

Evaluation of the player awareness system implementation

*Responsible
Gambling Trust*

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gamblingtrust

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1. Overview and scope of project

Project context

The Player Awareness Systems ('PAS') initiative was developed during 2015 by a working group led by the Association of British Bookmakers ('ABB') including representatives from Coral, Ladbrokes, Paddy Power and William Hill (the 'operators') as well as machine manufacturers Scientific Games and Inspired Gaming (together the 'participants') with the Responsible Gambling Trust ('RGT') and UK Gambling Commission ('UKGC') as observers.

PAS are a response to December 2014 research by NatCen¹, funded by the RGT that showed it was possible to distinguish between problem and non-problem gambling behaviour by players using fixed odd betting terminals ('FOBTs') in licensed betting offices ('LBOs', 'stores'). All members of the ABB have signed up to the initiative, which is believed to be a world first in retail betting.

The NatCen research identified 15 relevant markers of harm, seven of which the new PAS developed seek to spot, with intervention triggered if at least three are associated with a customer. Different PAS use different combinations and numbers of markers of harm.

The goal is to intervene to prevent customers becoming problem gamblers, spotting those who are on a trajectory towards harmful play and intervening with messages in order to make the player aware of their own behaviour in order to halt and reverse that trend.

Operators are able to use the algorithms that form part of the PAS initiative, which are designed to identify customers displaying behaviours associated with harmful gambling and initiate earlier and targeted interactions with such customers. PAS is limited to customers who use loyalty cards as this remains the most accurate way to associate separate sessions with the same customer.

To drive innovation, each operator has been allowed to develop its own structure and processes for implementing PAS including which markers of harm to monitor. As a result there are a number of different systems in place.

PAS were launched across all licensed premises in Great Britain during 2015 with initial implementation required by December 2015².

The PAS is limited to instances where players use their loyalty cards to play in order to log all activity and attribute this to a unique player. Currently there is no way to validate that loyalty cards were not shared or that a player in possession of a loyalty card always uses the card when playing.

Project objectives

Although PAS is in the early stages of implementation, a need was identified for an early evaluation to understand how this has been implemented by each participant and to give some visibility of areas of required improvement.

The RGT commissioned PwC to perform an independent project with the aim of **understanding the systems** that have been implemented by each of the participants and to **compare and contrast** these in order to **share observations, findings and examples of good practice** (the 'early evaluation').

It was agreed at the outset of the early evaluation that it is too early to comment on whether the PAS initiative is having an impact on the behaviour of players and indeed whether evidence exists that it has minimised harmful play.

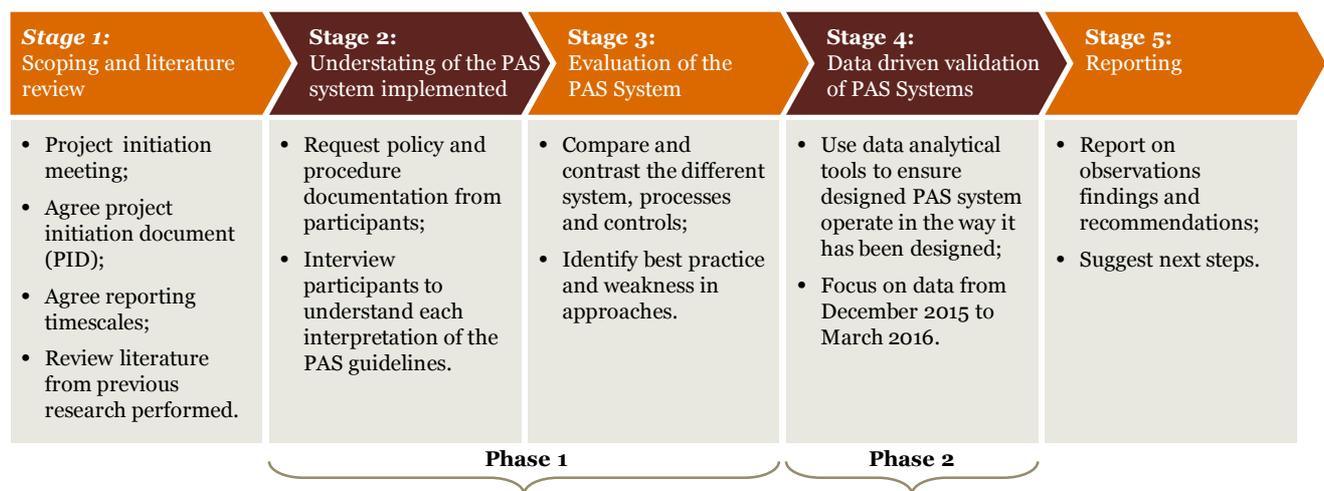
The early evaluation covered the period from December 2015 to March 2016 and was performed against the backdrop of the limitation with regards to data collected from players using loyalty cards only as it does not cover the entire customer base and it assumes that loyalty scheme play is commensurate with non-loyal scheme play.

Original approach

The original approach to the early evaluation was structured into five stages with the majority of the procedures split into two phases:

Phase 1 – Understanding and evaluation of controls and processes

Phase 2 – Data driven validation.



Revised approach for Phase 2

At the interim meeting to discuss the initial findings from Phase 1, concerns were raised that the period under review is too short for meaningful data validation. A decision was taken with agreement from all parties that the approach to Phase 2 would be amended to replace the data driven validation procedures with an element of sample testing. The scope of these procedures is described further in section 5.

Impact of revised approach

The impact of the revised approach is discussed in section 5, therefore no re-performance was obtained of the algorithm used in each model (including the data input, how markers of harm are tracked and the weighting applied to each marker). Any description of the algorithm in this report is based on discussion with the participants and any available process documentation provided and may therefore differ from the actual algorithm used.

Key parties

Following a competitive tender process launched by the RGT in February 2016, PwC was appointed to perform the evaluation. The project was performed under the supervision of the RGT and the ABB assisted in coordination of the involvement of the operators and the machine providers.

The **Responsible Gambling Trust** is the leading charity in Britain committed to minimising gambling-related harm. As an independent national charity funded by donations from the gambling industry, the RGT funds education, prevention and treatment services and commissions research to broaden public understanding of gambling-related harm. The aim is to stop people getting into problems with their gambling, and ensure

those that do develop problems receive fast and effective treatment and support. The RGT has commissioned this work.

The **Association of British Bookmakers** is the trade organisation for the UK's high street betting shops, which have been trading on the high street for over 50 years. As one of the UK's leading leisure retail sectors, bookmakers serve over eight million customers, employ over 40,000 people and contribute over £3bn to the UK's economy. The ABB promotes and represents the industry to decision makers and in the media, and is responsible for making submissions to the Government or Gambling Commission on matters affecting shops. The ABB led the working group that designed the PAS guidelines³.

PwC is a leading global professional services firm with extensive experience within the gaming and betting sector. PwC is experienced in understanding different control frameworks and provides recommendations for improvement. PwC also has extensive data analytics capability and the use of these skills were originally planned as part of this project.

A number of **operators** who operate FOBTs in their high-street betting stores participated in the project and allowed PwC access to understand their systems and perform further detailed testing. Four high street operators have participated and represent approximately 80% of the betting shops in the UK.

The two leading machine providers also took part in the project and represented independent bookmakers.

2. Key statistics

The early evaluation covered the period from initial implementation in December 2015 to March 2016. Key statistics are included in this section to provide some context to the scale of the operations and activities during this period.

