

EA Intel
Report 2019

**Artificial
Intelligence**



- Acapture
- Bournemouth University
- Machine Advertising
- VAIX

INDUSTRY-LEADING 1-1 PERSONALISED UX

CASINO

RECOMMENDATIONS



120%
MORE GGR

↑40%
GAMES PLAYED

SPORTS

RECOMMENDATIONS



140%
MORE PROFIT

↑50%
BETS PLACED

AND... MOST PRECISE PREDICTIVE INSIGHTS

PLAYER VALUE VS CPA

PLAYER WAGERING

ACTIVE PLAYER DAYS

WISE GUY DETECTION

CHURN ALERT

PLAYER PROTECTION

↑67%
ACCURACY

VS. BI PREDICTIVE ANALYTICS



VAIX

DEEP LEARNING

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EGR Intel is published monthly by Pageant Gaming Media One London Wall, London, EC2Y 5EA, United Kingdom

ISSN 1742-2450

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Introduction

Utilising AI

Artificial intelligence has seen enthusiastic adoption rates by the egaming community at large and is serving to enhance practices more so than in many other industries. The *EGR* AI Report serves to shine a light on a range of AI developments throughout all areas of the egaming world.

Online sportsbooks must nowadays anticipate players' needs and respond to them in a bespoke manner to maintain engagement levels and minimise churn. A personalised approach is of the utmost importance, and contributors in this report provide insight on how AI can be utilised in this pursuit.

In an ever more technologically advanced world, security also becomes a big concern. Clients want to be able to engage with egaming content and know that their personal details are secure. In another respect, artificial intelligence and machine learning can now predict problem gambling behaviour and also serve to protect clients from inappropriate behaviour.

Overall this report is sure to give our readers much to think about with regards to utilising artificial intelligence.

By Ross Law | Report editor

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Marcus Brennan

◆ CEO
◆ BetBright

Marcus Brennan started in the early '90s as a developer and soon launched his own technology business supplying bespoke flight information systems to airlines and airports. Branched out and launched the first licensed Telco in Ireland. Founded Betbright in 2012 where he has been CEO since. Believes in innovation enabled by technology to gain commercial edge.



Jesper Kärrbrink

◆ CEO
◆ Mr Green

Jesper Kärrbrink has more than 25 years' experience as a CEO in media, gaming and e-commerce companies. He has been CEO for a number of media companies such as Östersunds-Posten, Metro International, Bonniers Veckotidningar as well as online and e-commerce companies such as Bonnier Interactive and Euroflorist AB. He was CEO of Svenska Spel, one of Europe's largest single market gaming companies, for four years and the originator behind Playscan (SvS).

Operator viewpoints: *BetBright and Mr Green*

AI strategy

Marcus Brennan, of BetBright, and Jesper Kärrbrink, of Mr Green, discuss the advantages that AI can bring

EGR Intel (EGR): Should AI now be a strategic imperative for operators?

Marcus Brennan (MB): AI is a term often used loosely and in the case of operators in this sector, it likely refers to machine learning (ML) opposed to true AI. AI is where insights from machine and deep learning are acted on by an automated system which makes its own decisions based on those insights, with no human involvement. Machine and deep learning are processes which deliver the insights which are then acted on by processes typically involving humans. The second point to make here is that it's likely difficult for an operator not to be using AI, at least indirectly. Many will engage the services of providers of business intelligence, such as Optimove, and by default the insights they will be receiving will likely involve machine learning.

Embracing AI/ML should be imperative because it can augment human performance and do things which humans cannot. If your competitors are using AI/ML then they have a very real edge and you are at a disadvantage. What machine learning and deep learning do best is look at data and extract actionable insights from it in a manner which surpasses the speed and effectiveness of humans.

Every organisation managing large amounts of customer data simply must embrace AI. It is not something to be worried about, not even for your existing data scientists even if they have not used it before. Education is possible, skills can be recruited in and systems can be commissioned and they will pay back.

We at BetBright built our own proprietary piece of machine learning to analyse customer activity in the first three days of life and we can now predict with a high degree of accuracy the likely lifetime value of that customer after just three days. We can then focus in on the good ones and also apply that insight to our marketing to distinguish the bad channels and the bad offers from the good ones.

Jesper Kärrbrink (JK): Let's put it this way: can you name a single digital business where AI will not become a strategic imperative? Atomisation based on machine learning has been key within e-commerce for years and the egaming industry has a lot to catch up to and we will. Offering a personal user experience in a responsible environment comes from understanding and catering to each individual player's needs both from an entertainment point of view but also from a green gaming aspect.

EGR: What areas of operators' businesses do you see as high value use cases for AI to address?

MB: An extension to the prior example of this is a more flexible version of it which can predict the remaining lifetime value after X days of life so far where X is variable and not fixed at three days. This can be used to focus on the existing database of customers and not just the new customers to figure out who is strong, and who is weak and needs attention.

Another key area is cross-sell. Operators have huge volumes of past data from many customers, among which there are diamonds in the rough which can be found by AI/ML. It can be used to identify clusters of customers who have behaved a certain way and who therefore have a high propensity to cross-sell to other areas of your product suite.

In general, any area which requires analysis and which can be made more efficient, be it acquisition, optimisation of retention budgets and offers, management of risk in payments and fraud, or in trading or any other area, can be augmented by embracing AI in a meaningful way.

Personalisation and recommendation is another core part of what BetBright is all about and frankly it cannot be done without AI/ML. Our bespoke AI/ML system profiles our customers likes and preferences and serves appropriate content, betting options or games up to them at the appropriate times and in the appropriate way.

We are also personalising the whole UX to adapt to customers based on insights from ML. Why put a golf widget front and centre in front of a customer who never bets on golf just because there is a golf

tournament on? ML knows our customers preferences and controls the best widgets and interfaces to put in-front of specific customers at any given time.

JK: Naturally we should learn from other industries in the way they use recommendation engines regarding preference like games, offers and marketing, but equally important is understanding what kind of risk level a player might have and being able to offer support in a relevant way.

Another natural area is of course customer support and being able to channel customer interaction efficiently has been proven a natural AI field to improve the time-of-response. We will always need human interaction to a certain extent, but using AI to channel the flow will release more agents to deal with requests faster.

EGR: Should operators build the capability in-house or buy it in from a supplier?

MB: There is no one answer that fits all here. At BetBright we have a mix. Some of our capabilities are

built in-house, and some exist within the services we engage, such as our CRM platform. That said, we have a culture which is very tech-orientated and we like to control our technology as much as possible so that we can tweak it and customise it and get extra edge from it. We also have capability in our technology team and have built recommendation and personalisation engines which directly control content and UX on our front-end depending on who the logged-in user is, what they are doing, and what they have done in the past.

