THE UNIVERSITY OF SYDNEY

Friday 11th December 2020

Liquor & Gaming NSW – Policy & Legislation
Gaming Machines Amendment Bill 2020
GPO Box 7060
Sydney NSW 2001

Dear Liquor & Gaming NSW,

Thank you for the opportunity to contribute to your public consultation on the proposed *Gaming Machines Amendment (Gambling Harm Minimisation) Bill 2020*.

The NSW Government has signalled potential changes to the way people pay to use electronic gaming machines (EGMs) in gaming venues.[1] This submission aims to outline the potential benefits and risks of a shift to cashless gambling in venues from the perspective of gambling harm minimisation. As no specific details of the proposed regulatory reforms to payment method are currently available, we have adopted a broad approach in considering the range of potential challenges and benefits associated with the implementation of cashless gambling, including card-based and digital payment systems.

Our review of the academic literature indicates that there is little evidence available to guide the design and implementation of cashless payment systems for in-venue gambling. Noteworthy risks include the reduced psychological salience of cashless transactions ('tokenisation', making money seem less 'real' compared to cash), and the potential elimination of natural breaks in play inherent in cash-based EGM gambling (suspension of play to withdraw additional funds from ATMs outside the gaming floor). However, if systems are implemented with robust and effective controls to mitigate risks, it seems plausible that cashless gambling might incorporate important strategic potential that could contribute to minimising harms associated with gambling.

Multi-stakeholder collaboration and investment in research trials are needed to investigate the impact of proposed changes on the way individuals gamble, and to test the effectiveness of different types and combinations of interventions to ensure any changes have the desired effect in terms of reducing harm and avoiding unintended adverse consequences.

We are actively conducting research in this area, and would be happy to respond to any questions.

Sincerely,

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PhD Candidate

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[1] Gorrey, M., & Smith, A. (2020, October 4). Push for cashless poker machines in NSW catches clubs by surprise. *Sydney Morning Herald*. https://www.smh.com.au/national/nsw/push-for-cashless-poker-machines-in-nsw-catches-clubs-by-surprise-20201003-p561oh.html; Smith, A. (2020, October 3). Cash ban as gambling card to overhaul $6b pokie industry in NSW. *Sydney Morning Herald*. https://www.smh.com.au/politics/nsw/cash-ban-as-gambling-card-to-overhaul-6b-pokie-industry-in-nsw-20200930-p560rv.html

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SUBMISSION TO THE NSW GOVERNMENT'S PUBLIC CONSULTATION ON THE PROPOSED GAMING MACHINES AMENDMENT (GAMBLING HARM MINIMISATION) BILL 2020

Background

Many countries are rapidly moving towards becoming predominantly or completely cashless societies as consumers increasingly adopt digital payment instruments over banknotes and coins.[2] By 2023, cash is forecast to be overtaken by mobile and digital wallets (29.6%), debit cards (26.3%), and credit cards (22.3%) as the top point-of-sale payment methods globally.[3] The COVID-19 pandemic is accelerating this process as authorities and industry encourage consumers to use contactless payment methods as part of efforts to reduce disease transmission.[4] The shift to cashless payment is occurring across industries, including many which even recently have been predominantly cash-based.[5] Internationally, several jurisdictions are actively considering permitting cashless payments for land-based gambling venues, which have typically dealt in cash and cash-like tokens, such as casino chips.[6]

Defining cashless gambling

For the purposes of this submission, we define cashless gambling as any method by which a person can pay to engage in a gambling activity in a land-based gambling venue without using cash (i.e., physical currency, such as banknotes and coins). Examples of cashless payment methods for gambling include:

- Paper-based ticketing systems (e.g., 'ticket-in, ticket-out' [TITO] systems);
- Card-based payment methods:
    - Gambling-specific magnetic stripe cards or smart cards with embedded integrated circuit chips;
    - Non-gambling-specific card-based payment methods (e.g., bank-issued debit cards);
- Digital payment methods (e.g., via smartphones, tablets, or digital watches):
    - Gambling-specific virtual cards accessed using an app on a mobile device;
    - Gambling-specific digital wallets and payment apps (e.g., a gambling-specific app) in which funds can only be used to facilitate payment directly at the gambling activity (i.e., gaming machine or table);
    - Venue-specific digital wallets and payment apps in which funds can only be used within the gaming venue, but may be used for non-gambling amenities (e.g., food and beverages);