- The early evaluation covered PAS initiatives operational in 6,723 high street betting stores.
- 2,011,605 loyalty cards were in issue during the period with 169,424 active customers across the estates of the different operators during the period.
- 8,219 customers were flagged in an 'at risk' category during the period
- 7,503 messages were sent to customers during the period.

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|--|------------|------------|------------|------------|
| Number of instances customers flagged as 'at risk' during the period * | 2,352 | 4,329 | 1,398 | 4,534 |
| Number of customers flagged repeatedly | 1,700 | 357 | 482 | 68 |
| Number of responsible gambling interactions (RGI) as a result of PAS | 157 | 42 | 27 | 27 |
| % of customers flagged not recurring on reporting | 28% | 83% | 97% | 51% |
| Number of self-exclusions following a RGI | 1 | 1 | 0 | 0 |
| Number of customers stopped (by operator) as a result of a review | 1 | 0 | 1 | 0 |
| Messages sent | | | | |
| Text messages | 591 | 3,143 | 625 | 196 |
| E-mails | 36 | 1,239 | - | - |
| Machine pop-ups | - | 58 | 1,398 | 217 |

*Lists of instances customers flagged were used as population for the sample selection process. The remainder of the statistics above were provided by the operators and the underlying data was not available to enable the evaluation team to verify the statistics.

3. *Executive summary of findings*

The early evaluation covered the period from December 2015 to March 2016 and even though it is too early to definitively conclude on best practice across all components of the PAS, there are a number of notable findings.

All participants were appropriately engaged in the project and allocated the necessary levels of resource to support the early evaluation team. It appears there is a strong desire to understand and develop best practice and how overall processes can be improved. Findings and informal feedback were typically seen as constructive.

In some components of the PAS the approach applied by the participants vary only slightly, but other areas vary significantly, for example the length of time it takes different operators to identify potential harmful play from when a player signs up to the loyalty scheme can vary from a few days up to 13 weeks. There is currently no quantitative analysis to conclude which of these approaches has the most impact on a player's behaviour.

At this early stage of the initiative, the design of the systems and processes is still a work in progress, it is often undocumented and manual and the detailed testing highlighted that the processes in operation are not always in line with the designed approach.

It is understood that a separate project has been initiated to run anonymised customer data from one operator through the PAS algorithm of another in order to compare the resulting risk scores. The sample to date has not been statistically significant, but is understood to have produced inconsistent results between the operators.

In most cases the FOBT data is used in isolation, as most of the operators are unable to link players to their other betting and gambling activities across other platforms. One operator is however able to assess a more holistic view of a player by incorporating data about payment information into the algorithm, tracking in-session activities such as the type of game and level of stake and also making reference to online play when the player is investigated.

Even though 15 markers of harm were identified by the NatCen research, the PAS guidance only requires three of these to be tracked by the systems. It is clear there is a prevalence to certain markers and these appear to be more straightforward to track. It further appears that only some models incorporate behavioural analytical procedures, whereas others only track data against certain thresholds. The change in the scope of phase 2 of the project meant that the evaluation team did not obtain a working understanding of how each marker of harm is tracked using the algorithms.

Very little data is available on the impact of different types of interactions and messages. In most cases it is not tracked whether messages are indeed delivered or whether a player responded to this through changed behaviour. It was also noted that the controls to suspend marketing activity to players under investigation is often a manual process with limited controls to ensure requests are actioned by the marketing teams in a timely or complete manner.

The role of in-shop colleagues in the implementation of PAS is varied between different operators and in most cases they were unaware of the specific initiative and merely saw requests to perform responsible gambling interactions ('RGIs') as part of their wider responsible gambling tasks.

All operators have a degree of reporting responsibility to the relevant executive officer responsible for the programme; this varies from reporting on a periodic basis to various key stakeholders within the business to more structured reporting using agreed key performance indicators ('KPIs'). Participants were eager to understand how to define appropriate KPIs and how to measure these.

The detailed testing performed on a sample basis highlighted a number of fundamental issues with regards to the implementation of the PAS initiatives. Especially with regards to ensuring messages are sent out, documentation of actions taken is complete and restricting marketing activity. The findings from the detailed

testing highlight that if a weakness is present in the controls over one component of the PAS it has the potential to detract significantly from the good work that has been done by the industry in this area.

Given the limited information available at this early stage with regards to the impact of different permutations of the initiative on the behaviour of players, it is considered premature to claim certain controls are considered 'best practice'. A number of observations are however included that are deemed to be indicative of positive developments and is at the very least providing some transparency about the art of the possible.

In conclusion progress has been made to design and implement the PAS initiatives, however the focus should now shift to developing best practice across the various components and to perform research into the level of discrepancy resulting from applying different algorithms, scoring mechanism and categorisations.

Key recommendations for next steps include:

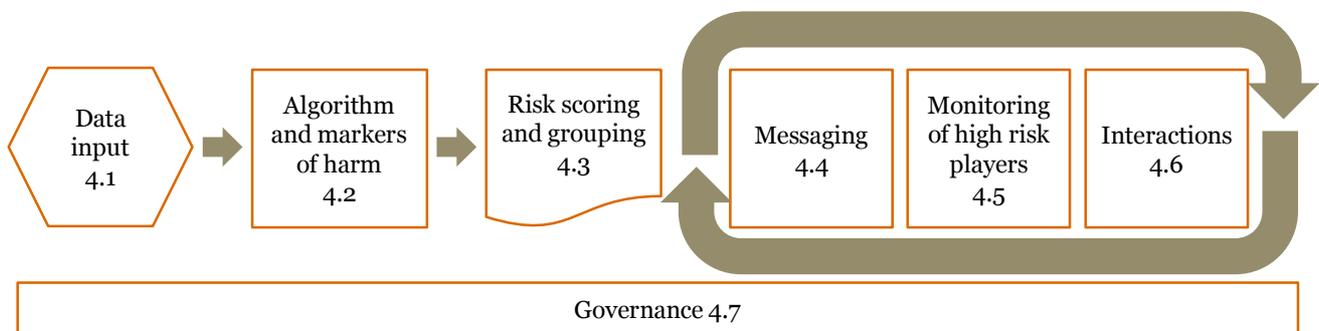
- Expanding the above mentioned project to run anonymised customer data from one operator across the algorithm of all other participants and investigating the differences;
- Structured control groups to investigate the impact of the PAS initiative on the behaviour of customers and on minimising potential harmful play;
- Ongoing validation of the controls in place to message, monitor and interact with customers; and
- Design of consistent key performance indicators to report on the impact and progress of the PAS initiative.

4. Understanding the different systems

During the first phase, interviews were conducted with each operator, a third party data analysis supplier of one operator and the machine providers. Two store visits were also conducted in order to obtain an understanding of the processes and controls in operation in the stores.

The PAS initiative was broken down into various components in order to gain an understanding and to compare and contrast the systems and processes designed by each participant.

This section includes the key observations and recommendations per component. Refer to Appendix A for the detailed findings.



4.1. Data input

Types of data collected

Operators 3 and 4 only used the data collected from FOBTs, Operator 2 included information about sports bets placed over the counter ('OTC bets') and Operator 1 included data about the payment method used as well as self-exclusion data collected.

Previous research has indicated that reloading using a debit card, switching payment methods or having a debit card decline, are markers of harm when considered in conjunction with other factors.

Limiting the number of data sources can limit the breadth of the view of a player's behaviour and therefore restrict the further analysis that is possible.

None of the operators incorporate information collected on their online product offerings as part of the initial data input into the algorithm. Operator 1 however uses the information from online play to provide context as part of the monitoring process and is currently the only operator who has a cross platform loyalty card scheme that enables linkage between online play and in-store activity.

