied to retail.

To accelerate its digital offerings, the company entered into a strategic partnership with Playtech in 2010 to form Sciplay, providing Scientific Games and its global lottery customers with a proven internet platform and a robust portfolio of web-enabled games and promotional content.



Digital innovation at the company made waves with back-to-back firsts, including a lottery iPhone app, a lottery tie-in to a social media game, a mobile phone check-in promotion and a fully integrated instant scratch game and HTML5 mobile game. To date, Scientific Games has launched 24 mobile apps for lotteries – more than any provider. In 2014, the company launched the first instant games in the U.S., developed through 40 years of expertise in creating instant win experiences for lottery players.

Focusing innovation on meeting market demands, Scientific Games was the first to provide a points-based lottery loyalty program with a rewards store which has evolved to the *NextGen Loyalty* solution offering the only achievement-based program in the industry. Today, the company continues its diligence to innovation from player insight and offers the industry's most comprehensive internet-based player loyalty program, offering an entire portfolio of games, second-chance drawings, merchandise, coupons and

more. Player insight doesn't just inform the company's offerings, it also drives its commitment to responsible gaming, particularly as 1:1 digital marketing expands.

In 2015, Scientific Games was one of the first suppliers to achieve the World Lottery Association's Responsible Gaming Certification. Today, the company boasts its custom *Healthy Play* toolkit to help lotteries educate all stakeholders on the healthy enjoyment of lottery games.

The company has continued to advance its world-class digital offerings with the acquisition of NYX in 2018 and SidePlay Entertainment in 2021, both leading providers of digital games and technology to the lottery industry.

Change-driven Innovation

The most recent decade has been no exception to the company's innovation by acquisition strategy. With the growing insight that gaming was converging for consumers and 'content is king', Scientific Games leaders knew that accelerated investment was more important than ever for meeting its customers' needs.

In back-to-back moves across 2013 and 2014, Scientific Games acquired WMS Industries, a slot machine manufacturer with market-leading game content, and Bally Technologies, a global provider of casino games, table game products, systems, mobile and iGaming solutions. With similar R&D cultures, the blended organization built upon innovation using data to create highly desirable omnichannel games. Learning how lottery and other forms of gaming coexisted for players was invaluable, if not sometimes at odds.

After reaping the benefits of this integrated learning, the company's highly successful lottery business was sold to Brookfield Business Partners in 2022. The sale returned Scientific Games to its early beginning as a 100% lottery-focused company. Foresight from the view around another corner came at the perfect time as iGaming began encroaching and the lottery industry needed 100% focus on its business, players and protecting good cause funding.

An integral component of this recent sale was retaining the Scientific Games name. That's because the company's

five decades of staying power is a direct result of its commitment to evolving the science inside its products and services. Players around the world continue to delight in well-designed game experiences. Retailers continue to embrace user-friendly, sales-optimizing technology. And lotteries continue to seek a partner that not only provides what they need today but keeps a watchful eye on what's around the next corner.

With opportunities at a historic high to help lotteries adapt to a rapidly changing world by advancing their games, player engagement, the retail and digital environment and gaming systems technology, Scientific Games has no plans of stopping its smart, future-proofing business practices. Decades of experience helping lotteries increase good cause funding has taught the company how to successfully navigate the challenges of today and tomorrow. And that is why Scientific Games' 50th anniversary celebration matters.



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Pollard Banknote has earned a reputation as a recognized innovator with a future-forward vision, and the company's digital journey has been no exception. Starting in 2009 with its pioneering Space Between™ game portfolio, which has proven exceptionally successful in engaging players online, Pollard Banknote has consistently innovated in the digital space. Today, building on that momentum, Pollard Banknote delivers an ever-evolving range of digital solutions to global lotteries.

Pollard Banknote's Co-CEO, Doug Pollard, routinely sounds a familiar refrain, which is to "never fall out of love with our core business." This motto has been the driving force behind the company's commitment to developing the most advanced and imaginative solutions in the industry, with a focus on outstanding games, retail excellence, and digital innovation. Understanding that each lottery is on its own unique digital journey that ranges from early stages of engaging with players online to mature iLottery programs, Pollard Banknote is well-positioned to provide lotteries with support wherever they are on that digital path.

In addition to best-in-breed digital games, mobile apps, websites, and loyalty programs, Pollard Banknote recently introduced the Pollard Digital Games Studio and its own full-scale omnichannel iLottery platform. The technology has been developed by a team that brings together top digital-focused minds from both North America and Europe and is backed by upwards of 600 skilled specialists.

