Victorian Commission for
Gambling and Liquor Regulation

Sixth Casino Review – recommendations 7, 8 and 9

TRIM ID: CD/20/8265

Recommendation

1. That the Commission agrees[1] that Crown Melbourne Limited ('Crown') has implemented:

   (a) recommendation 7 of the Sixth Casino Review report ('the Review') as the result of using observable signs in conjunction with data analytics to identify patrons at risk of harm from gambling

   (b) part (a) of recommendation 8 of the Review as the result of having a comprehensive real-time player data analytics tool in operation by 1 January 2020

   (c) the second limb of part (b) of recommendation 8 by reporting in detail its comprehensive study of all the practical options for a real-time player data analytics tool for un-carded play by 1 January 2020.

2. That if the Commission agrees that recommendation 7 and part of recommendation 8 have been implemented, Crown will be advised that, in relation to recommendation 9:

   (a) only persons who have the appropriate expertise to perform an independent assessment of Crown's real-time data analytics tools are to be shortlisted for approval by the Commission; and

   (b) the scope of the independent assessment must cover both the data analytics tools developed by Crown, and address all potential issues raised by the Victorian Responsible Gambling Foundation and Licensing in respect of the effectiveness and timeliness of the data analytics tools that were raised during the assessment of recommendations 7 and 8.

3. That the Commission agrees the Director Licensing or a single Commissioner approve the expert to be engaged by Crown for recommendation 9, noting that this is not an approval required under legislation.

Background

4. At its meeting on 28 June 2018, the Commission adopted the findings and opinions set out in the final draft of the Review. The Review contained 20 recommendations with corresponding deadlines for Crown to implement. All recommendations in the Review were accepted by Crown.

5. The Licensing Division has responsibility for monitoring and assessing Crown's progress in relation to each of the recommendations and providing regular updates to the Commission in relation to the adequacy of the progress.

6. Of the 20 recommendations, the Commission to date has agreed that Crown has implemented recommendations 1 to 6, and 10 to 19, as well as the first limb of part (b) of recommendation 8.

7. Recommendations 7, 8(a), 8(b) (second limb) and 9 are the subject of this paper and focus on responsible gambling, in particular the use of player data analytics to assist in detecting player harm.

8. Specifically, recommendation 7 relates to the use of observable signs for possible problem gambling in conjunction with player data analytics tools, recommendation 8(a) and 8(b) focus on the implementation of the player data analytics tools, and recommendation 9 relates to the

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[1] The wording of the recommendation has been the subject of consultation with the General Counsel, and the preference is the Commission agree to Crown's implementation of the Sixth Casino Review recommendations, rather than approves their completion.

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evaluation of the effectiveness of these data player analytics tools, which is not due until 31 December 2020.

9. It is observed that these player data analytics recommendations are an extension of recommendation 5 of the Fifth Casino Review. Recommendation 5 from the Fifth Casino Review report 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 potential problem gamblers.

10. At its meeting on 28 July 2016, the Commission determined that recommendation 5 had been completed subject to other matters, including that Crown continue to review the use of player data for persons who self-exclude, to determine whether meaningful or common themes can be identified (**Attachment 1**).

Issues/Comments

11. On 30 December 2019, Crown provided a submission in relation to recommendations 7 and parts of recommendation 8 of the Review (**Attachment 2**). Licensing assessed Crown's submission, and also consulted with the Victorian Responsible Gambling Foundation (VRGF) (**Attachment 3**). The VRGF's response to the consultation is at **Attachment 4**.

12. 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.

13. The Review observes Crown's approach to harm minimisation (apart from its processes for exclusion orders) relies almost entirely on patrons seeking assistance or casino staff identifying patrons who display observable signs[2] of potential harm from gambling ('observable signs').

14. The Review states that the VCGLR considers that monitoring observable signs is an accepted practice as part of a harm minimisation strategy. However, the Review raised a concern that the primary reliance on a policy of observable signs with the current service delivery model[3] may not be the most effective approach to assisting patrons at risk of harm. Therefore, the Commission recommended Crown also use other harm minimisation measures to identify problem gamblers such as player data analytics.

15. In assessing Crown's submission, evidence was sought that new harm minimisation measures had been introduced, and that Crown continued to use observable signs to identify potential problem gamblers.

16. As outlined in Crown's submission, Crown has introduced two player data analytics tools to address recommendation 7 these are referred to as the 'Crown model' and 'Play Periods monitoring' tool. These are discussed briefly below and in further detail in relation to part (a) of recommendation 8.

17. The Play Periods monitoring tool is a program that continuously monitors the periods of time that Crown patrons have played gaming machines or table games (while using their loyalty cards), without a specified minimum break.[4] If the time exceeds the defined period of play without a minimum break, responsible gaming advisors (RGAs) and/or gaming staff will receive an alert from the Play Periods monitoring tool to indicate that intervention or observation may be required to assess and/or minimise potential player harm.

