Victorian Commission for Gambling and Liquor Regulation

ATTACHMENT 3

Commercial in Confidence

TRIM ID: CD/20/6206

Sixth Casino Review Recommendations 7 & 8

Summary of the key actions/initiatives taken by Crown in its submissions in relation to implementing responsible gambling recommendations 7 and 8 [1]

1. The information below provides a summary of Crown's submissions and the key actions/initiatives taken by Crown in relation to implementing responsible gambling recommendations 7 and 8. As a summary of Crown's submission, the views expressed are those of Crown, not the author of this summary, unless specifically stated otherwise.

2. The VCGLR would appreciate the VRGF's views on the:
   a) use of observable signs in conjunction with data analytics to identify patrons at risk of being harmed from gambling
   b) ongoing development and implementation of data analytics tools utilising both historical data, and real-time monitoring of play periods
   c) legal, technical and methodological issues regarding the practical options for a real-time data analytics tool for un-carded play.

Recommendation 7 provides:

> *The VCGLR recommends that Crown Melbourne use observable signs in conjunction with other harm minimisation measures such as data analytics to identify patrons at risk of being harmed from gambling.*

3. Crown continues to employ observable signs as part of its everyday responsible gaming practices. As you are aware, these observable signs have an evidence base in research [2] and gaming floor staff are required to refer patrons who seek assistance and/or are showing observable signs to a Responsible Gaming Advisor (RGA) or to management for referral to an RGA.
4. Crown has continued to develop and enhance player data analytics tools. The Player Data Analytics Model (PDA Model) has been developed and refined over a 12-month comprehensive trial following a validation process, and operates in 'near-real' time. Crown also monitors patrons' length of play or time on site via its 'Play Periods' monitoring tool which involves real time monitoring. Both the PDA Model and 'Play Periods' monitoring of carded players are currently in use in conjunction with observable signs of responsible gaming for all players.
5. PDA Model reports are generated every six weeks. The Responsible Gaming Team have approximately four to five weeks to action the report and the Customer Analytics Team take approximately one week to generate a new report. The Responsible Gaming Team analyses the report on receipt which can take up to three days, checking for previous interactions, then placing each patron's member identifier on a pager that alerts the Responsible Gaming Team when the member next uses their card for a gambling service. If the member is able to be interacted with, the discussions are noted on a spreadsheet, which is returned to the Customer Analytics team for further analysis.

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[1] The VCGLR is currently assessing Crown's submissions in relation to the recommendations in 'blue'.

[2] 'Validation study on in-venue problem gamblers', Thomas, A., Delfabbro, P. and Armstrong, A. (2014), Gambling Research Australia; 'Identifying Problem Gamblers in Gambling Venues', Delfabbro et al (2007) and 'Current issues related to identifying the problem gambler in the gambling venue' various authors, Australian Gaming Council (2002).

6. All 12 RGAs are tasked with responding to the periodic reports once they are received, that is checking the prior player history, performing technology related work such as placing member identifiers on pagers and removing them, follow up conversations and recording thereof.
7. Crown views the implementation of player data analytics and 'Play Periods' monitoring as additional tools for RGAs to be used in conjunction with observable signs.
8. Further details of Crown's PDA Model and 'Play Periods' monitoring tools are provided under Recommendation 8 part (a) below.

Recommendation 8 provides:

The VCGLR recommends that Crown Melbourne proceed with development and implementation of comprehensive data analytics tools for all patrons, to proactively identify for intervention patrons at risk of harm from gambling. These tools would utilise both historical data (with parameters developed from the second player model), and real-time monitoring of play periods. Crown Melbourne should look to models in other jurisdictions, and consult with external data analytics experts, with a view to implementing world class, proactive approaches with real-time (or near-real time) operational effectiveness. In particular:

(a) for carded play (that is, player activity which can be systematically tracked), Crown Melbourne will have in operation a comprehensive real-time player data analytics tool by 1 January 2020, and

(b) for un-carded play (that is, all other player activity), Crown Melbourne will, by 1 January 2019, commence a comprehensive study of all the practical options for a real-time player data analytics tool, ["second limb"] with a view to reporting in detail (including legal, technical and methodological issues) to the VCGLR by 1 January 2020 and the tool being in operation by 1 July 2022.