Get started is what I say, see who the believers are in your organisation and in what areas they are, work out the priorities and look at the options. I would suggest both creating a capability in-house and outsourcing where good options exist.

JK: I think it needs to be a combination. AI can be built internally but requires skill, time and resources. But adding AI to areas like RG and player risk behaviour requires industry leading expertise which we have found in a collaboration with Sustainable Interaction when looking at player risk prediction. ♦

Featuring: *Persado*

Finding your way in AI

When it comes to AI in egaming, there tends to be a lot of confusion about what the true impact really is and how to maximise the value of investment in new technology.

The last Marketing Technology Landscape map (2018) identified over 6,200 suppliers of marketing technology and around 900 of these used AI and machine learning as a core part of their proposition. With so many potential suppliers, keeping up with the latest developments can be a daunting task, but for CTO's and CMO's running multiple projects and already close to full capacity, this becomes almost impossible.

Many companies may consider appointing external consultants, but in order to get the best results, this tends to be both expensive and resource intensive. That's why we created AiGaming, a new egaming advisory board with a remit to look at the impact and use of AI across the egaming sector.

At the core of our operating model is the AI Maturity Model, co-developed by world-renowned data and CRM specialist Professor Merlin Stone. The model presents a simple yet detailed explanation of how AI can deliver a meaningful and sustainable advantage in our sector.

Our main objectives:

1. Simplify the AI landscape into 16 key areas, and for each area:
2. Quantify the value of AI to operators
3. Identify the market leaders and challengers
4. Evaluate and share best practices

We're looking for industry specialists to join the advisory team and officially launch the new team in Q2 2019, so if you're interested in volunteering your time to help advance AI in our sector, please drop me a line at paul.mcnea@persado.com



Paul McNea

♦ Director of iGaming
♦ Persado

Paul McNea is an entrepreneurial, tech-focused commercial executive with 20 years' experience across multiple sectors and verticals with a passion for sports, marketing technology egaming and media.



John O'Malia

◆ CEO and co-founder
◆ VAIX

John O'Malia is an AI visionary with experience in finance, management, and online gaming, who has successfully started, sold and turned around consumer internet businesses. Since 2015, he has focused on artificial intelligence technology, and transformational applications of AI for consumer-facing internet businesses at VAIX.ai. VAIX provides AI for deep personalisation of e-commerce interfaces and customer interactions to drive operator revenues while better protecting vulnerable players.

Featuring: **VAIX**

AI is the new electricity

John O'Malia, CEO and co-founder of VAIX, explores the options to turn it on

There are two things you need to know about AI: It is fundamental to your business and yet it's not proprietary. It sounds wrong, right?!

But perhaps it's not. AI luminary Andrew Ng says, "AI is the new electricity", and he's right. It will power everything you do. And like electricity, there is substantial risk and little upside in producing world-class AI yourself.

What are the risks?

There is inherent risk that technical experts focused on algorithms are not equally knowledgeable about the psychology of gamblers. Risk also manifests itself in mismatched capacity, failed delivery, a failure to remain state-of-the-art, and the risk that the people who are generating that "electricity" have not thought through all of the ramifications of its delivery.

"But," one might protest, "everyone says AI is essential, strategic, and critical! We have to own it!" It certainly is all of that. Your business will not survive the coming five years without AI. AI is essential, it is strategic, and it is critical to your survival. But that is not the same as implying that one must build or own it internally (although your data science team just rang me to say they can build it themselves). In-house AI projects often diverge far from best practice, don't perform, miss out on critical evolving use-cases, and bring a material risk of failure.

McKinsey's *Know the Warning Signs of AI Project Failure*, highlights 10 major reasons for AI programme failure, the most important of which are probably #3 and #4: "There's no AI and Analytics Strategy beyond a few use cases," and "AI and analytics roles – present and future – are poorly defined." Trying to clone bet or game recommenders is not an AI strategy.

An AI strategy starts with a deep understanding of players, runs across both player psychology and

cutting-edge algorithmic and interface development, and involves constant re-evaluation of new algorithms to stay performant.

What happens with a DIY approach?

Often we meet an operator, evaluate their product stack and market position, and sketch out a proposed project. Then the in-house team says, "Oh, that's no problem to build ourselves. And it's strategic! We should own it."

And then time passes. Workshops are attended. Clever PhD's are recruited – they're expensive, but hey...strategic! It turns out they're not gaming experts. So they need educating. And they make some bad assumptions, or they use the wrong algorithm. Or their code won't scale. Or they haven't yet learned the dozens of little tricks you need to make a particular algorithm work on a given product. So they build a product which is actually not going to delight your players, and perhaps even gets in their way. Now you are four PhD's into the project, one-year down the road, and your players are no happier, or worse. With only a negative return to show for your investment, your once luminary AI strategy is only getting harder to sell internally.

Meanwhile, the state-of-the-art has moved on. Competing operators have progressed from recommenders to automated bonusing and ad buying by now, all powered by highly efficient AI which makes their businesses stronger. Their AI strategy is thriving, it's already delivered substantial returns, and widespread employee enthusiasm is generating innovative use cases with increasing returns.

The fastest route to AI success

I don't think anyone wants to be that AI DIY operator. Instead, consider turning on the electricity from a proven supplier like VAIX. In six weeks you can deploy a solution which works, which scales, and which makes your players happy and grows your business. If your data science team wants to run a project in parallel for tomorrow, great – but don't let that stand in the way of delighting your players today and miss out on the immediate returns. ◆

Featuring: **VAIX**

Escaping the CPA cost trap

Andreas Hartmann, COO and co-founder of VAIX, reflects on customer acquisition

A recent *EGR* analysis on acquisition in gaming neatly describes what operators have known for a long time: customer acquisition is getting increasingly unsustainable, with lifetime values of newly acquired players declining, while CPAs remain high.

Market saturation means less users sharing their gaming budget across an increasing number of operators. Users who are genuinely new to gaming are more entertainment-focused than the classic gamblers already on the system, and less likely to put up with just the same 100s of games everyone is offering. Big traffic sources still charge a high premium for new users, and new regulations on responsible gambling and advertising necessitate less aggressive approaches.