No analysis has been performed as part of the early evaluation to establish whether there is a real benefit in collating more sources of information, but having additional information available is deemed to at least provide more context when investigating a case of potential harmful play.

Period for collecting data

The period for which data is collected and to which the algorithm is applied varies between the different models.

Operator 1 references the lifetime data of a player (since the loyalty scheme was introduced) and collects only incremental daily data. The results of the daily analysis is then aggregated to results from previous days to calculate the daily risk score.

Operator 2 collects at least 12 weeks' of data before concluding on whether potential harmful play has been detected. Data collection started at the time of the introduction of the PAS and related monitoring. After the initial 12 week period, incremental weeks are analysed and the results aggregated with previous results.

Operator 4 analyses data of a rolling 30 day period, but compares this to the results over the lifetime of the player (since tracking started) in order to calculate the risk score at any point in time.

The model used by the machine providers and Operator 3 analyses data for a rolling 4 week period and references the previous 13 week period. Lifetime data or results of analysis are not used in the risk scoring of a player.

The early evaluation did not include an analysis of the required minimum period for collecting data in order to appropriately identify a player's standard behaviour compared to a player's 'at risk' behaviour.

4.2. Algorithm and markers of harm

Markers of harm

All participants except Operator 1 show a clear preference to markers of harm relating to the frequency of play, the duration of play and the net expenditure of the customer. Operator 1 use 14 of the 15 recommended markers of harm.

Operator 2 also considers the OTC data collected and the algorithm applied includes three additional triggers that relate to this. The OTC metrics were not rolled out across the entire estate until March 2016.

Operator 4 includes the number of reloads by comparing the percentage of money lost by the customer to the total money deposited by the same customer over the last 30 days. It further tracks the variability of staking behaviour by considering the number of weeks a bet has been placed over the lifetime of the player. These two markers of harm are weighted to account for almost 60% of the resulting risk score.

Operator 1 uses a third party to score players on a daily basis. The algorithm used by the third party contains a number of additional in-session markers of harm for example variety of games played, payment method changes and payment method rejections.

The understanding obtained of the algorithms in use and the markers of harm tracked is based on information provided by the operators and per discussion with key individuals. Due to the change in approach for phase 2, the early evaluation did not seek to validate whether the algorithms in operation indeed operate as described.

Frequency of risk scoring

Operator 1 and 4 run the algorithms on a daily basis. Operator 4 carries out the daily control to identify the player, however only reviews the outcome of the algorithm on a weekly basis and formally every two weeks.

Operator 2, 3 and the machine providers do this weekly, however Operator 3 only reviews the outcome of the algorithm every two weeks.

The early evaluation did not include an analysis to determine the optimal frequency at which the algorithms should be applied. If a player is however demonstrating signs of potential harmful play that can be identified through the use of data analysis, action should be taken as early as possible to make the player aware of the observed behaviour.

Level of behaviour analytics applied

The algorithms used by participants differ in their complexity. Most of the operators use the algorithm to track whether the markers (individually or in aggregate) trigger a certain threshold to calculate a weighted average score. The algorithm used by Operator 1 uses the relativity of different markers of harm to form a view of the propensity to harmful play and calculate a score accordingly.

No robust comparison has been performed to assess whether a more complex behavioural analytical model will provide more accurate results.

The evaluation team is aware of a limited exercise that has been performed by some of the participants to run a comparative study of the different models. Data from players from one operator was 'run through' the algorithm model of another and the results compared. The sample to date has not been statistically significant and we recommended a broader project to compare the models in this way.

4.3. Risk scoring and grouping

Risk scores

Each participant has a slightly different risk scoring methodology. Operators 1 and 4 assign a score between 0 and 1 and divide this further into risk categories. Operator 2 awards points depending on the number of markers of harm triggered or number of times a customer 'flagged'. Operator 3 and the machine providers calculate two different scores (a general score and a customer specific score) and both of these are tracked and compared to the risk categories.

Most operators compare the current risk score of a player to the previous scores recorded. This provides an insight into whether the behavioural trend has changed over a period. Operator 1 embeds this in certain markers of harm included in the algorithm whereas Operators 2, 3 and 4 and the machine providers compare the calculated number to previously recorded scores.

In line with the recommendation included in section 4.2 a comparative analysis of how customers of one operator score using the algorithm of another operator would be helpful to determine whether the risk scores allocated (and indeed the risk groupings) are consistent and whether they identify the same customers are 'at risk'.

Risk grouping

All participants except Operator 2 use between three and five groupings to categorise players. Operator 2 uses a flagging system and depending on how often the customer has flagged, messaging and further monitoring may be required.

Control groups

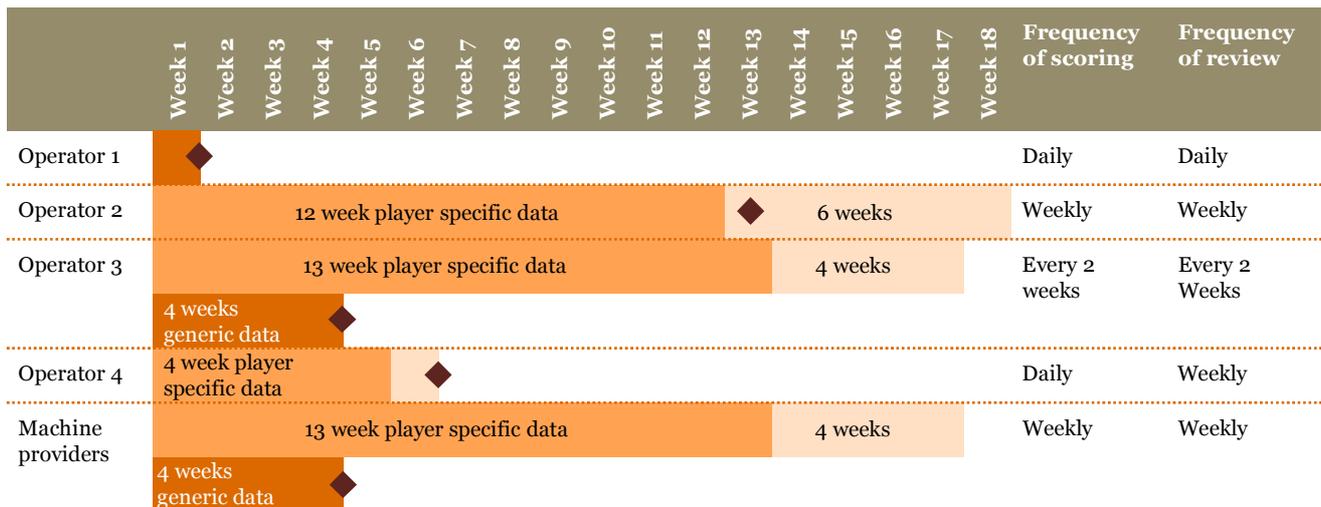
Operator 3 and the machine providers do not use control groups. All other participants use control groups in some form, but the use of these are not consistently defined and some operators monitor the results more regularly than others.

Control groups can be a useful way of monitoring the impact the PAS initiative is having on potential harmful play, but additional guidance on the proportionate size and effective monitoring is required.

4.4. Messaging

Timeline

An analysis has been performed to determine what the earliest point will be when a new customer demonstrating signs of potential harm can receive an interaction from each operator. This diagram below shows that this varies between a few days and 13 weeks. This is a direct effect of the period for collecting data referenced in 4.1.



- Generic scoring period
- Player specific activity comparison period
- Reporting period aggregation
- ◆ Earliest point for customer to flag to receive messages

Contact details

In order to effectively operate the PAS initiative, the operators are required to hold up to date contact details for their customers. Operators typically require this information to be provided when a customer signs up for a loyalty card. The contact details are not verified on sign-up in all cases.