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[2] Observable signs are defined as observed behaviours or patterns of behaviours which are potential indicators that a person may be experiencing problems with their gaming behaviour. Examples of behaviours in Crown's Responsible Gambling Code of Conduct include, gambling for long periods without a break, frequently visit automatic teller machines and showing signs of anger or distress during or after gaming.

[3] Refers to the delivery of responsible gambling services.

[4] See paragraph 31 below for an explanation of the length of play and specified minimum break currently used to trigger alerts.

18. Once an alert is received after a specified period of play is exceeded, Crown staff will approach the identified patron, interact with the patron, and remind them to take a break from gaming. Crown staff will also continue to review the patron for any observable signs of problem gambling.

19. If the Play Periods monitoring tool indicates that the patron has been gambling over a 24-hour period (regardless of breaks), the RGA will request that the patron leave the casino. The next time the patron visits the casino and uses their loyalty card, a RGA will be alerted to this and will conduct a follow-up conversation with the patron.

20. The Crown model is Crown's data analytics predictive data-modelling tool developed by in-house specialist data analytics staff in Crown's Customer Analytics Team.

21. The Crown model periodically generates a list of names of loyalty members who may benefit from a responsible gaming interaction based on an algorithm[5] applied to the assessment of historical play data and some player demographic information. It compares patterns in this data and information for current loyalty members with patterns in the data of previously self-excluded loyalty members (that is, players known to have experienced problems with their gambling).[6] RGAs then check these names in the Responsible Gaming Register to identify if there have been previous interactions. They then conduct a further assessment of the gambling history of the player to identify the specific concerns that the Crown model has raised.

22. In addition to the above, patrons displaying observable signs of problem gambling continue to be referred by gaming staff to RGAs and interactions are recorded in the Responsible Gaming Register. Statistics regarding the continual use of observable signs are provided in **Attachment 5**.

23. Given Crown, in conjunction with the implementation of its two player data analytics tools, (the 'Crown model' and 'Play Periods monitoring' tool) continues to use observable signs to identify potential problem gambling, as evidenced in its submission and attachment 5, Licensing considers Crown has implemented recommendation 7.

24. 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) *["first limb"] 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 ["third limb"] the tool being in operation by 1 July 2022*

25. In addressing part(a) and the second limb of part (b) of recommendation 8 Crown has assessed player data analytics tools in other jurisdictions and consulted with external data analytics experts with a view to implementing such tools/models as suggested in the introduction of recommendation 8.

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[5] An algorithm is a step by step process or a set of rules to be followed in calculations or other problem solving operations to solve logical and complex mathematical problems.

[6] Crown considers that the data analytics player variables (patron gaming behaviour and demographic information) used by the Crown model are commercially confidential and these variables have not been shared with the VCGLR.

26. As evidenced in Crown's submission, Crown has conducted research to identify predictive data analytics tools which operate in land-based casinos across both table games and gaming machines in Australia and overseas. An example being the research conducted into the 'Playscan' product, a predictive responsible gambling tool developed and implemented by Svenska Spel, operating in Sweden and SkyCity's Automated Risk Monitoring System.

27. Crown has also consulted with external data analytics experts as suggested in the introduction of recommendation 8. Crown consulted with:

- Focal Research Consultants Limited (Focal Research) on its research and development of data analytics products for land-based gaming machines in Australia. Focal Research made a presentation to the Crown Resorts Limited Responsible Gaming Committee on 15 November 2018 on research of the use of data analytics and its product offering. Focal Research's product – 'Focal ALeRT™' is used for land-based casino operator data analytics for gaming machines; however, it does not yet incorporate land-based table games player data analytics.

- Responsible gambling expert – Professor Alex Blaszczynski [7] who provided a report to Crown on the Crown model.[8]

28. Crown has addressed part (a) of recommendation 8 (noting that the requirements in part (a) must be read in conjunction with the introductory text in recommendation 8) by having in operation the two data analytics tools outlined above, using real-time data ('Play Periods monitoring') and historical data ('Crown model'). A further assessment of each of these tools is outlined below.

Real-time player data analytics tool: 'Play Periods monitoring'

29. Part (a) of recommendation 8 requires Crown to have in place a comprehensive **real-time** player data analytics tool. Crown has met the real-time requirement by monitoring carded play periods in real-time via its Play Periods monitoring tool, which it uses for the identification of members who have been gambling for long continuous periods of time and therefore at risk of harm.