Part (a)

Comprehensive real-time player data analytics tool

9. Crown's development of a comprehensive real-time player data analytics tool for carded play is a progression of its response to recommendation 5 from the Fifth Casino Review report which required Crown to assess the effectiveness of the use of player data analytics in relation to intensity, duration and frequency of play as a tool to assist in identifying problem gamblers.
10. The VCGLR confirmed the Commission's expectation that Crown would review the use of player data for persons who self exclude to determine whether meaningful or common variables can be identified.
11. Crown via its in-house specialist resources has developed and trialled the PDA Model which is a predictive model to proactively identify opportunities for intervention by RGAs of Crown Reward Club members who exhibit potential problem gambling behaviour based on data obtained from patron historic gaming activity and some demographic information.
12. The PDA Model is a 'work in progress' and is undergoing continuous development and refinement post its 12-month trial that concluded in June 2019 to ensure its full value as a responsible gaming tool in addition to observable signs of problem gambling. It is yet to achieve the objective of monitoring carded play in real-time. Instead, the PDA Model is operating in 'near real-time'. It remains to be seen whether it is practical for such a model to be genuinely 'real time'.
13. The PDA Model was developed using separate models for both table games and gaming machines play due to the different nature of the two gaming products.
14. Baseline data was drawn from the historic gaming activity of a pool of self-excluded patrons from July 2012 to December 2016, and a sample of randomly selected patrons from the Crown

Rewards database (which included persons who had subsequently self excluded as well as ongoing players). A combination of patron demographics and patron gambling behaviour (18 months up to the point of self-exclusion) were used, and over 200 variables were analysed, out of which 50 best were chosen to build the models.

15. In developing the PDA Model, Crown has acknowledged the helpful commentary provided by the VCGLR and VRGF in terms of baseline data, that is, the tracked play behaviours of members who subsequently self excluded. The PDA Model applies a complex algorithm to calculate outputs.
16. The VCGLR believes the initial build of the PDA Model underwent successful validation testing prior to a 12-month trial.
17. From the initial model a sample of randomly selected Crown Rewards loyalty club members from a pool[3] from the Crown Rewards members database (meeting the criteria of at least one Table Games or Gaming Machines rating (or gameplay) in the last 18 months) was obtained.
18. For the 12-month trial, local members who had used their Crown Rewards card for gaming in the last 30 days were provided as a tranche of 100 members. The trial consisted of nine tranches.
19. After a review of the initial build of the PDA model following the first tranche of the PDA Model trial, refinements were made such as:
    - analysing up to the last 200 visits instead of relying on a static period of 18 months
    - implementing a new modelling algorithm
    - combining the two separate (table games and gaming machines play) models into one, to better capture any interplay between product.
20. Upon receipt of the PDA Model trial reports for each tranche, RGAs followed the procedure outlined in paragraphs 5 and 6. Interactions resulting from the trial provided an opportunity for the RGAS to deliver information about the services and programs of the Responsible Gambling Centre, consider whether there are any responsible gaming issues and take further appropriate action as required. The interactions were recorded in the database, as well as a separate spreadsheet, which assisted in the effectiveness of the trial and to also provide feedback to the Customer Data analytics team at the scheduled meetings in order to refine the PDA Model.
21. RGAs' observations of the trial included:
    - it empowers RG staff to take a proactive role in their duties
    - the interaction could assist members to prevent any potential problems from escalating
    - there were difficulties in engaging members who were playing on tables or in a group.
22. The VCGLR considers that the results of the PDA Model trial were positive and insightful. 1.7% of the members in the trial proceeded with a voluntary self-exclusion. Of note is the bulk of interactions related to 'Play Periods' (i.e. length of play or time on site). It is also important to note that potential problem gambling is identified, and not everyone identified would experience problem gambling.
23. Post the trial, Crown has continued the observations/interactions which may be useful for the next phase of the refinement of the PDA Model. Crown has collected qualitative data from a sample of those members who had been contacted by an RGA to gauge the impact of the interaction. A short questionnaire was provided to a sample of members in the trial for research. Crown has also followed up with interviews with members who had been previously approached.
24. Crown has also advised that the PDA Model based on the 12-month trial appears to be a more suitable tool when compared to other tools currently in use/available in other casinos. Crown has

[3] The pool represents 10% of the Crown Rewards database.

considered research and consulted widely with external data experts on data analytics tools. Based on its research there is currently no third party predictive data analytics technology available which meets Crown's requirements that applies to a land based environment and incorporates both gaming tables and gaming machines.

25. Crown is continuing to monitor data analytic tools as they develop, with a view to benchmarking and improving the PDA Model which has been endorsed by Professor Alex Blazcynski in terms of the work done to date recognising that more time and data are now needed to progress the PDA Model further.