Current tactics

This trend is set to continue, so operators are constantly looking at ways to make their acquisition budget, often 30% or more of their P&L, work harder. This can be achieved by engaging users more deeply via smarter CRM and product. But acquisition marketing also needs to get smarter: finding users with higher PLVs for profitability, or at least ensuring that the CPA paid for a newly acquired user represents their player value. Acquisition marketing has seen an ecosystem of tools emerge to help with this task: lookalike advertising on Facebook, affiliate marketing tools, or conversion optimisation via Persado or Phrasee, just to name a few.

Measuring success

One authoritative base metric is needed for all tactics: knowing, at high confidence, if the user acquired is worth the CPA. An estimated player value across a group of users. BI Predictive Analytics is a massive improvement from relying on the experience of a marketing manager, but accuracy remains fairly low. It's unable to learn from user and transaction history, to predict that "player value X is better than CPA" today has changed to "X worse than CPA" tomorrow. The second challenge is to know that value as soon as pos-

sible. To date, it requires a few months, if not half a year, after a campaign launched to find out. By then a lot of budget has already been spent ineffectively.

The AI solution

Both challenges improve dramatically using deep learning, which we were able to prove can deliver accuracies over 60% better than predictive analytics, and produces predictions after just a few active user days post-signup, and one to two weeks after campaign launch. This ultimately makes campaign evaluation faster. This is a significant improvement for operators to quickly reveal the value of users acquired through campaigns and direct budget for maximum ROI.

How it works

The inputs are similar: player data, with focus on gaming and financial transactions instead of player info. The difference is in data preparation and the algorithm: deep learning uses dozens of data inputs more than BI, allowing it to identify patterns at much higher granularity. Plus, it learns over time, steadily improving in predicting user values and learning new patterns, while more classic approaches find new patterns only after manual research by data analytics teams.

Flexible & actionable machine learning predictions

And outputs can be defined flexible to direct feed into operator actions: estimated player value, a range that a player will appear in, a simple "better or worse than CPA" prediction or other values. Configurable to fit into any marketing budget calculation or flow, results are on a per-player basis rather than clusters, which makes aggregating data to compare campaigns easier.

Benefits

By better predicting the value each player and acquisition campaign provides to their business, operators gain the data needed to truly start automating their programmatic campaigns. They can also confidently negotiate big traffic deals, where CPAs historically have been kept high due to operators' fear of missing out. When more operators have this information, a correction of CPA deals to more realistic values will follow. ♦



Andreas Hartmann

♦ COO and co-founder
♦ VAIX

Andreas Hartmann has more than 18 years' experience running product in gaming, fintech and search. As the product director at PartyGaming/bwin.party, he built the core gaming platform and merged the world's #2 and #4 poker networks. Before that, at Yahoo! in Silicon Valley, he built one of the world's first contextual search query understanding algorithms. Hartmann holds a diploma in BA from LMU Munich and four patents.

Featuring: *Machine Advertising*

Fraud detection

Machine Advertising is an award-winning technology that increases the detection of fraudulent app installs. Since launching in March 2018, Machine now works with some of the world's largest gambling apps.

Machine Advertising discuss the role AI has to play in detecting fraud

EGR Intel (EGR): What role can AI play in detecting fraud?

Machine Advertising (MA): Any company planning to market their app, whatever the vertical, faces a huge problem in the form of app install fraud. But unfortunately, that's especially the case in the gambling industry, simply because it has the highest cost-per-install rate in the market, making it an especially attractive target for fraudsters.

Between July and November 2018, 49% of the app installs Machine analysed were identified as fraudulent. On gambling campaigns, that rises to 67%.

This problem often goes under-reported, either due to negligence or simply a lack of ability to detect it accurately. When we work with new clients, we routinely discover as much as 60% app fraud that, under their previous provider, went undetected.

We work with several large gambling brands to detect and block fraudulent app installs. It's the sole focus of our business, which is why we stop more install fraud than any other service.

Our solution has two distinct aspects: Helix, a self-service platform, and the DNA team, who can manage Helix and provide all the support and insights needed. This human element is important, because fraud is a complex issue, and to detect it effectively, you need people who can understand where it comes from.

EGR: Does AI have a place in fraud detection?

MA: There can be an assumption that AI is a silver bullet, able to magically solve any given problem, including app install fraud. And it's true that AI, or more specifically machine learning, can be used to help detect fraud – but it has serious limitations. First, it catches less fraud, because by its nature, machine learning models are probabilistic. They work with probabilities of false positives and false negatives, rather than hard evidence. Machine works on a deterministic basis, looking for multiple pieces of black-and-white information so we can explain to a supplier how we know this particular install has

been generated by, for example, an install farm. "We were previously using a probabilistic rules-based system to detect fraud," says Ben Barta, mobile user acquisition manager at Zynga, whose portfolio of games includes Zynga Poker, the world's largest poker app. "We were catching a lot of fraudulent installs that way, but since moving to Machine, our detection levels have increased by 4X. It's a more sophisticated process, which provides us with more granular evidence of fraud."

"AI's greatest strength is its ability to process huge quantities of data. It can take a dataset of any scale and spot patterns – signalling a possible new type of fraud"

AI is ultimately a black box. You don't necessarily know why a model has reached a particular conclusion – in our case, that a particular install is fraudulent. There's no context, no reasoning, no further evidence beyond that binary decision.

You can understand the model, the technology and statistical analysis behind it all, but you fundamentally can't know why it has reached a specific decision. Say you've got an AI that can identify pictures of animals. It can't tell you that 'I've decided this is a cat because it's got fluffy ears and whiskers'.

And when you apply this to fraud, where you need to be able to prove to your suppliers that an install they sold was not genuine in order to get your money back, that means you don't have actionable information. Without that, you're not going to get very far in the dispute process.

EGR: So where is AI useful?

MA: When it comes to fraud detection, AI is mostly useful for optimisation. It can identify the publishers or networks which have a high risk of fraud, so that going forward you can decide whether or not to use them.



When you've already been the victim of fraud, and have paid out as much as 67% of your app marketing budget on installs that aren't real, it is not particularly useful. To be able to get your money back, you need a human who can explain why installs have been detected as fraudulent.

That's looking at it from an advertiser perspective. We also use machine learning in order to keep on top of new fraud methods. Fraudsters will always find new workarounds, and those will proliferate.

AI's greatest strength is its ability to process huge quantities of data. It can take a dataset of any scale and spot patterns – in our case, new groupings of installs or events that have a commonality, signalling a possible new type of fraud – that, as a human, you'd be hard pressed to find.

This makes the technology perfect for early warning threat detection. Once it has identified a group that needs to be investigated, it can then hand that over to humans to follow the thread and start really unravelling it to understand what it is and where it's coming from.