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[2] Brainard, L. (2019, October 16). *Digital currencies, stablecoins, and the evolving payments landscape*. The Future of Money in the Digital Age, Washington, D.C. https://www.federalreserve.gov/newsevents/speech/files/brainard20191016a.pdf; Caddy, J., Delaney, L., Fisher, C., & Noone, C. (2020). *Consumer payment behaviour in Australia*. Reserve Bank of Australia. https://www.rba.gov.au/publications/bulletin/2020/mar/pdf/consumer-payment-behaviour-in-australia.pdf; Commonwealth Bank of Australia. (2019). *Turning point: Calling time on cash*. https://www.commbank.com.au/content/dam/commbank-assets/business/industries/2019-06/CBBUS2035_Whitepaper_190605.pdf

[3] Worldpay. (2020). *Global payments report: The pathways of people and payments*. http://offers.worldpayglobal.com/rs/850-JOA-856/images/GPR-2020.pdf

[4] Agarwal, S. (2020, April 27). The top eight ways COVID-19 will impact payments. *Accenture Banking Blog*. https://bankingblog.accenture.com/top-eight-ways-covid-19-will-impact-payments; World Health Organization, & Global Health Cluster Cash Task Team. (2020). *Guidance note on the role of cash and voucher assistance to reduce financial barriers in the response to the COVID-19 pandemic, in countries targeted by the Global Humanitarian Response Plan COVID-19*. https://www.who.int/health-cluster/about/work/task-teams/Guidance-note-CVA-COVID.pdf

[5] Caddy et al. (2020).

[6] Nevada Gaming Commission. (2020). *Notice of heading for consideration of proposed amendments to Nevada Gaming Commission regulations 1 and 14 regarding, without limitation, electronic transfers of money to a game or gaming device*. https://gaming.nv.gov/modules/showdocument.aspx?documentid=16767; Parker, G. (2020, July 23). Crown Perth to trial EFTPOS transactions to buy chips at the gaming table. *6PR*. https://www.6pr.com.au/exclusive-crown-perth-to-trial-eftpos-transactions-to-buy-chips-at-the-gaming-table/; Sieroty, C. (2020, June 4). *Coronavirus pandemic pushes Nevada regulators to consider cashless gaming*. https://gamblingcompliance.com/premium-content/insights_analysis/coronavirus-pandemic-pushes-nevada-regulators-consider-cashless; Velotta, R. N. (2020, June 25). Nevada commission considers regulations for more cashless gaming. *Las Vegas Review-Journal*. https://www.reviewjournal.com/business/casinos-gaming/nevada-commission-considers-regulations-for-more-cashless-gaming-2060594/

- Non-gambling-specific digital wallets and payment apps (e.g., Apple Pay, Google Pay, Samsung Pay).

Each of the above payment methods can vary in other manners that are highly relevant to their role in consumer protection, including:

- Anonymous vs. registered play on gaming machines;
- Ability to fund account remotely vs. in-venue;
- Ability to fund account independently (i.e., using a kiosk) vs. with cashier/staff assistance;
- Ability to fund account with physical cash vs. electronic funds transfer;
- Ability to withdraw funds in-venue vs. via electronic funds transfer;
- Extent of integration with venue loyalty cards and rewards programs.

The gambling payments landscape in Australia

Although land-based gambling is still predominantly cash-based in Australia, two variants of cashless gambling have been permitted in some jurisdictions for nearly 20 years:[7]

1. 'Ticket-in, ticket-out' (TITO) systems: The user typically begins gambling by inserting cash (banknotes or coins) to load credits onto a gaming machine. When the user finishes playing on that machine, remaining credits are collected via a printed ticket ('ticket out' functionality), which can be used to continue playing at another machine by scanning the printed barcode ('ticket in' functionality), or alternatively, exchanged for cash at a cash redemption terminal (kiosk).
2. Card-based systems: These systems allow the user to load funds onto a magnetic stripe card or smart card (with an embedded integrated circuit chip), such as by cash, cheque, or electronic funds transfer payments at a kiosk. The stored value is kept in a venue-based account or 'cashless wallet'. The card can be used to play on gaming machines and funds can be withdrawn at kiosks. Cards may be multifunctional through integration with member loyalty programs and pre-commitment systems.[8] Alternatively, cards can be used anonymously (e.g., by non-members).