EINSTANTS' INSTANT SUCCESS

Launched in 2022, the Pollard Digital Games Studio leverages Pollard Banknote's decades of experience and knowledge creating outstanding instant games to bring an array of exciting eInstant offerings to market. Research done by Statista indicates that the average three-month user retention rate of mobile apps worldwide stands at a mere 29%. This means that compelling game content and well-designed user experiences are essential in keeping eInstant games exciting and players engaged across multiple channels. Pollard Banknote's eInstant portfolio delivers just that.

Recognizing that every jurisdiction is unique, the goal of the Pollard Digital Games Studio is to provide the optimal mix of entertaining games that engage the broadest-possible player base. By collecting and analyzing market insights, it's possible to determine what resonates best with players, and this knowledge is applied to create dynamic and engaging games. Ultimately, these games help lotteries diversify

their digital portfolios in ways that exceed player expectations, providing satisfying and relevant content that drives incremental revenue for good causes.

Games created by the Pollard Digital Games Studio are enjoyed by players around the world. For example, one European lottery experienced a seven-fold increase in sales when these games launched, and in another European jurisdiction, weekly year-over-year sales doubled. Universally appealing titles like VIP Riches and Corgi Cash Dash helped contribute to these impressive sales results.

Taking a cue from traditional instant tickets, Pollard Banknote's eInstant games mirror a variety of themes, features, and characteristics proven to motivate lottery players, including instant reveals, bonus rounds, and fast-paced play styles. However, they also take full advantage of additional features the digital medium offers to engage players, such as sound effects, music, exciting animations, and even fun ways to play bonus rounds within the game.



Pollard Banknote's solution embraces a truly API-first approach and an entirely **modular architecture**, including cloud-native infrastructure and software that leverages independent microservices. This allows customers to benefit from a significantly more agile software delivery model, as well as the customization and upgrades to technology driving individual functions and services without impacting the performance, security, or reliability of our overall platform.

This ever-expanding instant game portfolio is strongly rooted in providing entertainment value specifically tailored to meet lottery players' needs. It provides high-quality experiences and endless omnichannel play that reaches myriad player demographics. Licensed products provide great opportunities for omnichannel games, including Pollard Banknote's highly successful arcade classics collection of games, with proven bestsellers like Frogger and PAC-MAN™ leading this charge.

POLLARD BANKNOTE'S NEW ILOTTERY SOLUTION

As lotteries look to the future, they must be responsive to evolving player expectations and a changing gaming landscape that demands modern, modular technology solutions leveraging cloud-native technology to remain competitive. Sports betting and iGaming operators are gaining market share based on the sophistication and flexibility of their technology and how it can help create better user experiences. When lotteries are choosing an iLottery partner, they must consider that they are committing to them for a decade or more. Opting for

an outdated, legacy-based solution could significantly compromise their competitive position for years to come.

Through its joint venture, NeoPollard Interactive, Pollard Banknote gained invaluable knowledge and insight through powering the most profitable iLottery programs in the U.S. This experience helped set the stage for the introduction of the company's own proprietary Pollard iLottery Solution. By transforming an already capable and modern iLottery solution, first developed by Betware and then Next Generation Lotteries (NGL), the goal of providing lotteries with the most advanced solution available today has been realized. Pollard Banknote's solution embraces a truly API-first approach and an entirely modular architecture, including cloud-native infrastructure and software that leverages independent microservices. This allows customers to benefit from a significantly more agile software delivery model, as well as the customization and upgrades to technology driving individual functions and services without impacting the performance, security, or reliability of our overall platform.

Beyond superior technology, iLottery program optimization requires world-class talent and experience to be successful. The team of qualified professionals at Pollard Banknote offer unrivaled expertise across the entire iLottery spectrum—games, technology, operations, marketing, analytics,

responsible gaming, and customer service—ensuring success as lotteries work to modernize their gaming systems in response to evolving market and lottery conditions that support continued growth.

As one of the world's fastest-growing lottery partners, with widely acknowledged excellence in digital innovation, Pollard Banknote understands that iLottery is one of the most valuable and proven tools to introduce new players into the lottery ecosystem, which in turn helps lotteries boost incremental revenue. iLottery accomplishes these goals by harnessing a wealth of data on player behavior that can be used to drive engagement in a socially responsible manner. Pollard Banknote's omnichannel approach provides the highly valuable and much sought-after 360-degree view of the player base.