So it's not that AI can't be useful in fraud detection. Far from it. It's just that we need to make sure we're using it in the right ways, and not being over-reliant on it as a solution. Using AI alone simply doesn't work, so it needs to be complemented by sophisticated human processes. After all, fraud is created by people, and it takes a human to understand a human. ♦

If you'd like to know more about Machine, please visit www.machineadvertising.com



Michiel van der Burgh

◆ Vice president of sales, EMEA
◆ Acapture

Michiel van der Burgh is vice president of sales for the EMEA region at Acapture, developing the company's business development strategy and overseeing its implementation for the different verticals such as gaming. He is also responsible for a team of experts supporting operators in offering their players a seamless payments experience, ultimately driving revenue increase.

Featuring: *Acapture*

Increase your odds with machine learning: keep fraud simple

Michiel van der Burgh, of Acapture, reflects on striking the balance between player engagement and efficient fraud management

As an online gaming operator, your main priority will always be making sure your players enjoy a flawless experience that keeps them coming back. But how can you combine this with the need to scale up your business?

Estimated to reach \$96.9bn by 2024, the online gaming industry is naturally an increasingly attractive target for fraudsters. And while fraud prevention might be linked to rigorous checks and procedures, when it comes to online gaming, experience is everything for keeping your players entertained and loyal.

Online gaming businesses have long been confronted with the challenge of maintaining healthy conversion rates while fighting fraud. Although fraud solutions must be strict enough to block out the bad guys, making your platform too restrictive could result in honest players being turned away, causing your conversion rates to drop.

Here we see a difference in the various fraud management approaches. While traditional fraud prevention systems are based on a set of rigid rules governing all transactions, machine learning (ML) solutions offer far more flexibility and control. It's a more recent technology becoming increasingly popular in fraud management, being more accurate and future-proof.

Why machine learning?

The fraud prevention game basically got upgraded with the machine learning technology. ML systems are self-learning models, built using advanced mathematical algorithms to detect patterns and make

predictions based on vast streams of data. More specifically, a fraud prevention ML model assesses various signals and datasets, calculating a transaction's legitimacy to detect the fraudulent ones in real-time.

Online gaming is an industry that runs on data, such as results, stakes, percentages, odds, stats, and so on. All of these numbers are constantly being crunched, calculated and analysed behind every major gaming platform. For this reason, ML is actually playing a growing influential role in the sector, changing the game for both online gaming businesses and their players.

By analysing new data and signals along with previously known data patterns in real time, the technology can effectively adapt to new, emerging trends, making a clear and efficient distinction between genuine players and fraudsters trying to pass as honest players. If we were to put ML systems to a fraud management test with rule-based techniques, ML would win by far, ensuring smarter and faster fraud detection both at the fraud operations level as well as at the overall cost reduction.

Combining human and machine intelligence

A complete fraud prevention approach will always bring together human expertise and the right technology to ensure an effective balance and accuracy on fraud management. Furthermore, ML fraud detection products offer advanced analytical reports and sophisticated features, making the investigation and reporting activities of fraud teams more productive and operationally profitable. The technology also identifies patterns that are not detectable to human eyes. It integrates the outcome and feedback provided by human intelligence, using this data to continuously improve its predictive capabilities. ML minimises the human effort to manually analyse data, while fraud professionals have more time to



focus on complex fraud scenarios and fraud prevention strategies that require human expertise and intelligence.

Empowering your fraud team with ML will enable them to improve operational efficiency and focus on driving conversion, adding more value to your business. Here the combination of human and machine intelligence acts as a smart shield protecting the company in a precise and prompt manner.

Happy players = boosted conversion

You might be wondering how rigid fraud management solutions disrupt your players' gaming experience. Due to their fixed rule nature, traditional solutions deliver a high number of false fraud alarms known in the industry as false positives. These lock out some of your genuine players, which unsurprisingly means they will probably not come back. On the other hand, machine learning monitors player data based on identity and behaviour, resulting in a highly accurate fraud score. By trusting this score, gaming operators improve authorisation rates, which leads to increased conversion. Additionally, machine learning takes away the friction created with extra verification steps usually encountered in traditional fraud management solutions. It ensures that your genuine players enjoy a pleasant gaming experience without any unnecessary interruptions.

Behind the scenes: ML in action

Fraud prevention is not just about protecting your gaming business from fraudsters. It also involves keeping control of your conversion by making sure honest players are differentiated from the bad guys.

How does it actually work? Let's take a practical

example: Acapture's advanced fraud-screening solution is based on a world-leading machine learning model. It focuses on examining a large amount of payment data. The models analyse data elements such as the location of the player, their browsing behaviour on the site, their transaction details, device information, historical order information and thousands of other signals. The data enriched machine

“While fraud prevention might be linked to rigorous checks and procedures, when it comes to online gaming, experience is everything for keeping your players entertained and loyal”

Michiel van der Burgh | Acapture

learning model increases the prediction accuracy in real-time. This tackles all the fraud types common in online gaming including bonus abuse, promo abuse and account hijacking. The ML system calculates a fraud score based on these data sets and signals coming from constant behaviour monitoring. Next, the score guarantees precise fraud detection, cutting down chargebacks while supporting higher authorisation rates. Making use of ML technology, we can instantly assess and check whether a player is trustworthy or not so that we can approve the transaction, block it or perform any additional screening. This results in improved gaming experiences for genuine players resulting in higher conversion, while keeping fraudsters away. ♦

Looking to take your game up a notch and keep fraud simple with machine learning? Get in touch to learn how it can transform your business at acapture.com.



Lonnie Hamm

◆ Head of data science

◆ Kindred Group

Lonnie Hamm is head of data science at Kindred Group. Prior to Kindred, he spent 15 years in hands on and leadership roles in trading and investment management across a variety of functions including quantitative analysis, quantitative trading and technology.



Jesper Kärrbrink

◆ CEO

◆ Mr Green

Jesper Kärrbrink has more than 25 years' experience as a CEO in media, gaming and e-commerce companies. He has been CEO for a number of media companies such as Östersunds-Posten, Metro International, Bonniers Veckotidningar as well as online and e-commerce companies such as Bonnier Interactive and Euroflorist AB. He was CEO of Svenska Spel, one of Europe's largest single market gaming companies, for four years and the originator behind Playscan (SvS).

Operator viewpoints: *Kindred Group and Mr Green*

AI in personalisation

Lonnie Hamm, of Kindred Group, and Jesper Kärrbrink, of Mr Green, share the ways in which AI can be used to personalise the customer experience

EGR Intel (EGR): How can AI be used for personalisation?