It has been noted that operators do not hold contact details for all their customers, for example Operator 2 does not have contact details for 7% of the customers holding loyalty cards. It should be noted that in the case of Operator 2, the high figure is a result of legacy loyalty cards that had been in existence prior to the introduction of PAS. The updated loyalty card now requires contact details as a condition to activation and existing customers were migrated across to the PAS scheme with attempts made to encourage customers to provide details. Where the operator is unable to send a message using either e-mail or text, a pop-up message will be loaded to the machine.

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|-------------------------|------------|------------|------------|------------|
| E-mail only | 0% | 6% | 3% | 12% |
| Phone number only | 20% | 58% | 82% | 73% |
| E-mail and phone number | 77% | 29% | 14% | 15% |
| No details | 3% | 7% | 1% | 0% |

Method and content

Operators 3 use a combination of e-mail, text and machine pop-ups for interventions whilst Operator 4 use machine pop-ups and text for interventions. Operator 2 only uses machine pop-ups when other methods are not available as mentioned above. Operator 1 does not use machine pop-ups.

The early evaluation did not consider the impact of different types of messages or indeed the content of the messages, but it is understood that many of the operators are taking part in a separate project on this topic. This is encouraged as it is essential for the message to be impactful and effective.

Frequency

Operators 2 and 3 have four different levels of messages that is sent out over a period of monitoring and Operator 4 has three levels of messaging. These are sent on days 5, 19, 33 and 37 after the player was first flagged as 'at risk'.

Operator 1 has two messages and these are sent on days 1, 28 and every 28 days thereafter if the player remains at risk.

The impact of the frequency of receiving messages on the customer has not been considered as part of the early evaluation, but should be included as a topic for further investigation in a relevant project.

Systems and tracking

Operators 2, 3 and 4 send out messages manually. Operator 1 use a third party to send out messages on their behalf. Even when a third party is used to send out the messages it has been noted there is a level of manual process and data transfer involved.

Most operators attempt to track whether messages are delivered or not and an alternative communication method will be used when one method fails.

Operator 2 includes links in the e-mails and text messages that can in theory be traced if a customer uses one of these links to access more information. The operator does not currently use this reporting functionality.

A higher level of automation in this area is encouraged and the ability to measure whether a customer has indeed opened a message and clicked through the content for more information is a valuable level of information to have access to and can likely provide real insight into the impact of different types of messages. We do however acknowledge technology limitations in this area.

Marketing communications

All of the operators suppress or suspend marketing messages to individuals who are in the process of receiving messages, or who are being monitored by the operator. The point at which marketing communication is restricted varies from operator to operator and is not an automated process for all four operators.

This is an area where the detailed testing highlighted a number of areas for improvement during the period under evaluation and is discussed in more detail in the next section.

4.5. Monitoring of high risk players

Systems used

Operator 1 use their proprietary customer relationship management ('CRM') software system to record the actions taken given the level of risk score presented. Case files are prepared and stored in excel spreadsheets and are not automatically linked to the customer profile in the CRM system.

All other operators use manual tracking spreadsheets in excel or word documents to record actions taken and decisions made.

A higher level of automation in this area will improve the audit trail and embed the process as business as usual. It was noted that the Operator 1 shop colleagues were able to access the same CRM system as the central team and were able to include valuable notes about behaviour observed in the stores. Shop colleagues at all operators are able to include narrative in relation to customer behaviour and interactions, however these systems are not integrated to that of the central teams PAS monitoring processes.

Manual excel reporting is prone to version control issues and manual errors can occur when data is transferred to and from the sheets.

Risk categories included

The risk categories included for further monitoring varies from operator to operator and is a function of the different risk scoring mechanisms and grouping of these. It appears that operators typically include the highest category or two for further monitoring which appears appropriate on the face of it, but no analysis has been performed on the comparability between models. It is for example possible that the 'high risk' category used by Operator 4 has a different cut off point than the 'level 4' category used by Operator 3, or indeed vice versa.

As noted it is encouraged that a comparative data sharing project be conducted using a statistically significant sample.

Ongoing monitoring

None of the operators have a fixed term over which they will continue to monitor a player and each take a decision based on judgement and the specific circumstances present. This approach is encouraged, but is only effective if:

- a. There is a clear, written framework for evaluating circumstances and reach a conclusion on appropriate action; and
- b. If all judgements and decisions are clearly documented in a timely manner to enable an operator to demonstrate at a later time why certain actions were taken.

4.6. Interactions

Role of shop colleagues

In most cases shop colleagues are only aware of the in-store monitoring and activity when requested by the central team to perform an identification or RGI.

The shop colleagues of Operator 1 has access to the CRM system and can therefore see why a certain customer has flagged to be monitored or interacted with. The possible responses and notes the shop colleagues can add are standardised through the use of drop down boxes and free text boxes for further notes. The shop colleagues of Operator 4 provide narrative commentary as part of the RGI process. This information is received by Compliance and recorded centrally by the RG team.

The role of the shop colleagues is critical as they may be the only face to face interaction the customer has on the topic of responsible gambling and should be considered as part as the broader matter of the impact of messaging. Given the other responsibilities that shop colleagues have and the high turnover of staff in some stores, this means a balanced approach should be taken and reliance should not primarily be on the shop colleagues.

In many cases shop colleagues are responsible for identifying customers based on CCTV images (typically monitored by off-site teams). The level of effectiveness of this approach should be considered given the PAS initiative can only operate effectively if the operator can attribute play and data to a unique customer.

Documentation of interactions

Documenting the detail of the interaction is critical and retaining this information in a central depository is key for future reference. This provides a customer picture and enables the operator to enhance the overall view of the customer and allow for more tailored interactions and meaningful discussions as necessary.

4.7. Governance

KPIs and reporting

All Operators have structured reporting channels to senior executives who ultimately takes responsibility for the PAS initiative.

Operators 1, 2 and 3 have defined KPIs that are tracked on a regular basis that specifically relate to the PAS initiative. Operator 2 has defined KPIs in relation to responsible gambling matters, some of which link to senior

management remuneration. Operator 4 tracks the impact of the PAS initiative and has defined KPIs to report this.

Oversight from appropriately senior members of staff or the Board of Directors is critical to set the tone at the top and ensure accountability across the organisation.

The development of industry standard and clearly defined KPIs enable the teams responsible for the PAS initiative to communicate results on a consistent and meaningful basis. Attempting to track the impact of PAS and formally reporting on this is deemed to be best practice in this area. These could then be referred to in the Annual Governance Statement.

Documentation

The level of documentation for the systems and processes varies from operator to operator.

Operator 1 has very detailed documentation of the processes and controls, but have no detailed and technical description available of the algorithm applied as this is performed by a third party.

Operator 2 has documentation of the original scoping and construction of the algorithm, but no updates have been made for subsequent changes. The processes and controls relating to the PAS has been incorporated into the overall responsible gambling charters.

Operator 3 has high level briefing documents available for both the algorithm and the processes and controls in place.

Operator 4 has a detailed description of the algorithm, but the processes and controls are documented at a high-level.

The machine providers have detailed and technical descriptions of the algorithm applied for the independent bookmakers.

Detailed process and controls documentation is key to ensure these are operated as intended with clear allocation of responsibility. This will also aid comparability for future research.

5. Testing performed

5.1. Methodology applied

Each operator provided a list of customers who flagged as 'at risk' between 1 December 2015 and 31 March 2016. These lists were used as the population for selecting an ad hoc sample of 50 'at risk' players per operator for further testing.