Developments in gambling payment technologies

The concept of cashless gambling is not new. Cashless gambling technologies, such as the abovementioned 'ticket-in, ticket-out' and card-based systems, were developed in the 1990s, but their regulation and implementation has varied internationally.[9] An eventual shift to in-venue cashless gambling seems somewhat inevitable given broader societal trends towards a cashless economy; however, the COVID-19 pandemic appears to be facilitating a more rapid transition to in-venue

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[7] Blaszczynski, A., & Nower, L. (2008). *Differences in attitudes toward money between subgroups of gamblers: Implications for smart card technologies and an exploration of the Tool and Drug Theories of Money in gambling*. Queensland Treasury. https://www.publications.qld.gov.au/dataset/4d12b47b-d516-4851-82f5-65218fcaadfb/resource/3e99b16d-1454-4c8b-8b35-42f7632f77c7/fs_download/differences-in-attitudes-toward-money-between-subgroups-of-gamblers-implications-for-smart-card-.pdf; Nisbet, S. (2005). Alternative gaming machine payment methods in Australia: Current knowledge and future implications. *International Gambling Studies*, *5*(2), 229–252. https://doi.org/10.1080/14459790500303477; Nower, L., & Blaszczynski, A. (2010). Gambling motivations, money-limiting strategies, and precommitment preferences of problem versus non-problem gamblers. *Journal of Gambling Studies*, *26*(3), 361–372. https://doi.org/10.1007/s10899-009-9170-8; Parke, J., Rigbye, J., & Parke, A. (2008). *Cashless and card-based technologies in gambling: A review of the literature*. http://usir.salford.ac.uk/id/eprint/18206/1/

[8] Victorian Commission for Gambling and Liquor Regulation. (2019). *Ticket-in ticket-out (TITO) and card based cashless (CBC) gaming in gaming venues: Technical standards*. https://www.vcglr.vic.gov.au/sites/default/files/version_2_ticket-in_ticket-out_tito_and_card_based_cashless_cbc_gaming_in_gaming_venues_-_technical_standards.pdf

[9] Bontempo, D. (2019, March). Farewell to cash: Suppliers provide technology to ready the industry for cashless payments. *Global Gaming Business Magazine*. https://www.scientificgames.com/media/89527/ggb-mar-2019_cashless.pdf; Parke et al. (2008).

cashless gambling than previously expected. Examples of cashless gambling technologies for use with EGMs and casino table games in venues are shown in Table 1.[10,11]

Table 1.

Examples of cashless gambling technologies

Product name (Developer)	Description
CARD IT (eBET)	This product allows patrons to load cash onto a card, which can be used to collect and transfer credits between gaming machines. This product is currently permitted for use in NSW and ACT venues. A brief product demonstration video is available here: https://www.youtube.com/watch?v=SR5fg3lFop0
Unified Wallet (Scientific Games)	This product is a smartphone-based digital wallet that can link to multiple payment methods (e.g., bank accounts, debit and credit cards). Patrons can use their smartphone (or membership card) to access funds and load credits via Bluetooth directly onto an EGM or to buy chips to play a casino table game. Remaining credits can be 'cashed out' digitally at the end of play and transferred to the customer's bank account. This product was launched in the US in May 2020.[14] A brief product demonstration video is available here: https://youtu.be/NuftsJb2ZIw
Marker Trax (Konami Gaming)	This product is a smartphone-based digital wallet that involves patrons signing up for a line of credit, which reportedly can be approved within minutes.[15] Patrons can use their smartphone to transfer gaming credits directly to and from gaming machines. The outstanding balance of casino credit is paid later by the patron. A field trial was launched at Ellis Island Casino in Las Vegas, NV in July 2020.[16] A brief product demonstration video is available here: https://youtu.be/L4i4yKo3j9I
Cardless Connect (International Game Technology)	This product functions in a similar manner to the Unified Wallet, allowing patrons to use their smartphone to transfer credits onto gaming machines. A brief product demonstration video is available here: https://www.youtube.com/watch?v=skG08WJm894
PlayPlus (Sightline Payments)	This product is a smartphone-based app that allows customers to transfer money using their bank card, PayPal, or e-check into a special-purpose account held at a partner bank (in the US, funds are insured by the Federal Deposit Insurance Corporation, similar to a regular bank account). Customers can then use their smartphone (or loyalty card) for gambling and non-gambling transactions (e.g., food and beverages). This product can be also used to make payments outside of the venue (e.g., non-gambling transactions, ATM withdrawals), and customers are able to accumulate loyalty points for these non-venue transactions. The standard deposit limits are USD $2,000 per day, $4,500 per week, and $10,000 per month; however, VIP customers may be able to access higher limits. A brief product demonstration video is available here: https://youtu.be/rSJ4hTc-JjI
CashClub Wallet (Everi Holdings)	This product is a smartphone-based digital wallet that integrates with in-venue kiosks. Patrons are able to link multiple payment methods (e.g., bank accounts) to the digital wallet. The digital wallet interacts with kiosks to produce digital TITO tickets, which allow the patron to load credits onto EGMs or to play casino table games. Remaining credits can be 'cashed out' digitally at the end of play and transferred into the customer's bank account. A product overview is available here: https://www.everi.com/fintech/cashclub/
VIP Mobility (Global Payments Gaming Services)	This product appears to function in a similar manner to the CashClub Wallet but the patron pairs their smartphone with a gaming machine by scanning a QR code. A product overview and brief demonstration video are available here: https://www.globalpaymentsgaming.com/cashless-gaming