Lonnie Hamm (LH): AI can be used to drive many different types of personalisation relating to specific bet or game recommendations, or in streamlining the customer experience by using derived customer preferences to control website or app layout. Personalising online and offline communications can also be a channel for personalisation.

Customers may come with a targeted mindset – wherein they know what they want to bet on – and others will have more of a discovery mindset. Some customers may consistently fall into one of these categories. A methodology that is flexible enough to accommodate customers in these different groups may require a sophisticated AI methodology like deep learning. In other cases, a simpler algorithm may suffice and could have a more immediate impact while minimising the analytics and tech resources needed to research and implement the solution.

“The user experience is all about tailored entertainment and AI will be key to the perfect 1:1 experience”

Jesper Kärrbrink | Mr Green

Jesper Kärrbrink (JK): The user experience is all about tailored entertainment and AI will be key to the perfect 1:1 experience. Offering minimal friction and noise and at the same time supporting a low risk player's behaviour during the time spent on site shows you have the players best interests at heart. Adding off-site communication to the mix is another aspect of complexity. To use the data you have and offering your product when, where and in a relevant way is all part of that experience and AI will most definitely drive our industry forward in these areas.

EGR: What are the key challenges for operators?

LH: One shouldn't underestimate the technology challenges in implementing and deploying certain types of personalisation, such as recommendation algorithms. Also, developing recommendation algorithms for sportsbook is very challenging due to the wide variety of events and the fact that they are constantly expiring. There is also a significant amount of seasonality involved.

“Personalisation initiatives should be guided by a coherent customer experience strategy, otherwise your ad-hoc initiatives may result in a confusing experience for the customer”

Lonnie Hamm | Kindred Group

JK: We are living in a world of constant change and being able to adapt quickly is key to ensure player satisfaction. Adapting quickly requires a flexible platform and an efficient, skilled team.

Product innovation is also key. Products need to evolve to attract new type of players. We have seen iterations over the years but very little true innovation and this is a key area we are focusing on to secure market growth over the coming years.

Finally, with more regulation with individual compliance frameworks, we need to find common ground on how to best secure a safe player environment. Each player is an individual and should be offered support on an individual level; and this means knowing your customer.

EGR: Any further thoughts?

LH: Personalisation initiatives should be guided by a coherent customer experience strategy, otherwise your ad-hoc initiatives may result in a confusing experience for the customer. Personalisation should not be approached with a mindset of increasing turnover per session, but rather of keeping customers happy and engaged. Done well, personalisation can create a transformative personal experience, and one which is also fast for the customer and results in improved customer retention for the business. ◆

Featuring: **VAIX**

Becoming the Spotify of gaming

Andreas Hartmann, COO and co-founder of VAIX discusses the use of AI to create more effective personal experiences

It's more, more, more, just different from before! "The user interface has reached maturity" claimed the speaker from one of the largest operators who had just completed a multi-year UX overhaul. This was over two years ago, with the heady days of over-generous promotions behind us, and several years into the race to offer world-class user experiences. Undoubtedly, some breathed a sigh of relief, believing an end to the relentless change was in sight. Particularly those weary of feeling behind and chasing a moving target. They would close the gap soon because innovation would slow. Or would it?

The next wave of innovation is already on the way: Stoiximan is betting on VR, others continually optimise their CRM and user journeys, keeping product teams and roadmaps busy for some time. Are they the strategic play that's needed, or experimentation towards diminishing returns?

Others in that conference audience maintained a degree of scepticism. Sure enough, innovation didn't take an uncharacteristic nap. Instead, a new reality emerged. The growing elephant in the room was, and still is, the ballooning amount of content available, and how to effectively monetise it. We've learnt that increasing the volume of content and extending the long tail, means UX reconfiguration to counter the paradox of choice trap.

A wave of product innovations striving for personalisation like 'Build Your Own Bet' to increase engagement have continued to be launched, revered as user-centric offerings. The challenge was to find new ways to realise value from content, and reduce the effort asked of users to personalise their own experiences, all while maintaining the essence of entertainment.

There's now a realisation that building a UX out of the same 1000s of games and bets everyone else has

does not work, and that such strategies are not much more than short-term mitigation measures. Even with these new 'personalised' features, looking at the homepage of a typical European sportsbook sometimes makes stock exchange dashboards look simple. Operators have something for everybody, but like in an app store, finding the content you like, or didn't know you liked yet, is difficult.

There have been improvements in the explore-exploit trade-off so that users do venture to a wider variety of content, but most amount to hard-won marginal returns, not meeting their inventors' expectations. Such experiences can be remarkably entertaining, but most are mere band-aids, as discrete offerings where a holistic approach to personalisation is now expected by users who are regular consumers of Netflix, Spotify and so on.

Machine learning: the new design canvas

The status quo of recommendations in our industry is simple rules-based systems. A few early adopters are taking steps towards what we call shallow AI: the content-based and collaborative filtering algorithms that Amazon or Netflix currently use to make recommendations. It's worth noting that all the speakers at this year's Netflix Personalisation Workshop agreed that collaborative filtering, the most advanced of these, has reached its expiration date.

Smart approaches are becoming more important in CRM: constant push messages are losing their effectiveness to become email spam 2.0 by nagging users to explore more content. It's now more imperative than ever to improve the UI because it's what users experience when interacting with our brand. The interface needs to be revisited as a major touchpoint in a deeply personalised holistic experience, make the user's time spent with us count, and infuse surprise and delight back into every touchpoint, including notifications.

Amazon and Spotify are companies that have built their fortunes by giving users exactly what they want,



Andreas Hartmann

◆ COO and co-founder
◆ VAIX

Andreas Hartmann has more than 18 years' experience running product in gaming, fintech and search. As the Product Director at PartyGaming/bwin.party, he built the core gaming platform and merged the world's #2 and #4 poker networks. Before that, at Yahoo! in Silicon Valley, he built one of the world's first contextual search query understanding algorithms. Hartmann holds a diploma in BA from LMU Munich and four patents.

or didn't know they wanted yet: these are the very reasons why everyone uses them. They have shown that AI is THE strategic play for user engagement and to encourage the massive latent value out of an increasingly long tail of content.

Within gaming, typical UX approaches like 'Most Popular Games', the UI module that suggests social proof, can be powered by manual selections or outputs of rules-based systems. Results with VAIX clients show the likelihood of the user playing the first game in the 'Most Popular Games' list is just over 3%. Compare that with the 11% likelihood of playing the last game played, Most Popular's lack of efficacy is evident. Now consider that the likelihood of them playing the first game from deep learning AI-powered recommendations is 23% and the value of AI is abundantly clear. The high impact of deep learning on user engagement with longer tail content is shown by the results for the top 5 in each respective list being: 11% : 32% : 49%.