It should be noted the sample size of 50 is not statistically significant for each of the populations tested, however this is in line with methodology that would typically be applied to test the effective working of a control that is designed to be performed multiple times per day.

The player journey through the 'at risk' response process was followed for each sample item and compared to the understanding obtained during the interviews. The procedures therefore covered the components of messaging (including marketing restrictions), monitoring of high risk players and interactions.

The procedures were performed at the office of each operator and relied on the documentation trail retained for the above components.

Where deviations from the expected player journey or missing documentation were noted, these cases were individually followed up with the operators and additional information and documentation reviewed if possible. Follow-up meetings were held with each operator to discuss the deviations, missing information or control recommendations noted.

5.2. Findings

The PAS processes and systems are newly implemented and there is an expectation of a certain level of 'teething issues', however there is still work to be done to ensure the processes and controls operate as designed. Two main themes emerged:

- Lack of an audit trail in most cases. Dealing with 'at risk' players are highly sensitive and without a certain degree of detailed documentation of decisions and judgements taken and interactions with the player, it could be challenging to prove that the operator responded in an appropriate manner to specific cases. A lack of audit trail could also impact on future research and monitoring.
- Processes are largely manual and it should be considered whether elements of messaging, monitoring and documentation of interactions can be automated.

The detailed findings are set out by operator.

Operator 1

It was validated that in cases where the RG team were notified of bounce backs received in relation to 'level 1' and 'level 2' messages, that players were appropriately identified and that the relevant account was correctly marked as 'unverified'. From the sample of 50, in seven cases no bounce back notification information was available on the delivery report due to no message being sent.

For these seven cases, the following was noted:

- Two cases were a result of a data transfer failure. On further investigation, the operator commented that in these two cases the RG team did send the message request list to the third party however not within the timescales outlined in the process and were therefore not processed. It is understood that this matter has already been remediated by the operator and that ongoing internal testing will be performed to monitor this.
- In five cases no messages were sent out to players flagged as 'immediate interaction required' despite the designed process indicating that a 'level 2' message should be sent whilst a manual review was undertaken

by the Player Protection team. On further investigation, Operator 1 was informed that the third party who send out messages did not correctly interpret Operator 1's requirements and as such failed to send repeated 'level 2' messages to individuals that continued to exhibit high scores. However we understand that irrespective of receiving these additional messages, a manual review and subsequent interaction were completed, as appropriate, in line with the prescribed policy. It is also understood that the process has been amended to ensure repeated 'level 2' messages are now sent where appropriate.

- In addition a further four cases were identified where messages were correctly not sent as a result of the system design. In three cases the players were already in a control group and in one case the player was deemed to have an online bias and therefore moved to the online monitoring process.

Of the 50 sample items, it was noted 36 should have been removed from marketing communication as per the designed process flow. Of these 36, there were 14 cases that did not follow the prescribed process. The following was noted:

- In eight cases, players were correctly removed from marketing communications and seven players were in a control group.
- In seven cases players were removed from marketing and will remain removed until their score reaches >0.7 in line with the operators policy.
- In one case a player was identified as 'at risk' when the process to restrict marketing messages was still completely manual. Marketing messages were however not restricted, but this was identified by the RG team in February 2016 and rectified following a manual review.
- In four cases data transfer failures occurred due to the timing of sending the lists to the third party.
- In nine cases marketing restrictions were not applied due to a process failure.

Operator 2

For seven of the 50 sample items it was noted that the correct process was followed at the time, but due to changes to the algorithm and the on-going monitoring process, these cases would have flagged in a different manner and would have required a different response under the current version of the PAS. The assessment was performed against the rule set in place at the time of the initial flag, but the following observations are shared in comparison with the current version of the PAS:

- In one case the player did not receive the first message after initially flagging, as the player was from a region that was not included in the messaging process at the time. The player flagged through the OTC metrics and the OTC process was in pilot at the time as full roll-out across the entire estate was not completed until March 2016. When the player flagged at the next level requiring a 'level 2' message, this was not sent as the initial message was never sent.
- In two cases players should have received a 'level 2' message, but none were sent.
- In three cases there was no documented evidence of the decision making process and it could therefore not be validated whether appropriate individuals were involved in the process or whether the decision made was in line with policy. These players had a background of dual play (both machine and OTC play) and as a result flagged through the OTC metrics that was in pilot until 31 March 2016.
- In one case a player should have received a 'level 1' message however no message was sent. In addition, the player later flagged as a higher risk player and the case should have been manually reviewed by the RG team. No report case file was however created as the RG team was not in place at the time.

Operator 3

In ten of the 50 cases it was noted that text messages were not sent per the process in place. In a further eight cases the messages were not sent in a timely manner.

In two cases players were not restricted from receiving marketing messages in line with the process in place.

CCTV imagery is used to confirm the identity of the player. In four of the 50 cases sampled, it could not be verified whether this procedure was performed due to a lack of available documentation.

In certain circumstances questionnaires should be sent to the stores to complete as part of the ongoing monitoring process. Of the 50 items tested, 29 questionnaires should have been sent, however they were not sent in eleven cases.

- In seven of these cases this was due to the player not being identifiable through the CCTV images available.
- In the four remaining cases, it was not possible to establish the reason given the lack of documentation available and the changes to team members. A further investigation was carried out by the RG team, but no additional information could be provided.

In the 18 cases where forms have been sent, the following findings were noted:

- In five cases the questionnaires were not sent in a timely manner.
- In five of the 18 cases where questionnaires have been submitted by the stores, it was not clear whether these questionnaires have been reviewed by the RG team due to a lack of appropriate documentation and changes to team members.
- In four cases it could not be validated whether appropriate action has been taken after the review of the case file due to a lack of documentation.

Operator 4

It was not possible to verify whether players have appropriately been restricted from receiving marketing materials while they were being monitored.

The list of players that should be restricted was sent to the marketing team by the RG team, but no confirmation was obtained that this has been actioned appropriately. In addition, it was noted that a formula error in the excel sheet used for this purpose caused that an erroneous list of players could have been sent to marketing and 'at risk' players could indeed still have received marketing information during the monitoring period. The process has been automated after 31 March 2016 and this was reviewed in light of the above findings and a further error was noted. Going forward a list of restricted players will be created and this will be checked at random to the list of players receiving regular marketing communication.

5.3. Response from the ABB and operators

The ABB and the operators have responded to the findings noted (refer to Appendix D). The response also includes an update to the processes and controls since the time of the review. No further procedures have been performed by PwC to validate the ABB statements.

6. Recommendations for ongoing evaluation

Comparative data project

We understand that a number of operators have done a small sample based project to compare the results of using customer data from one operator on the algorithm and scoring mechanism of another. We encourage that this project be extended to include all operator's algorithms along with a critical assessment of the quality of the output of the various models. Further validation of the findings using customer surveys, or the problem gambling severity index ('PGSI') scores should also be considered, particularly for customers that are identified as 'at risk' inconsistently between the different models.

A common data format that can be used by all operator's algorithms will make the comparison of results between operators more straightforward. It will enable data to be run on different models routinely and the results can be used to produce a standardised dashboard to monitor performance and aid future research.

Control groups are currently used by a number of operators in different ways. Standardisation of the selection criteria and effective monitoring will support any future evaluation of the impact PAS is having on potential harmful play.

Working understanding of data input and algorithms

Due to the change in scope of phase 2, the evaluation team was not able to compare and contrast the different algorithms in detail, or validate that the implementation matched stated the design. We recommend that the implementation of each operator's algorithm is validated against their design in due course.