[10] Bontempo (2019); Velotta (2020).
[11] These products are at various stages of development and regulatory approval in different jurisdictions. Gaming equipment, including payment processing systems, generally require regulatory approval prior to implementation.
[14] Scientific Games Launches 'Contactless' Gaming Solutions. (2020, July 20). *Global Gaming Business Magazine*, *18*(28). https://ggbnews.com/article/scientific-games-launches-contactless-gaming-solutions/
[15] Konami Gaming. (2020). *Ellis Island Casino, Hotel & Brewery and Konami Gaming launch successful field trial of Marker Trax® Cashless Casino Markers*. https://www.prnewswire.com/news-releases/ellis-island-casino-hotel--brewery-and-konami-gaming-launch-successful-field-trial-of-marker-trax-cashless-casino-markers-301097560.html
[16] Moraine, J. (2020). *Konami debuts game-changing cashless payment system in the US*. https://www.gamblingnews.com/news/konami-debuts-game-changing-cashless-payment-system-in-the-us/

From an industry perspective, cashless payment technologies are attractive to gambling operators for a number of reasons and are ultimately expected to have positive impacts on the company bottom line, although up-front setup costs may be high.[17] Potential benefits for operators include:

- Better customer retention rates (e.g., customers may be more likely to re-visit a gambling venue for which they already have funds loaded in a digital wallet);
- Enhanced compliance and reporting capabilities (e.g., for mandatory 'Know Your Customer' and anti-money laundering regulatory requirements);
- Greater operational and cost efficiencies (e.g., avoiding maintenance and security issues relating to cash handling);
- Increased opportunities for highly personalised marketing based on individual preferences (e.g., member loyalty programs).

Aside from the hygiene issues related to cash handling during the COVID-19 pandemic, industry stakeholders generally argue that cashless payment methods enhance customers' overall recreational experience by providing three key benefits:[18]

1. Increased convenience (e.g., ability to make 'frictionless' payments in the same way consumers pay for non-gambling transactions, such as for food and beverages in gambling venues);
2. Enhanced security (e.g., not having to carry around large amounts of cash);
3. Better provision of harm minimisation features (e.g., ability to set deposit limits and greater personalisation of activity statements by using payment options linked to customer accounts).

Despite these potential benefits for consumers, a review by Parke et al. (2008) concluded that there is little empirical evidence available regarding the impact of cashless payment technologies on gambling behaviour, nor is there consensus regarding the most effective strategies for integrated harm minimisation.

What are the risks and concerns regarding digital payment systems for in-venue gambling in relation to gambling harm minimisation?

Cashless transactions typically have lower psychological salience, making money seem less 'real' compared to cash which can reduce awareness of gambling expenditure

A substantial body of research mainly situated in the consumer psychology and marketing literature suggests that different payment methods impact how consumers spend their money. One of the key findings is that consumers are typically less aware of their spending and are willing to spend more when paying with cashless methods relative to cash.[19] Cashless payments may facilitate over-spending as transactions have lower psychological salience compared to payments made in cash.[20]

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[17] Bontempo (2019).