A minority few operators are starting on deep learning now, because it's clear it's ideally suited to engaging users on a deeper level and maximising the returns from extensive content catalogues. What about those who are building content-based or collaborative filtering recommender systems? These are types of 'Shallow AI' that use far less dimensions than deep learning. Remember that the Netflix Personalisation Workshop concluded that it is time to look beyond collaborative filtering. Results with our clients support this, with 40% more unique games played and 123% more Casino GGR when deep learning AI is tested head-to-head against collaborative filtering.

Beyond recommendations

Most of us consider recommendations par for the course in our online retail experiences; they are a must-have hygiene factor. However, deep learning AI offers far more than discrete usage in such recommendation modules. Netflix users are interacting with an AI-first product, Spotify music recommendations are part of a music lover's everyday life. In online gaming, Omnia are a leading example of AI-first, using VAIX deep learning throughout the UX. Personalising sport recommendation, emails, bonuses and free spin offers, AI enables many other use cases to drive exceptional value. Is there more?

AI-powered CRM

To date, CRM is powered by segmentation. To be better in targeting a user with the best possible offer, increasingly smaller groups of users sharing similar

characteristics are defined. Measuring KPIs across those micro segments allows predictions of value and activity with an increasing degree of granularity.

While alluring, micro-segmentation suffers from decreasing accuracy per segment, because the underlying technique of analytics only uses the same low number of data points to cluster users, and it's still far from being true 1-1. For entertainment services like gaming, a multitude of data points able to quantify behaviour and preferences are vital to the experience. Being able to feed dozens of data points into a model is the critical difference, more than wagering, frequency and loyalty score. And, instead of changing segments in an overnight calculation, an individual's unique profile should change in real time, capturing a user's state of mind. This should power their experience across all touchpoints, delivering the right content at the right moment, via the right message sent through the right medium.

Only deep learning can embrace today's diversity of users on an individual 1-1 basis, at scale.

Now prediction of the future wagering of a user is of a high accuracy, promotional spend to increase the user experience across all users can be optimised. Predicting the players' active days informs an operator of how many opportunities remain to reach out while they're still engaged. Not trying to steal their attention by interrupting other areas of their lives when they're not on-site. AI helps operators to be a good conversationalists, delivering the right message when it will resonate most.

Steering a conversation to remain interesting is an art form and a science of reading cues. If someone decides the conversation is done, an offer is largely irrelevant because it doesn't matter what is said if they feel they're being chased while they're engaged elsewhere. Reading players' cues in operator data is what AI does to predict their churn horizon, how often they will return, how urgently action is needed, and how important they are. Operators can sense and respond in the right way, in the right moments. It's the end of throwing offers at a disappearing target who might have made their intention to leave abundantly clear. Marketing automation has moved to a whole new level of smartness.

With deep learning constantly learning and self-optimising, Operators are not bound to revisit the mechanistic and time intensive BI calculus, blunt offer and game selection. Instead, they're elevated to applying themselves to creating game-changing strategies and plans. With services from gaming AI experts like VAIX, this can take only a matter of weeks. ♦

Operator viewpoints: *BetBright and Global Gaming*

AI in CRM

Mark Harkin, of BetBright, and Shireen Haddadeen, of Global Gaming, provide their views on AI in relation to CRM

EGR Intel (EGR): How can AI be used in CRM?

Mark Harkin (MH): One of the primary goals for any CRM department is to deliver personalised 1-1 marketing campaigns to ensure that it resonates with the customer, while delivering incremental value and increasing the Customer Lifetime Value (CLTV).

AI enables this 1-1 strategy by processing vast amounts of raw data (bet transactions, mobile app usage and responses to previous campaigns) and outputting workable attributes to be used in the segmentation process.

Areas where AI can be used within CRM are endless – below are a few examples:

- Churn prediction – AI predicts the probability of customers churning by identifying patterns of previous churned customers. This allows for the CRM department to intervene with a personalised communication before they churn (incentive, product communications, and so on).
- Automation of A/B testing – gradually adjust the relative percentages in real time based on the performance of each action, ensuring the maximum value is achieved.
- CLTV & VIP forecasting – ensures that you identify higher value customers as quickly as possible, giving you the opportunity to deliver a personalised journey to meet their needs.

Shireen Haddadeen (SH): Thousands of data points are created every minute and up until now we have never been able to capture this data as actionable insights. AI automation enables CRM to identify niche marketing segments and bridge the gap of optimisation effectively with smart decision-making in real time.

I don't believe singling out these examples as one unique event would have a significant impact; however, a combination of these events strung together would make for exciting use-cases with the help of AI.

EGR: What are the key challenges for operators?

MH: A key challenge for a business is the data integration, for AI to work effectively within CRM it needs to be accessible. A major task to overcome is having the right information available to the right people, when your business delivers this you have the making of a highly successful CRM programme.

“Going forward, AI will empower CRM to see an even greater creative growth spurt spanning new heights in profit margins”

Shireen Haddadeen | Global Gaming

SH: One of the key challenges that operators face is comprehension. With new GDPR regulations, operators are obliged to give explanations to customers, and in some cases, it may be difficult to explain results due to complexities within AI models.

Another key challenge is finding the right talent to lay the foundations for machine learning now. With so many buzzwords flying around AI, for example ANN (Artificial Neural Network), ML (Machine Learning), AML (Artificial Machine Learning), DL (Deep Learning) it can all seem a bit daunting to anyone outside the field of data science.

Overall trust is an important core value to the stability and success of an AI environment; therefore, it is equally important to the environment of your business culture.

EGR: Any further thoughts?

MH: AI and CRM are still within their infancy and I'm excited to see what the next 10 years will bring. As the technology develops and access to real time data becomes the norm, the way we interact with customers will change forever allowing a bespoke 1-1 journey for everyone, which will benefit both the business and the consumer evenly.

SH: Going forward, AI will empower CRM to see an even greater creative growth spurt spanning new heights in profit margins, when people come together to work as teams, to spend quality time on learning how to express and execute their ideas clearly. ♦



Mark Harkin

♦ *Head of marketing*
♦ *BetBright*

Mark Harkin is head of marketing at BetBright. For 10+ years he has specialised in digital CRM with a key focus on growing Customer Life Time Value through the implementation of holistic data led strategies.



Shireen Haddadeen

♦ *Head of CRM*
♦ *Global Gaming*

Shireen Haddadeen has led, shaped and optimised brand responses to data, enabling her to tell stories that drive the customer conversation, with GDPR-consents granted, and deliver maximum return on the resources directed towards meaningful player retention.