WELCOME TO THE FUTURE

With nearly 40 years of industry know-how, Pollard Banknote's journey to deliver outstanding games has entered a new era with advanced digital offerings designed to enhance every step of a lottery's digital journey. Whether it's through the Pollard iLottery Solution or through instant games courtesy of the Pollard Digital Games Studio—or via the company's many other innovative digital- or print-focused products—Pollard Banknote is proudly forging a path into the future built on a foundation of player- and lottery-focused innovation.

POLLARD
banknote limited

Outstanding Games.
Retail Excellence.
Digital Innovation.



Reliability in a Changing Retail Landscape



As retail transformation accelerates, innovation will support lottery's success – and reliability is crucial.

In a typical week for many households around the world, some type of digital-shopping activity now serves occupants' needs – from self-checkout in stores to groceries that were ordered via an app and delivered to the home. But the evolution of shopping is far from complete.

A cross-sector report issued last year by IGT's longtime trend-research partner Foresight Factory affirmed that the coming five years will see advances in retail's evolution to omnichannel, with shopper-led preferences driving further changes to the brick-and-mortar model: "Brands will be expected to create a seamless experience whereby online and real-world channels complement one another."

Lotteries are listening to their players and working to accommodate their evolving preferences. Yet building and running new digital capabilities on top of existing retail systems can be complex. The same is true when reimagining and updating retail environments to make the lottery-player experience meet consumers' changing preferences.

IGT invested in developing OMNIA™ to enable the omnichannel experiences that both players and retailers expect lotteries to provide.

For example, OMNIA's native integration of the retail and digital channels enables the same draw game at the core, regardless of the channel.

Other components and tools within OMNIA anticipate how lottery will function within various potential new retail models, helping to ensure the lottery industry's ongoing success in this channel.

These innovations are informed by IGT's four decades of industry-proven traditional lottery sales solutions.

"IGT has reimagined the lottery-consumer experience at retail using a player-centric, 360-degree approach," said Melissa Pursley, IGT Senior Vice President Lottery Product and Sales Development.

This approach accounts for the fact that all lotteries can benefit from the enhanced player connection that digital solutions enable, whether they offer iLottery or not. A prime example is IGT's Connected Play functionality, an aspect of OMNIA that is focused on incorporating digital solutions into the retail-lottery journey.

By implementing OMNIA, lottery operators can see, for the first time, player-level retail lottery purchases, enabling in-depth data analysis and

new ways to build player relationships and enhance player loyalty and retention.