[18] American Gaming Association. (2020). *Principles for casino gaming payments modernization*. https://www.americangaming.org/wp-content/uploads/2020/06/AGA_Payment_Choice.pdf

[19] Agarwal, S., Ghosh, P., Li, J., & Ruan, T. (2019, March 4). Digital payments induce over-spending: Evidence from the 2016 demonetization in India. *Proceedings of the 7th Annual Conference of the Asian Bureau of Finance and Economic Research*. http://abfer.org/media/abfer-events-2019/annual-conference/economic-transformation-of-asia/AC19P4028_Digital_Payments_Induce_Excessive_Spending_Evidence_from_Demonetization_in_India.pdf; Bandi, C., Moreno, A., Ngwe, D., & Xu, Z. (2019). *The effect of payment choices on online retail: Evidence from the 2016 Indian demonetization* (Working Paper No. 19–123). Harvard Business School. https://www.hbs.edu/faculty/Publication%20Files/19-123_ea5e9c88-8207-4aef-acb5-b206333b70dc.pdf; Boden, J., Maier, E., & Wilken, R. (2020). The effect of credit card versus mobile payment on convenience and consumers' willingness to pay. *Journal of Retailing and Consumer Services*, *52*, 101910. https://doi.org/10.1016/j.jretconser.2019.101910; Ceravolo, M. G., Fabri, M., Fattobene, L., Polonara, G., & Raggetti, G. (2019). Cash, card or smartphone: The neural correlates of payment methods. *Frontiers in Neuroscience*, *13*, 1188. https://doi.org/10.3389/fnins.2019.01188; Prelec, D., & Simester, D. (2001). Always leave home without it: A further investigation of the credit-card effect on willingness to pay. *Marketing Letters*, *12*, 5–12. https://doi.org/10.1023/A:1008196717017; See-To, E. W. K., & Ngai, E. W. T. (2019). An empirical study of payment technologies, the psychology of consumption, and spending behavior in a retailing context. *Information & Management*, *56*(3), 329–342. https://doi.org/10.1016/j.im.2018.07.007; Soman, D. (2003). The effect of payment transparency on consumption: Quasi-experiments from the field. *Marketing Letters*, *14*, 173–183. https://doi.org/10.1023/A:1027444717586

[20] Raghubir, P., & Srivastava, J. (2008). Monopoly money: The effect of payment coupling and form on spending behavior. *Journal of Experimental Psychology: Applied*, *14*(3), 213–225. https://doi.org/10.1037/1076-898X.14.3.213; Runnemark, E.,

This is particularly concerning in the gambling context where spending (and losing) more money than is personally affordable can result in the experience of significant harms for the individual, their family, and the broader community.[21] Very little research has investigated the impact of payment methods on spending behaviour in the specific context of gambling. The limited evidence available from studies relating to online gambling suggests that digital payment may make it more difficult for some individuals to maintain control over their gambling due to money seeming less 'real' compared to cash.[22]

Research from outside the gambling field shows that payment methods can be distinguished from one another based on a number of structural characteristics. These structural characteristics affect the overall 'transparency' (salience) of the payment process, which in turn differentially impact how individuals spend their money.[23] The physical form of the payment method (e.g., cash, card, smartphone) is an example of these structural characteristics. Inherent in the payment form is a degree of feedback about the transaction, which may vary in its quality and frequency.[24] For example, a relatively high level of immediate feedback is involved in cash payments as the payment process typically involves multiple steps, such as counting out the appropriate sum in banknotes and coins from a wallet, physically handing over the money to a cashier attendant, receiving change, and stowing the change in a wallet (thereby providing feedback about the balance of funds remaining in the wallet). In contrast, contactless card or smartphone payments generally involve fewer steps (e.g., retrieving one's card or smartphone and tapping it at the EFTPOS terminal) and may provide less feedback (e.g., the transaction value is usually displayed on the cashier screen, but there is typically no feedback on funds remaining in the account). The relative intangibility of cashless payments may reduce the salience of transactions.

Cashless gambling may increase accessibility of funds and reduce opportunities for breaks in play which can increase unplanned or impulsive gambling

Cashless gambling could potentially involve consumers using bank-issued debit cards directly at gaming machines or casino table games. Alternative implementations of cashless gambling could involve consumers using digital wallets or smartphone payment apps linked to their bank account. In effect, without integrated pre-commitment strategies such as bank transfer or deposit limits in place, such technologies have the potential to substantially increase an individual's access to funds for gambling compared to cash-based gambling. Overall, this could facilitate gamblers spending excessive amounts of time and money at gambling machines with reduced opportunities for breaks in play and staff-patron interactions, which are theorised to assist gamblers in maintaining control over their gambling.[25]

Card-based payment systems currently permitted in Australia do not allow gamblers to transfer funds directly from their bank account to a gaming machine, for example, by using credit or debit cards (although this is permitted in some international jurisdictions).[26] Rather, intermediate steps are required to add credits onto a card for gambling. Under the current system in Australia, if a patron

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Hedman, J., & Xiao, X. (2015). Do consumers pay more using debit cards than cash? *Electronic Commerce Research and Applications*, *14*(5), 285–291. https://doi.org/10.1016/j.elerap.2015.03.002; Soman et al. (2003).