26. Crown has advised it will be conducting ongoing reviews on the PDA Model by external experts. Crown proposes to undertake a detailed review of the Crown Model after a further 12 months of operation, and additional analysis and commentary going forward. The VCGLR will recommend to the Commission that it request a copy of the detailed review.

'Play Periods' Monitoring

27. In addition to implementing the PDA Model, Crown is also monitoring real-time patron play periods to address recommendation 8. Its 'Play Periods' program identifies continuous ratings without appropriate breaks during a 24 hour period. Members using their loyalty cards are identified via 'Play Periods' and are approached where possible by RGAs or gaming staff and reminded to take regular breaks. The 'Play Periods' program was reviewed and significantly enhanced in the 2018–19 financial year.

28. Historically (prior to 2017–18 financial year), the method of identifying patron 'Play Periods' was via Crown's loyalty program data collection system, in the form of automatically generated reports every four hours. Crown advises that these reports identified members who had over 12 hours of cumulative gaming activity but failed to take into account time on-site. For example, the report would not capture a member with 11 hours of cumulative gaming activity over a 20 hour period.

29. Crown has made significant enhancements and introduced software for reporting real-time player periods. A trial dashboard has been developed as a method of identifying members who have been on-site for more than 12 hours without a break, based on their loyalty club use. Crown has made a number of improvements to play period reporting, such that there is more accurate 'Play Periods' monitoring and reporting based on various parameters. For example, a member in the lead up to 12 hours on site (where the member's longest continuous break from gaming has been less than two hours) will be captured. Previously, the member would be approached at 16 hours on-site.

30. The latest enhancement has been the development of software which provides notifications to RGA's phones from the dashboard. Crown has advised that following the success of the mobile notifications, the technology was further rolled out to gaming teams in late 2019. All interactions with members are entered into the Responsible Gaming Register.

Part (b) second limb

31. Crown has conducted comprehensive literature searches on electronic databases, searched results from peer-reviewed journals and Google Scholar of all the practical options for a real-time player data analytics tool for un-carded play. Search results from peer-reviewed journals found no literature available for topics specific to tracking systems for un-carded play. The results focussed on on-line gambling. Overall, review of literature suggested that there are generally two systems available to assist tracking players' gambling behaviour for responsible gambling intervention purposes. They are:

    - Player Data Tracking Algorithms (PDTAs) which can be used for carded gaming only. Crown has raised what it considers the major weakness of PDTA is *"the near lack of peer-reviewed research that directly evaluates the algorithm's effectiveness".*

- Tracking players' observable signs that can be used for both carded and un-carded play[4].

32. Crown has found that due to intellectual property issues, limited research has been published in the peer-reviewed literature on PDTAs in general, and no peer reviewed articles have directly examined their effectiveness from preventing problem gambling.
33. Crown is monitoring progress and developments in Artificial Intelligence technology called the Anonymous Player Awareness System[5] that will trigger an alert on-screen and force a break in play when gaming behaviour indicates that it could be harmful play and research regarding development of a system that can identify un-carded gaming machine play of interest.
34. In the course of its literature review, Crown has explored and reported on the potential legal, technical and methodological issues.
35. Crown sought independent legal advice in relation to potential legal issues which considered the *Privacy Act 1988* and Crown's Conditions of Entry Signage to the casino. Crown has advised *"there are no current known legal impediments to continuing to pursue investigations in the area for un-carded play interventions. However, consideration must be given to the concept that tracking individuals (who have not elected to be tracked) may have ethical issues and offend some individual's sense of liberties exposing Crown and the VCGLR to public criticism".*
36. Crown has also considered the potential technical and methodological issues associated with tracking un-carded play.
37. Crown is investigating how its existing technology, including casino operating systems such as Dacom[6] could be used to overlay a real-time data analytics tool as part of the technical solution.
38. Crown is also monitoring a tool an external provider is currently working on to be used to identify gamblers of interest who play un-carded and investigating the use of Artificial Intelligence and tracking patrons from a play length perspective, as part of real-time monitoring.

ENDS.

[4] Such as those used by Crown and defined in the Responsible Gambling Code of Conduct, pp.16 and 17
[5] Anonymous Player Awareness System is a real-time algorithm for gaming machines which identifies areas of player behavior that could indicate harmful play.
[6] Dacom is the electronic Monitoring and Control System in use for electronic gaming machines at Crown.