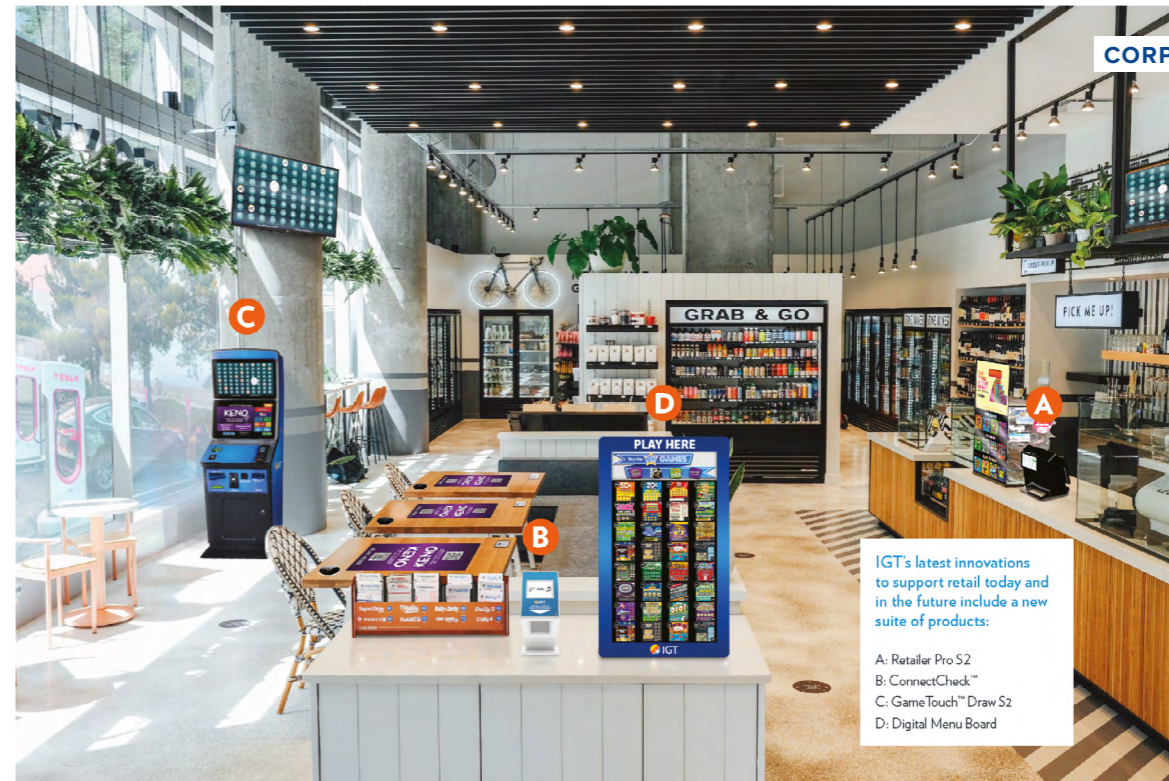
Equipped for Retail Transformation

Another insight stressed by Foresight Factory is that the pandemic played no small part in driving changes to brick-and-mortar-retail because a great number of consumers – not just lottery players – began demanding contactless, cashless, and paperless transactions.

Retailers have also been dealing with labor shortages, a problem that self-service helps to ameliorate.

OMNIA encompasses specific touchpoints to solve for these needs and advance lottery's evolution within changing brick-and-mortar spaces, including clerk terminals that enable contactless and paperless transactions, digital signage, self-service options, and solutions for In-Lane sales on retailers' point-of-sales systems.

"We leveraged our learnings and IGT's legacy of reliable retail solutions in developing these market-proven products, and continue to do so with a new line of solutions for retail that were previewed at the recent NASPL show," said Pursley.



To support retail transformation, IGT applies its operator experience and deep cross-functional knowledge to develop tools that address different retail segments and formats.

NASPL conference attendees got a closer look at new and upcoming products from IGT, in addition to those highlighted here.

Attendees got a firsthand look at IGT's new In-Lane enabling Lottery Link product and the Retailer Pro S2 terminal – plus other new retail lottery sales solutions – when the company showcased its latest innovations in Milwaukee.

Digitalizing Retail

As discussed, IGT's Connected Play offering, enabled by OMNIA, is designed to help lotteries deliver new player experiences via engagement with digital touchpoints.

And, through its mobile app offerings, IGT already provides customers with some of the means to digitalize the retail experience. The My Tickets feature allows retail players to scan their paper tickets and store digital representations of those tickets. This digitalization lets lotteries track, organize, and notify players about their wagers. Players can also choose to save digital play slips as favorites or generate codes for purchasing again at retail.

"Our teams are motivated to apply leading-edge technologies and their

expertise to serve customer, retailer, and player needs," said Pursley. "With OMNIA, we invested in developing a solution to create long-term value for these stakeholders and bring new opportunities for lottery growth via access to digital services in the retail environment."

Visit [IGT.com/OMNIA](https://www.igt.com/OMNIA) for more information or contact your IGT account representative.



OMNIA™ is the next, pivotal step in IGT's 40-year history of driving reliable systems and technology innovations across the lottery value chain. With performance, security, and system integrity at the forefront, OMNIA gives lotteries the means to digitalize the retail experience, whether a lottery sells iLottery games or not.

- A **40-year** history of driving systems and technology innovations across the entire lottery value chain.
- The primary technology provider to **8** of the world's **10** largest lotteries. Combined with IGT's experience as a B2C operator, this footprint yields insights into lotteries' needs and challenges that no one else can offer and that drives the company's product roadmaps.
- With more than **60** system deployments worldwide, IGT brings an unmatched track record of consistent performance, ironclad security, and proven system integrity.
- Proven solutions, with **~380K** terminals installed and support for **43K** transactions per minute during the busiest sales hour of 2022's two billion-dollar U.S. jackpot.
- IGT has earned **67%** of the U.S. market for self-service lottery vending machines, with more than **51,000** units currently deployed globally.

New, advanced LotosX Omni Holistic, Scalable, Limitless



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Milwaukee, WI Oct 30-Nov 2

LotosX

OMNI

INTRALOT LotosX Omni introduces a brand new omnichannel gaming solution.

LotosX Omni provides advanced player account management features that enable unified player journeys across all channels for all games. Integrated, state-of-the-art services that allow gaming operators to simplify and accelerate the launch of new games, maximize the configuration of existing content and personalize the player experience.

intralot.com

Certified by WLA for its Responsible Gaming program, INTRALOT is committed to the principles of responsible gaming incorporating them at its best-in-class product solutions and global operations.

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