30. Whilst Crown was accessing player data to monitor the play periods of its patrons before the Review, the Commission was of the view it did not have a comprehensive real-time player analytics tool in place. The player data was accessed through the SYCO (loyalty program data collection system) which generated reports every four hours, which required further interrogation and assessment by Crown staff. As a result, and in response to this recommendation, Crown reviewed its method of analysing patron play periods and developed a new real-time Play Period monitoring tool which appears to be more effective, noting that its effectiveness will be evaluated as part of recommendation 9 and provides greater accuracy. Specifically, Crown has introduced Splunk[9] technology that uses an 'analytical dashboard' as the primary method for real-time monitoring of play periods by RGA and and\or gaming staff replacing the existing four hourly reports previously generated by the loyalty program data collection system.

31. RGAs are provided with Splunk mobile phone alerts of members who have been on the gaming floor for more than 12 hours without a substantial break, based on their loyalty club use. This new technology seeks intervention at:

- 12 hours of continuous play without breaks of more than 2 hours

- 14 hours of continuous play without breaks of more than 3 hours

- 20 hours of continuous play (irrespective of breaks), and

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[7] Professor Alex Blaszczynski is a professor of Clinical Psychology, University of Sydney; a Co-Director of the University of Sydney's Gambling Research Unit; and Director of the Gambling Treatment Centre.

[8] Licensing requested a copy of his report. However, it was not available at the time of preparing this paper, Crown claimed legal professional privilege and the need to obtain his permission to release the report. Licensing recommends that this report (if it is made available) is reviewed by the VCGLR with the VRGF's input at the time of the independent review in accordance with recommendation 9. Legal Services will be consulted to assist in obtaining this report.

[9] Splunk is a software product that captures, indexes and correlates real time data in searchable form, from graphs, reports, alerts, dashboards and "visualizations" can be generated (page 6 of Crown's 30 December 2019 submission).

- 24 hours of continuous play (irrespective of breaks.

Historical data analytics tool: 'Crown model'

32. In addition to the real-time play periods monitoring tool, Crown has continued to develop and implement its comprehensive data analytics tool ('the Crown model') for carded play using historical data to identify loyalty program members who may be at risk of harm from gambling and benefit from intervention by a RGA.

33. The Crown model compliments the operation of the 'real time' Play Periods monitoring tool by examining historical data for loyalty members and uses data analytics to predict those who may benefit from a discussion about whether their gambling is becoming problematic.

34. The Crown model still requires some development to ensure its full value as a responsible gambling tool. However, this is not an indication that the model is incomplete. In discussions with Crown, staff from the Customer Analytics Team have advised that it is a feature of such models that they continuously evolve with the algorithm producing data, and the algorithm is refined as the dataset is updated.

35. The Crown model generates reports approximately every six weeks. The Responsible Gaming Team then analyse the reports and action any findings.

36. Crown has advised it is committed to refining the model as the model and the associated algorithm continues to mature. Licensing will ensure that its views, and those of the VRGF, on the effectiveness and potential refinement of the Crown model will be addressed in recommendation 9 (see paragraphs 50 to 53 below) to further assist Crown in refining the model.

37. Crown has also provided a detailed description of the validation and trial results (see Attachments A and B of Crown's submission in **Attachment 2**) of the Crown model. Background to the validation process, including the use of historical data and a summary of the results is provided in **Attachment 6**.

38. The Crown model also underwent a trial over a 12-month period from 25 June 2018 to 30 June 2019. A summary of the results of the trial are provided in **Attachment 7**.

39. Based on the above, Licensing considers that Crown has introduced two complimentary and comprehensive tools to monitor play periods more effectively for carded players using data analytics, one that is in real time (Splunk technology) and one that uses historical data (Crown model). Licensing therefore is of the view Crown has implemented part (a) of recommendation 8.

40. Although implementation of recommendation 7 and part (a) of recommendation 8 has been addressed, a number of queries were raised by the VRGF about the adequacy of Crown's approach, and whether the data player analytics tools have potential to be more effective. As outlined above these questions are relevant to recommendation 9 of the Review, which requires an assessment of the effectiveness of Crown's approach to player data analytics in identifying problem gambling and which is due for completion by 31 December 2020. Accordingly, they will be considered and addressed when assessing implementation of recommendation 9 (which has not been completed).

41. By way of summary the VRGF's concerns included that:

    (a) neither the Crown model nor Play Periods monitoring are being used in meaningful conjunction with the use of observable signs by the staff

    (b) the processes by which the Crown model is implemented is unclear, and

    (c) the Crown model does not appear to function in near real-time manner that will be effective in proactively addressing risks of harm.

42. Licensing's preliminary view about the effectiveness of the tools is whether the Crown model could have shorter production cycles, produce more frequent reports and whether Crown could interact with players identified by the Crown model sooner.