Ongoing validation

We recommend that operators validate the PAS processes and controls on an ongoing basis. An independent follow-up project to consider the findings of this report in early 2017 will enable operators to respond to the findings of this report and track ongoing improvements. An annual audit programme, or periodic assessment through peer review, would provide an effective way of continuing validation in the longer term.

The operators have indicated a commitment to undertake an evaluation for the same period next year and to consider an annual audit or review process subsequently.

Effectiveness of PAS

The PAS initiative is in its infancy and it is too early to evaluate whether it is having an impact on customer behaviour. We recommend a further study to evaluate the impact on the behaviour of customers is done in the near future.

Other considerations

The limitations of evaluating the PAS initiative for a four month period (December 2015 to March 2016) are outlined in the previous sections of this report. We recommend that any future work considers the following questions as part of its scope:

- What period of time and how much data is required before enough information points are available to effectively evaluate customers' behaviour?
- What is the optimal frequency at which the algorithms should be run?
- What impact does the frequency of messages have on the customer?

- Is there a way to effectively track whether a message has been delivered and whether a player has read and taken action as a result of the message?

Appendices

Appendix A – Detailed comparative findings of PAS approach

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 | Machine providers |
|--------------------------------------|--|--|--|---|--|
| Data input | | | | | |
| Sources of data used | FOBT data, debit card payment data and self-exclusion data | FOBT and OTC data | FOBT data only | FOBT data only | FOBT data only |
| Data period | Lifetime (since introduction of loyalty card scheme) | Minimum of 12 weeks; incremental weeks included after initial 12 weeks | Rolling 4 weeks with reference to previous 13 weeks | 30 days with reference to lifetime info | Rolling 4 weeks with reference to previous 13 weeks |
| Algorithm and markers of harm | | | | | |
| Markers of harm tracked | Frequency of play Duration of play Net expenditure Type of games played Number of reloads Various in-session metrics (including; number and types of games played, debit card reloading and switching, debit card payment decline, variability in staking behaviour, use of | Frequency of play Duration of play Net expenditure OTC play | Frequency of play Duration of play Net expenditure | Frequency of play Duration of play Net expenditure Number of reloads Variability in staking behaviour | Frequency of play Duration of play Net expenditure |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 | Machine providers |
|---|--|--|---|--|---|
| | repeat bets/auto play, cash out, deviations from usual behaviour, player protection measures) Change of payment methods | | | | |
| Method of data transfer to 'model module' | Automatic batch transfer from data warehouse to third party on a daily basis | Data captured in data warehouse through standard operation processes. Model automatically applied to this data | Manual transfer of data from machine provider on a weekly basis | Receive automated daily report of players previous days play | |
| Frequency of running model | Daily | Weekly | Every 2 weeks | Daily | Weekly (every Monday) |
| Third party systems used to run model | Yes | No Model reviewed by third party | Yes (machine providers) | No | No |
| Risk scoring and grouping | | | | | |
| Frequency of review of data output and risk scores | Daily | Weekly | Every 2 weeks (Monday) | Weekly (Wednesdays) | Weekly (Monday) |
| Risk scores used | 0 to 1 | Points awarded (1, 5 or 10) | Two scores: PPG (general) PPS (customer specific) | 0 to 1 | Two scores: PPG (general) PPS (customer specific) |
| Risk scoring mechanism takes into account player's previous behaviour | Yes - embedded in certain markers | Yes - points awarded for current behaviour | Yes – compares the last 4 weeks to the last 12 weeks | No | Yes – compares the last 4 weeks to the last 12 weeks |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 | Machine providers |
|--|---|---|--|--|---|
| | | compared to previous behaviour | | | |
| Cumulative triggers applied | Yes – history of previous triggers are incorporated into the scoring mechanism | Yes - compares current week to previous 12+ weeks; player needs to have a minimum of 3 losing weeks in last 12 weeks for further investigation. Average customer losses also needs to have exceeded £100/week. | Yes - compares last 4 weeks to previous 13 weeks | Yes - player will only be monitored further if they scored above a certain level for 7 days out of the last 30 | Yes - compares last 4 weeks to previous 13 weeks |
| Degree of groupings ('buckets') | 5 groups: No risk Borderline threshold Standard interaction Immediate interaction High interaction | n.a. A flagging system is used if above a certain level of points scored | 4 groups: Level 1 (lowest) to level 4 (highest) | 3 groups: No risk At risk High risk | 4 stages: Flagged for first time Flagged multiple times, no change Watch list Removed from watch list |
| Groups/buckets that are considered high risk/at risk | Immediate interaction High interaction | n.a. Depends on the number of flags | Level 3 and 4 | At risk High risk | |
| Use of control groups | Yes | Yes | No | Yes | |