[21] Armstrong, A., Thomas, A., & Abbott, M. (2018). Gambling participation, expenditure and risk of harm in Australia, 1997–1998 and 2010–2011. *Journal of Gambling Studies*, *34*, 255–274. https://doi.org/10.1007/s10899-017-9708-0; Swanton, T. B., & Gainsbury, S. M. (2020). Gambling-related consumer credit use and debt problems: A brief review. *Current Opinion in Behavioral Sciences*, *31*, 21–31. https://doi.org/10.1016/j.cobeha.2019.09.002

[22] Gainsbury, S. M., Wood, R., Russell, A. M. T., Hing, N., & Blaszczynski, A. (2012). A digital revolution: Comparison of demographic profiles, attitudes and gambling behavior of Internet and non-Internet gamblers. *Computers in Human Behavior*, *28*(4), 1388–1398. https://doi.org/10.1016/j.chb.2012.02.024; Hing, N., Cherney, L., Gainsbury, S. M., Lubman, D. I., Wood, R. T., & Blaszczynski, A. (2015). Maintaining and losing control during Internet gambling: A qualitative study of gamblers' experiences. *New Media & Society*, *17*(7), 1075–1095. https://doi.org/10.1177/1461444814521140; Hing, N., Gainsbury, S. M., Blaszczynski, A., Wood, R., Lubman, D., & Russell, A. (2014). *Interactive gambling*. Gambling Research Australia. https://www.responsiblegambling.nsw.gov.au/__data/assets/pdf_file/0016/138121/Interactice-Gambling-study.pdf

[23] Soman, D., Cheema, A., & Chan, E. Y. (2012). Understanding consumer psychology to avoid abuse of credit cards. In D. G. Mick, S. Pettigrew, C. Pechmann, & J. L. Ozanne (Eds.), *Transformative consumer research for personal and collective well-being* (1st ed., pp. 423–443). Routledge. https://doi.org/10.4324/9780203813256

[24] Soman et al. (2012).

[25] Nower & Blaszczynski (2010).

[26] Livingstone, C. (2017). *How electronic gambling machines work: EGM structural characteristics* (AGRC Discussion Paper No. 8). Australian Gambling Research Centre, Australian Institute of Family Studies. https://aifs.gov.au/agrc/sites/default/files/publication-documents/1706_agrc_dp8_how_electronic_gambling_machines_work.pdf

runs out of credits, they generally have to leave the gaming machine either to reload their card with more funds or, if they are using cash, to withdraw more funds from an ATM or EFTPOS facility.[28] In effect, this may function as a temporary 'break in play' or 'cooling-off' period whereby the gambler has an opportunity to reconsider whether to continue playing away from the emotional 'hot state' of play.[29,30] Breaks in play may facilitate interactions between at-risk patrons and venue staff as EFTPOS transactions, for example, inherently require face-to-face interaction. Several studies show that use of in-venue ATMs and EFTPOS facilities is associated with problem gambling.[31] For this reason, several jurisdictions have limits on cash withdrawals and requirements for ATMs to be located away from the gaming floor.[32] The requirements to leave a gaming machine and the gaming floor, engage in physical movement, and interact with non-gambling stimuli (potentially including interactions with venue staff) all provide an opportunity for individuals to reduce the emotional arousal that can be caused by gambling and to consider whether they wish to continue gambling, ideally in a calm, rational, and informed state. It is therefore critical to understand how changes to gambling payment methods may impact individuals' risk of experiencing gambling-related harms.

What are the potential benefits of digital payment systems for in-venue gambling in relation to gambling harm minimisation?