Raian Ali

◆ Professor in computing and informatics
◆ Bournemouth University

Raian Ali is a professor in computing and informatics at Bournemouth University, UK. His work aims to provide principles, models, methods and tools to aid the design and production of technology that is responsible and responsive to social requirements. <http://rali.bournemouth.ac.uk/>

Featuring: *Bournemouth University*

Behavioural data in real time

Raian Ali, professor of computing and informatics at Bournemouth University, reflects on the advantageous possibilities of providing players with their gaming behavioural data in real time

EGR Intel (EGR): What is the basic idea around players being provided with their gaming behavioural data in real-time?

Raian Ali (RA): In a nutshell, there is an unprecedented opportunity to tackle problem gambling through the intelligent and proactive real-time usage of online gambling behavioural data. For example, the real-time collection of a piece of information such as ‘the gambler has reached the monthly spending limit, has logged in, is navigating through the deposit page’ can trigger a message displaying their past betting behaviour and a reminder of a commitment already made. Other, more complex, scenarios can be envisaged!

EGR: Should we demand fair play in relation to the use of online gambling behavioural data?

RA: Such data provides a rich source for tailoring offers and marketing material in order to fit the potential interests of a gambler. This personalisation may exploit cognitive biases in the audience. There could be a fine line between the legitimate marketing and content customisation, on one hand, and mis-selling and manipulation on the other. This same data can also be informative and used to support reductions in problematic gambling, either led by the gambler themselves or with the support of a counsellor or software.

EGR: What are some examples of online gambling behavioural data?

RA: The set of data that can help both directions,

and may include marketing and responsible gambling, including past and real-time visited pages, navigation path, played games, tournaments of interest, live betting event status, login status, login frequency, location, computing device used, limits set so far, the tendency to comply with them, and more. More complex data can also be obtained using the gambler’s computing device, for example data indicating their emotional status through affective computing and multimodal interaction.

EGR: What would be a guiding principle?

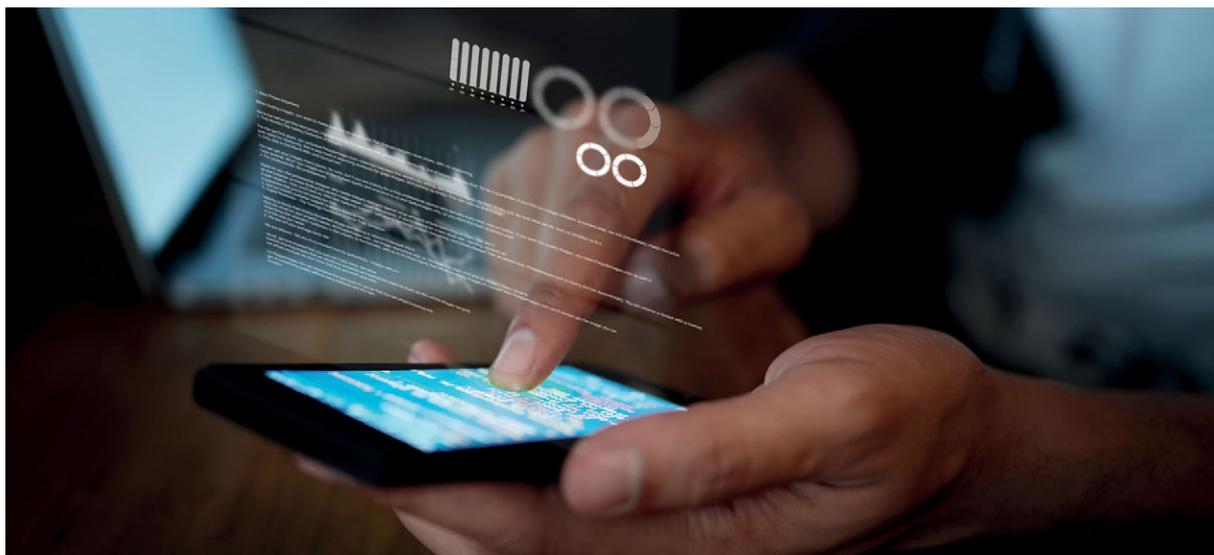
RA: We advocate a principle of fair and ‘equal opportunity’ data share! The same set of data used for marketing and personalising content should be made available to the gamblers, and their authorised representatives, such as family members and counsellors, in an accessible and effective manner.

EGR: How should these data be provided?

RA: Having access to these data in a practical way for processing would necessitate real-time streaming of such data to algorithms meant for responsible gambling in the same way that it is streamed to the algorithms of content customisation and profiling and recommendations meant for commercial purposes. In practical terms, this means the data should be subject to retrieval by automated means and that Application Programming Interfaces (API’s) would need to be put in place for use by third-party applications when authorised by a gambler.

EGR: What do players think of this and would it be easy to get the most of these data for responsible gambling?

RA: We have conducted various studies including players and domain experts. We have shown a demo of the concept with the tool we designed. There is a consensus that transparency is associated with trust and trust repair and that players would like to see such data access in principle, and they like to be able



Featuring: Bournemouth University

to give access to third parties to process their data. Their acceptance for responsible gambling software tools that process these data is far from being an easy objective. Doing advanced data analytics and coming out with correct recommendations is just the tip of the iceberg. We still need to do much more research on how to time, format, present and engage players with such recommendations, how to avoid trivialising them and how to prevent relapse when someone adheres to them *eventually*. Recent failure stories of dashboard-like data analytics for responsible gambling are proof of our claim for the need for more research on that aspect.

“The concept could help to reduce the negative image associated with the gambling industry including its marketing and promotion policies”

EGR: What do gambling industry personnel think of the concept?

RA: We conducted an interview study with personnel in the gambling industry to gather their personal views, not the corporate view about the concept. Unanimously, the interviewees agreed that data is a basic right for players and even a compliance requirement. The majority went further and supported the real-time provision of the data through automated means (APIs), operated by third parties authorised by the players. Some had concerns about being too open so any external parties can claim to provide responsible gambling services using the data with

player’s consent. Most interviewees stated that they will feel much better about themselves working in the gambling industry when such measures are applied. They also thought the concept could help to reduce the negative image associated with the gambling industry including its marketing and promotion policies.

EGR: Are we going to see this happening in the practice of online gambling industry in the near future?