Evaluation of the player awareness system implementation

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|---|--|--|---|---|
| Messaging | | | | |
| Medium of messages | E-mail, text | E-mail, text (or pop up if not reached on other methods) | Text, machine pop ups | Text, machine pop ups |
| Frequency of sending messages | Daily | Batches of messages sent out weekly | - High risk- text message every other week and a machine pop-up every week - Medium risk – text message once a month and a machine pop-up every other week | Batches of messages sent out weekly |
| System used to send text messages and e-mails | Third party | SMS – Campaign Manager Emails – SDL Email Manager | Manual | Third party |
| System used to set up machine pop-up messages | n.a. | Previously done by third party, but machine pop ups no longer in use since July 2016 | Manual list sent to machine provider | Manual list sent to machine provider |
| Tracking failed messages/delivery receipts | Yes | Yes | Yes | No |
| Tracking click through on messages | No | Has the ability to track this, but no reporting received on this currently | No | No |
| Impact on marketing messages | 7 or 30 day suppression depending on risk category | Removed from marketing CRM after 3rd flag | Marketing switched off for level 4 | Marketing switched off while under review |
| Mechanism to switch off marketing messages | Automated | Manual | Manual | Manual |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|--|---|--|---|---|
| Timing of messages (days since identified or triggered certain risk category) | | | | |
| 1st message | Same day | 5 Days Flag report each Wednesday with communications sent each Monday | 5 Days Flag report each Monday, communications each Saturday | 5 Days Flag report each Wednesday with communications sent each Monday |
| 2nd message | 28 days | +2 weeks | +2 weeks | +2 weeks |
| 3rd message | | +2 weeks | +2 weeks | +2 weeks |
| Customer review (case file prepared) | +28 Days Players with VIP status or score greater than 0.8 move directly to review stage | +2 weeks | +2 weeks | +2 weeks |
| Monitoring of high risk players | | | | |
| Method of data transfer from 'model module' to monitoring system | Player scores available on third party dashboard. Interface with CRM system | All 4th flag data is retained within the Player Protection report on ADW. Where 4th flag customers form the basis of a report, a report number is assigned and added to a spreadsheet for reference and monitoring purposes. | Manual download to spreadsheet | Manual download to spreadsheet |
| System used for monitoring | Proprietary software (CMS) | Spreadsheet | Spreadsheet | Spreadsheet and business objects (MI system) |
| Team responsible for monitoring | Review by Risk Advisory team (reviewed by regional managers) | RGC Team/Divisional Ops Directors/Regional Managers | Review by RG/compliance team | Review by RG team; passed to Compliance team after 3 RG reviews |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|---|---|---|---|--|
| Other sources of information considered | RG comments documented by shop colleagues in CRM system | Back story' from shop colleagues, machine logs, shop alert logs, interaction logs, OpenBet account info, loyalty card info, transaction history. Open source data (Web). | Behaviour in store (if able to identify) | Shop team complete RG form on customer and send to Head Office for review |
| Method of collating and storing 'case files' | Manual profiles in excel | Manual reports in word. Saved in a secured folder on a shared drive | Spreadsheet | Spreadsheet |
| Level of risk for which case files are collated | <p>Case files are collated for all 'High interaction' customers and all customers who have received a level 1 and 2 messages and still display an 'at risk' score.</p> <p>High interaction customers are customer that score in the high interactions threshold boundaries which at the moment are 0.8-1</p> <p>The level 1, level 2 and still display and at risk score is between 0.7-0.8 currently (customer that score above 0.8 after level 1 and level 2 would fall into the high interactions threshold category).</p> | Case files are collated for all customers with more than 4 flags | Case files are collated for all 'Level 4' customers | Case files are created for all customers that flag > 0.6 and after 3 rounds of messaging |
| Outcome of monitoring | <p>Depending on outcome of review and judgement the following actions can be taken</p> <ul style="list-style-type: none"> • Card temporarily blocked • RGI <p>Refuse further play</p> | Following report submission and an 8 week review outlining actions from the PML. If 'normal' play has resumed and customer is not flagging, the report is closed but continued monitoring from shop colleagues is carried out | <p>Depending on outcome of review and judgement the following actions can be taken:</p> <ul style="list-style-type: none"> • RGI • Refuse further play <p>No action taken</p> | <p>Depending on outcome of review and judgement the following actions can be taken:</p> <ul style="list-style-type: none"> • RGI <p>Continue monitoring</p> |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|--|---|---|--|---|
| Period of continued monitoring after interaction | Area manager will continue to monitor and interact locally based on outcome of RGI. Central team will monitor if player still appears 'at risk'. | Ongoing - there is no fixed time scale for in-shop monitoring. | 3 to 4 months. | Not a fixed period, but this is based on the outcome of the RGI and will continue as long as a player appear on the 'at risk' list. |
| Link to online data available | Yes - consider whether there is an online bias; removed from PAS monitoring and transferred to online monitoring process is appropriate. | Not currently possible - link is to be implemented as part of introducing a multi-channel approach. | Not currently possible | Not currently possible |
| Interactions | | | | |
| Role of shop colleagues | Aware of RG monitoring through in-store system Record RG interactions on system (visible to central team) | Provide back story of customer, awareness of customer and monitoring throughout the process including machine alerts, changes in behaviour and interactions undertaken. Report concerns to Line Management. | Complete questionnaire about 'Level 4' customers. Can be requested to perform RGI, but only aware of in-store RGI, not of central monitoring. | Perform RGI which is followed up weekly by central team |
| Identification of customer | Through CRM system manually linked to loyalty card ID | Shop Colleagues/CCTV if colleagues are unable to identify the customer. | CCTV analysis | Shop colleagues |
| Nature of responsible gambling interaction (RGI) | Face to face | Interaction with customer will take place face-to-face with the customer and will be recorded on the computerised 'interaction log' in the shop. Regional Manager will include on the report that an RGI has taken place. | Face to face | Face to face |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|--------------------------------------|--|---|--|---|
| Level of risk requiring RGI | Case files are collated for all 'High interaction' customers and all customers who have received a level 1 and 2 messages and still display an 'at risk' score. | Where deemed appropriate by the PML holder (Regional Manager) & Shop Team. | Level 4 | 'At risk' and 'High risk' treated the same and an RGI will be performed after three rounds of messaging |
| Who performs the RGI | Shop colleague or regional manager | Shop colleagues but can include MPM or AM depending on status of customer. | Shop colleague or district leader | Shop colleagues |
| Governance | | | | |
| Level of exec team/Board involvement | <ol style="list-style-type: none"> Quarterly reports presented to the Group RG Committee chaired by the Group CEO. Monthly compliance report which is discussed at the Divisional Exec meeting. | <ol style="list-style-type: none"> Monthly compliance report to Retail MD who reports to exec team Dotted line reporting to Board Committees There are a number of ExCo directors participating in the Steering Committee for Multi-channel Responsible Gambling, which covers Responsible Gambling for both Retail (the 'Retail Algorithm') and Digital (the 'Digital RGI Matrix'). | Monthly reporting to the Senior Mgt Team via the Head of Retail Compliance to the Executive Committee | Weekly reporting sent to Group Commercial Manager & through to the Director of Audit & Risk |
| KPIs identified | <ul style="list-style-type: none"> Total number of customers identified since commencement of scheme Number of customers identified in month Communication method used (number of SMS, email, staff interactions) | <ul style="list-style-type: none"> Total number of customers identified since commencement of scheme Number of customers identified in month Communication method used (number of SMS, email, staff interactions) | <ul style="list-style-type: none"> Total number of customers identified since commencement of scheme (note many of these will overlap) Number of customers identified this month/4 weekly period | Impact of messaging on: <ul style="list-style-type: none"> Scoring (improvement Stakes per spin and other) |

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|---------------------------------------|---|--|--|--------------------------------|
| | <ul style="list-style-type: none"> Proportion of customers moving up risk level following interaction (in next period) Proportion of customers moving down risk level following interaction (in next period) Proportion remaining in same risk level (in next period) Number of accounts active in period <p>Any additional trends, patterns or variances to note</p> | <ul style="list-style-type: none"> Senet RG Commitments Launching the multi-channel PAS Centre of Excellence /systems and processes (includes the retail algorithm) RG operational delivery targets The KPIs are agreed and tracked by the Social Responsibility Committee, which is chaired by a senior non-exec plc Board member | <ul style="list-style-type: none"> Communication method used (number of SMS, email, pop-up, staff interactions) Proportion of customers moving up risk level following interaction (in next 4 week period) Proportion of customers moving down risk level following interaction (in next 4 week period) Proportion remaining in same risk level (in next 4 week period) Number of accounts active in 4 week period <p>Any additional trends, patterns or variances to note?</p> | |
| Documentation of model | No (with third party) | Documentation on the original scoping and construction of the model | Yes - high level brief | Yes - detailed description |
| Documentation of process and controls | Yes - detailed documentation | Contained within Policy & Procedures Document for RGC Team | Yes - high level brief | Yes – high level documentation |

Markers of harm tracked

Areas shaded in grey indicates that a participant tracks this marker of harm as part of the data analytical procedures.

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|---|------------|------------|------------|------------|
| Between session metrics | | | | |
| Frequency of play | ✓ | ✓ | ✓ | ✓ |
| Duration of play | ✓ | ✓ | ✓ | ✓ |
| Net expenditure | ✓ | ✓ | ✓ | ✓ |
| Number of activities undertaken/games types | ✓ | | | |
| Levels of play engagement | | | | |
| Chasing losses | ✓ | | | |
| Number of reloads | ✓ | | ✓ | |
| Within session metrics | | | | |
| Number and types of games played | ✓ | | | |
| Debit card reloading and switching | ✓ | | | |
| Debit card payment decline | ✓ | | | |
| Variability in staking behaviour | ✓ | | ✓ | |
| Use of repeat bets/auto play | ✓ | | | |
| Play on multiple machines simultaneously | | | | |
| Stake size | | | | |

Evaluation of the player awareness system implementation

| | Operator 1 | Operator 2 | Operator 3 | Operator 4 |
|---------------------------------|------------|------------|------------|------------|
| Game volatility | | | | |
| Way game is played | | | | |
| Cash out | ✓ | | | |
| Deviations from usual behaviour | ✓ | | | |
| Player protection measures | ✓ | | | |
| Other | | | | |
| OTC data | | ✓ | | |

Appendix B – Glossary

‘At risk’ players – terminology used by each operator to refer to those customers who have scored above each individual operator’s threshold. The definition is unique to each operator’s algorithm and therefore not comparable across operators. As discussed in the report, a player flagged as ‘at risk’ by one operator may not necessarily be flagged by another.