The strategic value of cashless gambling systems for minimising gambling-related harm is largely derived from their potential for capturing customer transaction data and for integration with existing harm-minimisation strategies, such as multi-venue self-exclusion registers and the National Consumer Protection Framework for Online Wagering. For example, when coupled with a pre-commitment tool, cashless systems have the potential to help individuals manage their gambling expenditure within personally affordable limits (e.g., by requiring or incentivising limit-setting).[33,34] When transaction data is linked with customer accounts, it is possible to obtain a much clearer overview of an individual's overall gambling and to make more accurate risk assessments, which can be used to guide personalised interventions to reduce risk of harm.

Gainsbury and Blaszczynski have outlined a number of potential ways in which cashless gambling systems could be leveraged for gambling harm minimisation: [36]

- *Mandatory age verification:* Requiring customers to provide proof of identity when registering for a cashless gambling account and integration with proposed facial recognition technology detection systems would act as a measure to prevent minors from accessing gambling products in venues.
- *Integration with self-exclusion registers:* Requiring customers to use their cashless gambling account and not permitting the use of cash to play on gaming machines would reduce the

[28] Office of Liquor, Gaming and Racing. (2016). *Gaming machine harm minimisation measures: Consultation paper*. https://s3.ap-southeast-2.amazonaws.com/hdp.au.prod.app.vic-engage.files/7514/8590/8989/Gaming_Machine_Harm_Minimisation_Measures_Consultation_Paper.pdf
[29] Nower & Blaszczynski (2010).
[30] However, there is little empirical evidence available to support this assertion. For example, Parke et al. (2008) note that it is unclear whether such a break in play allows sufficient time for problem gamblers to 'cool off' and make rational spending choices.
[31] Productivity Commission. (2010). *Gambling: Productivity Commission inquiry report (Volume 1)*. https://www.pc.gov.au/inquiries/completed/gambling-2009/report/gambling-report-volume1.pdf
[32] It would be important to ensure any cashless payment system is consistent with existing limits on access to cash in venues.
[33] Nower & Blaszczynski (2010); Rintoul, A., & Thomas, A. (2017). *Pre-commitment systems for electronic gambling machines: Preventing harm and improving consumer protection* (AGRC Discussion Paper No. 9). Australian Gambling Research Centre, Australian Institute of Family Studies. https://aifs.gov.au/agrc/sites/default/files/publication-documents/1707_agrc_dp9-pre-commitment.pdf
[34] Evidence on the effectiveness of pre-commitment tools is mixed and uptake of voluntary tools is generally low, especially among higher risk gamblers. Ladouceur, R., Blaszczynski, A., & Lalande, D. R. (2012). Pre-commitment in gambling: A review of the empirical evidence. *International Gambling Studies*, *12*(2), 215–230. https://doi.org/10.1080/14459795.2012.658078; Ladouceur, R., Shaffer, P., Blaszczynski, A., & Shaffer, H. J. (2017). Responsible gambling: A synthesis of the empirical evidence. *Addiction Research & Theory*, *25*(3), 225–235. https://doi.org/10.1080/16066359.2016.1245294; McMahon, N., Thomson, K., Kaner, E., & Bambra, C. (2019). Effects of prevention and harm reduction interventions on gambling behaviours and gambling related harm: An umbrella review. *Addictive Behaviors*, *90*, 380–388. https://doi.org/10.1016/j.addbeh.2018.11.048
[36] Gainsbury, S. M., & Blaszczynski, A. (2020). Digital gambling payment methods: Harm minimization policy considerations. *Gaming Law Review*. https://doi.org/10.1089/glr2.2020.0015

potential for individuals who have active self-exclusion agreements to access gaming machines.