43. Part (b) of recommendation 8 (second limb) requires Crown to conduct a comprehensive study into real time player data analytics for un-carded play and provide a report to the Commission.

44. In addressing this part of recommendation 8, Crown has reported in detail (including legal, technical and methodological issues), all the practical options for a real-time player data analytics tool for un-carded play. Following Crown's commencement of a comprehensive study of all the practical options for a real-time player data analytics tool for un-carded play by 1 January 2019, Crown has provided a report on all the practical options for player data analytics for un-carded play, which is presented in Attachment C to Crown's submission (**Attachment 2**).

45. Crown's internal[10] and external legal[11] advice confirmed that there does not appear to be any legal barrier to monitoring un-carded play on gaming machines. However, Crown has raised a concern about the potential issues that may arise when some members of the public discover that their un-carded play is being tracked. Furthermore, Crown is concerned that patrons may complain about being identified as potentially having a gambling problem, and as such they may switch to online gambling to avoid detection at Crown.

46. As to the potential technical and methodological issues associated with tracking un-carded play, Crown has advised it reviewed how existing technology in use as part of casino operating systems such as Dacom[12] could be used to overlay a real-time data analytics tool as part of the technical solution. Crown has advised its current use of Splunk technology referred to in paragraph 31 above will be interrogated to establish whether this technology can be used in a similar manner for un-carded play.

47. Notwithstanding the research conducted, Crown is of the view that there may not be an entirely suitable product which satisfies Crown's requirements for a model (but it will continue to investigate both internally and externally available options) particularly when taking into account the issues raised at paragraph 45 above and this may impact implementation of a monitoring tool for un-carded play by 1 July 2022.

48. Licensing considers that the abovementioned actions provide evidence that Crown has implemented part (b) of recommendation 8.

49. Licensing will continue to track Crown's progress with the remaining deliverable in part (b) of recommendation 8 - implementation of a monitoring tool for un-carded play.

50. Recommendation 9 provides:

    The VCGLR recommends that Crown Melbourne arrange, at its expense, for an independent assessment of the real-time player data analytics tool for carded play (see Recommendation 8(a)), to be completed 12 months after implementation of the tool. The independent assessment is to be undertaken by a person approved by the VCGLR, after consultation with Crown.

51. This recommendation is required to be implemented by 31 December 2020.

52. Licensing is currently considering this recommendation due to its synergies with recommendations 7 and 8, and to ensure that Crown approaches recommendation 9 in a way that will provide an independent study and evidence needed by the Commission to be satisfied that the player data analytics tools are effective.

53. If recommendation 9 is to provide effective guidance to Crown on the suitability of its approach to player data analytics, Licensing seeks the Commission's endorsement that it direct Crown to:

    (a) ensure the person approved by the Commission has the necessary expertise to conduct a review of the data analytics tools; and

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[10] Page 2 of Attachment C of Crown's submission.

[11] Appendix (i) of Attachment C.

[12] Dacom is the Electronic Monitoring System in use for electronic gaming machines at Crown.

(b) the scope of the independent assessment covers both data analytics tools developed by Crown and addresses all potential issues in respect of the effectiveness and timeliness of those tools that were raised by Licensing and the VRGF during its assessment of recommendations 7 and 8.
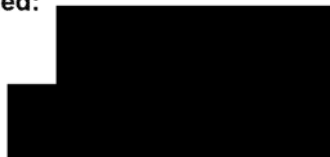
Consultation

54. The VCGLR sought the VRGF's views on recommendations 7 and 8 based on a summary of Crown's submission (**Attachment 3**)[13].

55. The VRGF's response is provided in **Attachment 4**. As noted in earlier parts of this paper, the VRGF's response relate to the effectiveness of the player data analytics tools implemented by Crown, and as such will be considered and assessed as part of recommendation 9.

56. The Intel team in Compliance were actively consulted as part the 5th Review recommendations on data analytics. Intel will again be consulted when considering and assessing Crown's implementation of recommendation 9.

Next Steps

57. Licensing will:

(a) engage with Crown on the choice of an independent expert to address the assessment required in recommendation 9, and to expedite the process, approval of an expert be made by the Director Licensing or a single commissioner (if the Commission agrees)

(b) consult with Crown in developing the proposed scope of the independent assessment, and

(c) continue to consult with the Intel team in Compliance and the VRGF.

Recommended:

ALEX FITZPATRICK
DIRECTOR LICENSING

Prepared by: Rowan Harris
Telephone:
Date: 16 July 2020

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[13] Permission was sought from Crown to provide a copy of Crown's submission on recommendations 7 and 8 to the VRGF. Permission was not granted, therefore a summary of the key points of the submission was developed by Licensing and supplied to the VRGF.