Behavioural analytics – use of data analytical procedures to take seemingly unrelated data points in order to ‘learn the behaviour’ of a uniquely identified individual and predict trends and identify errors or anomalies. The data analytical procedures consider the data points in relation to each other and not merely individual data points against a set threshold.

Harm (*no commonly accepted definition*) – The adverse financial, personal and social consequences to player, their families and wider social networks that can be caused by uncontrolled gambling.

Problem gambling (*no commonly accepted definition*) - A progressive disorder characterized by a continuous or periodic loss of control over gambling; a preoccupation with gambling and with obtaining money with which to gamble; irrational thinking; and a continuation of the behaviour despite adverse consequences.

Problem Gambling Severity Index (PGSI) – A measure that allows for the assessment of social and environmental aspects of gambling with the ability to identify levels of problem gambling

Chasing losses – Attempting to ‘win back’ money lost in a prior or current gambling session.

FOBT – Fixed odds betting terminals; category B2 machines.

Markers of harm – A behaviour or indicator which can be used to reliably predict another behaviour or state, such as problem gambling. With specific reference to those identified through the research performed by NatCen.

OTC – Over the counter sports betting conducted in high street stores.

RGI – Responsible gambling interaction

Sample size – The sample size of 50 was agreed with the operators as a representative number to enable a detailed understanding of the current PAS status. The 50 is not statistically significant and does not therefore enable for the results to be extrapolated to the whole population.

Appendix C – References

¹ <http://www.responsiblegamblingtrust.org.uk/media/1248/1-dec-2014-combined-files-reports-1-2-3-patterns-stakes-rtp-chbv.pdf>

² <http://www.responsiblegamblingtrust.org.uk/media/1154/customer-behaviour-analytics-abb.pdf>

³ <https://www.abb.uk.com/player-awareness-system-launched-by-bookmaking-industry-new-responsible-gambling-initiative/>

Appendix D – Response from the ABB and operators



ABB update with regard developments made by operators to their individual Player Awareness Systems, subsequent to the period analysed by PWC | August 2016

Introduction

The early evaluation conducted by PWC looked at data from the period December 2015 to March 2016. The Player Awareness Systems (PAS) were formally launched and in place nationwide across the UK's betting shops in December 2015. However, because each operator had developed and implemented their own systems individually, each system was at a different stage of maturity during the period examined by PWC, and all have been subject to ongoing development and improvement since this time.

As such, each operator has provided information setting out updates that took place to their systems following the period PWC has evaluated in their report.

Operator 1

The period covered by the report immediately followed the launch of PAS, on 8 December 2015, by operator 1. It is unsurprising that it identified some initial operational teething issues. These in the most part had already been identified but the analysis by PWC assisted in highlighting them so that additional focus could be directed towards resolution.

Further information with regard to the issues raised in 5.2 is as follows:-

- **Data Transfer/Process Failure** – The system was designed that following the daily processing of customers play through the behavioural analytics algorithms the resultant scores were then passed through a further system (developed internally) to categorise customers into certain communication categories. Once complete the outputs of this processing were then transferred to a third party who sent the appropriate RG messages. When this system was put live it was found that the data processing in some circumstances took longer than expected and failed if the input data was delayed. In these circumstances the deadline agreed with the third party messaging company was missed resulting in the RG messages not being sent and marketing restrictions not implemented. As this issue was unexpected there was initially no recovery solution in place. As highlighted in the report this issue had already been identified and a solution subsequently implemented.
- **High Risk Reviews** – Within the process customers are highlighted that either maintain their risk score above the intervention threshold level (despite messages having been sent) and those that registered an initial high risk score. These customers are subject to a manual review/assessment by the Player Protection team but should have also been sent further level 2 messages monthly until their score declines. The report identified this issue and steps were immediately implemented to resolve it. However, it should be noted that although

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these customers did not receive an automated RG intervention, they were still flagged to the Player Protection team which, where appropriate, would have led to a face to face interaction by the shop team.

To ensure these solutions are continuously audited, the player protection team now selects random samples each week to confirm full process has been achieved.

The operator is also working with their third party provider to more accurately identify those at risk whilst reducing false positives using data from customers that elect to self-exclude and hope to implement this revised model shortly.

Operator 2

Operator 2 achieved full rollout of PAS across their retail estate in Q4 2015. The system and process was originally devised to focus purely on machine play by customers whilst using their loyalty card, but was extended to incorporate over the counter (OTC) transactions during 2015.

The review undertaken by PwC focused on a time when the OTC process was essentially in pilot across c.30% of the retail estate, prior to full rollout at the end of Q1 2016. This is relevant as the four customers identified as having not received the correct message (or any message) in the PwC report were connected to the OTC process that was still in pilot. It is therefore encouraging that the issues identified in the report in relation to the machine process were relatively minor.

Further substantive updates to PAS have been undertaken since the period reviewed by PwC:

- In Q1 2016, after a rigorous tendering process, a third party was appointed to conduct an independent review of both the Retail Algorithm system and the processes in place. The review concluded in Q2 2016 and the operators is currently working through a range of recommendations and improvements as a result of this exercise.
- In Q3 2016 a new live piece of work was added, seeking to identify multi-channel customer behaviour and to continue to add resource to the operator's responsible gambling teams in both London and elsewhere in the UK as insights continue to be developed.
- The 2016 remuneration for the operator's senior leaders is linked to the successful rollout of their multi-channel PAS project as one of their key responsible gambling KPI's.

Operator 3

The audit conducted by PwC was found to be a useful tool in confirming the progress operator 3 has made to date, whilst also helping to identify further opportunities where improvements can be made.

Operator 3 has already taken steps to address some of the shortcoming identified during the audit outlined at 5.2 and noted the state of infancy of the project at audit stage. Specific actions that have been taken are:

- Tighter turnaround times for the review of the report are now in place ensuring that messages are received as soon as possible.
- The operator's report now contains greater detail in relation to time of play (to the minute), to ensure that customers can be more easily identified and therefore that the questionnaires can be sent.

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- The operator noted that two customers were not excluded from marketing communications. Processes have been improved in this area as well.

In addition to the specific actions that address the issues outlined at 5.2 in the report, operator 3 continues to make additional improvements to their processes including, but not limited to, increased mandatory responsible gambling interactions, mapping the player journey over the longer period of 3 months rather than 4 weeks, and improving the scope for identifying genuine players.

The operator has emphasized its willingness to continue its work in this area and welcomes the opportunity for further analysis.

Operator 4

In response to the issues identified in the report with regards the operation of their PAS the operator can confirm that:

- Immediate action was taken to rectify the situation identified in the report regarding marketing messages continuing to be sent to those messaged with regards player protection. A process is now in place to ensure this will not happen again.
- Performance of the PAS is reported and forms part of the company CSR report (produced quarterly) and viewed by the CSR Committee and Executive team.

Further substantive updates to PAS have been undertaken since the period reviewed by PwC:

- A leading data analysis and behavioral consultancy has been commissioned to develop an ongoing schedule of work related to further validation of the PAS algorithm, player data and to provide input on the messaging construction and approach.
- Loyalty card players have been surveyed with regards their level of potential problem gambling so as to refine and re-baseline the PAS algorithm to be more accurate in picking up potentially at-risk players.
- A review of event level data has been commenced to establish if links to problem behaviour can be found there.



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