RA: The EROGamb project titled ‘Empowering Responsible Online Gambling with Predictive, Real-time, Persuasive and Interactive Intervention’, and funded jointly by GambleAware and Bournemouth University is a step in that direction. Common obstacles relate to potential competitive disadvantages that such technology can introduce to operators. Given the advantages and, also, the increased demand on transparency, this would eventually become a recommended practice for demonstrating advanced corporate social responsibility and inspiring the trust of the public and clients in the gambling industry.

We are working with a number of operators as well as industrial experts in data analytics, such as VAIX.AI, on the best use of data and personalising responsible gambling interactive and persuasive messages. ♦

We are open to collaborative projects with industry towards a new horizon of responsible gambling tools. For more information please visit the project website: <https://research.bournemouth.ac.uk/project/erogamb/>



Lonnie Hamm

◆ Head of data science

◆ Kindred Group

Lonnie Hamm is head of data science at Kindred Group. Prior to Kindred, he spent 15 years in hands on and leadership roles in trading and investment management across a variety of functions including quantitative analysis, quantitative trading and technology.



Jesper Kärrbrink

◆ CEO

◆ Mr Green

Jesper Kärrbrink has more than 25 years' experience as a CEO in media, gaming and e-commerce companies. He has been CEO for a number of media companies such as Östersunds-Posten, Metro International, Bonniers Veckotidningar as well as online and e-commerce companies such as Bonnier Interactive and Euroflorist AB. He was CEO of Svenska Spel, one of Europe's largest single market gaming companies, for four years and the originator behind Playscan (SvS).

Operator viewpoints: *Kindred Group and Mr Green*

AI in responsible gambling

Lonnie Hamm, of Kindred Group, and Jesper Kärrbrink, of Mr Green, offer their thoughts on AI and responsible gambling

EGR Intel (EGR): How can AI be used in responsible gambling?

Lonnie Hamm (LH): Machine learning algorithms can be used to help identifying existing problem gamblers as well those who may be starting to lose control. Algorithms can be built to analyse behaviour within a session to act in as proactive a manner as possible. Given the complexity of detecting problem gamblers, the building and use of algorithms should be guided by knowledge from addiction psychology. Knowing the potential markers of harm and problem gambler signatures can lead to more accurate algorithms.

Early detection, if done properly, means a customer can be approached at a better time where they are more prone and motivated to change their behaviour to a better one. This can be done through different means, such as email, onsite messaging or proactive calls. This type of communication can help customer engagement and motivation to use RG tools.

Jesper Kärrbrink (JK): Adding AI to areas like RG and player risk behaviour requires industry leading expertise which we have found in a collaboration with Sustainable Interaction when looking at player risk prediction.

EGR: What are the key challenges for operators?

LH: A significant challenge is the lack of a complete set of 'ground truth' data. In other words, all the customers who are definitely problem gamblers and those customers who definitely don't have a problem. Part of this is due to the fact that we don't have visibility into a customer's behaviour across all operators.

Making decisions about false positives and false negatives in the context of an algorithm can be difficult and can involve a number of internal stakeholders, for example CRM and operations.

JK: With more regulation with individual compliance frameworks we need to find common ground on how to best secure a safe player environment. Each player is an individual and should be offered support in an individual level and this means knowing your customer. It is not about who has the most tools or the lowest limits but being able to tailor the user experience based on each player's needs. This is what Green Gaming is about and a mindset we work with throughout our organisation from product development to marketing and customer support to ensure a sustainable business model. Understanding that acting responsibly and seeing sustainability

“Based on the individual player risk level, we are able to balance sales and RG communication. For some customers this mix is 0% sales com and 100% RG communication”

Jesper Kärrbrink | Mr Green

as an important part of the business model is key. It is good for our players, feels good for our employees and will have a positive long-term business effect.

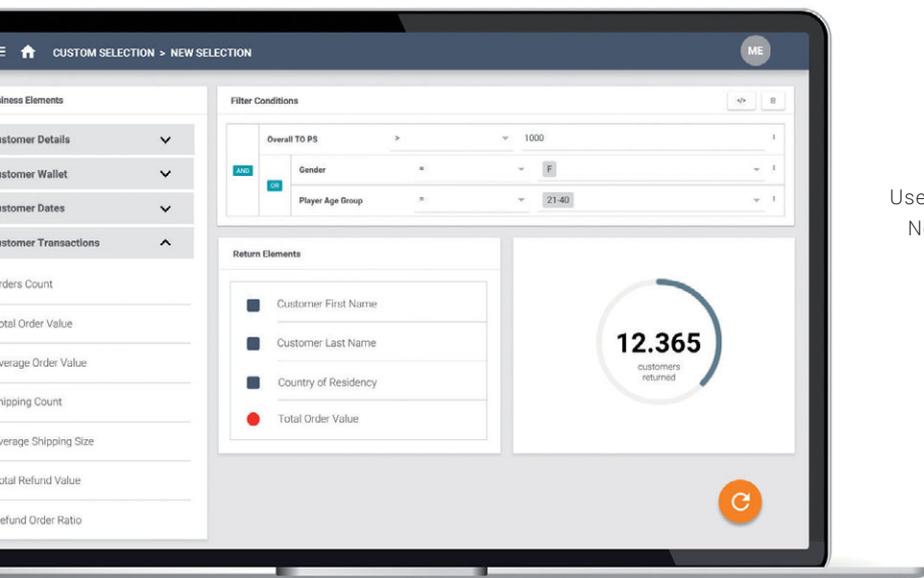
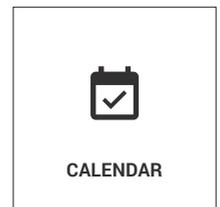
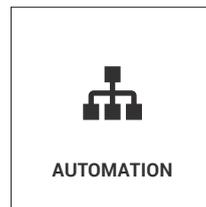
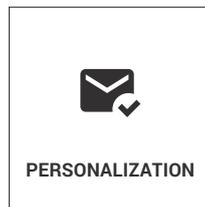
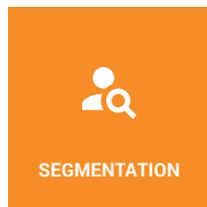
EGR: Should RG be integrated with personalisation and CRM?

LH: RG should absolutely be a consideration in the context of personalisation and CRM activities. An operator should not be encouraging a problem gambler by continuing to give them bonuses and other incentives.

JK: Communicating with the customer based on their risk profile is key to offer support in a relevant and sustainable way. This is how we have developed our Green Gaming Tool and built our organisation. Based on the individual player risk level, we are able to balance sales and RG communication. For some customers this mix is 0% sales com and 100% RG communication. The next step will be to adopt the personalised lobby so even this will be adopted based on the players gaming profile and risk level. ◆

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