- *Integration with financial institution gambling blocks:* Many financial institutions have begun offering their customers the option to block gambling transactions on their debit and credit cards.[37] Cashless gambling systems should be integrated with these blocks via the relevant merchant category code to prevent deposits into gambling accounts when blocks are activated.
- *Enhanced limit-setting capabilities:* A default upper limit could be imposed on the amount that can be deposited into a cashless gambling account at any one time, and a delay could be imposed before deposited funds can be gambled to prevent rapid gambling of funds in emotional 'hot states.' Customers could be incentivised or required to set limits on the amount of time and money that can be spent within specific time periods (e.g., per day/week/month). Open banking technology could be leveraged to help individuals set appropriate limits based on their personal financial situation and to conduct affordability checks in cases where indicators of risky gambling behaviour are present.
- *Immediate processing of withdrawals:* Customers should be able to withdraw funds from their cashless gambling account with immediate effect, and there should be no limit on the amount that can be withdrawn. Winnings could be deposited directly into a bank account linked to the gambling account to prevent immediate re-gambling of funds.
- *Real-time temporary time-outs:* Customers should have the ability to temporarily pause gambling activity on their account with immediate effect.
- *Activity statements with increased accuracy:* Cashless gambling potentially allows a customer's transaction data to be aggregated across different gambling sessions, venues, activities, modes, and licensed operators in real time. Aggregate outcomes (e.g., net wins and losses) should be presented to customers in the form of meaningful activity statements incorporating graphical representations that allow the customer to better understand their overall gambling expenditure and behaviour.
- *Proactive monitoring and personalised interventions:* Aggregate transaction data presents a clearer picture of an individual's overall gambling behaviour, meaning risk assessments can be made with greater accuracy and targeted interventions can be delivered to customers at varying levels of risk. Customers could receive regular personalised feedback messages, which could be designed to increase gamblers' awareness of aggregate outcomes (e.g., net losses) and delivered on-screen or via smartphone push notifications. The system could prompt venue staff to interact with customers in cases where accounts display indicators of risky gambling behaviour.

Table 2 summarises the key risks identified and potential mitigation strategies that could be integrated into cashless gambling systems. We note that the proposed mitigation strategies are suggestions only and have not been empirically tested in Australia.

[37] Financial Counselling Australia. (2020). *FCA welcomes NAB's self-serve gambling restriction in app*. https://www.financialcounsellingaustralia.org.au/fca-welcomes-nabs-self-serve-gambling-restriction-in-app/

Table 2

Potential strategies for mitigating key risks of cashless gambling in relation to harm minimisation

Risk of increasing gambling harms	Potential risk mitigation strategies
Reduced awareness of spending	• Requirement to enter exact amount to deposit into the cashless gambling account with low-value anchors suggested (e.g., $10) • Multiple approvals from customer required before a transaction is processed (e.g., please confirm) • Immediate alerts and records of expenditure delivered electronically (e.g., via SMS) • Regular (e.g., monthly) activity statements delivered automatically (e.g., via email) • Requirements to pre-set daily and monthly expenditure limits • Waiting periods before requests to increase expenditure limits can take effect • Default maximum expenditure limits • Automated system to monitor risk including alerts to the individual and venue in cases where indicators of potentially risky gambling are present
Impulsive or unplanned spending	• Requirements for customers to physically leave the gaming floor to load credit onto their account • Waiting periods before being able to spend credits loaded onto account
Spending more than intended or unaffordable gambling expenditure	• Requirements to pre-set daily and monthly expenditure limits • Waiting periods before requests to increase expenditure limits can take effect • Default maximum expenditure limits • Automated system to monitor risk including alerts to the individual and venue in cases where indicators of potentially risky gambling are present • Automatic withdrawal of funds to customer's bank account following a "big win" or when funds reach a specified level • Integration with self-exclusion registers • Ability to take immediate, temporary "time-outs" to take a break from gambling (e.g., 24 hours, 7 days, 1-5 months)

Conclusions

There is relatively little scientific evidence available to guide the design and implementation of cashless gambling systems. We have identified several noteworthy risks that have the potential to increase experience of gambling-related harms. However, provided that effective risk mitigation strategies are employed, cashless gambling appears to present promising opportunities for more integrated approaches to minimising the significant harms associated with gaming machines. Many of these strategies are not feasible for implementation with a cash-based system due to the inherent difficulties in tracking expenditure. Importantly, we note that the strategic potential of cashless gambling for harm minimisation appears to be contingent on a completely cashless system being adopted. That is, should a cashless system be adopted, a ban on cash payments would seem logical to prevent circumvention of integrated harm minimisation strategies. We recognise that a period of transition would be required. Thorough consultation and careful communication with venues, staff, and customers would be essential to ensure the successful implementation of a cashless system that contributes to effective gambling harm minimisation.[38]

Further research is recommended

One important avenue for further study appears to be implementations of cashless gambling involving the use of bank debit cards with integrated gambling limits and pre-commitment via the relevant merchant category code, and gambling-specific harm-minimisation monitoring by financial

[38] Gainsbury, S. M., Jakob, L., & Aro, D. (2017). Understanding end-user perspectives to enhance perceived uptake of harm-minimization tools: Considering gambler's views of a pre-commitment system. *International Gambling Studies*, *18*, 22-38. https://doi.org/10.1080/14459795.2017.1370723

institutions.[39] This implementation may be advantageous from a harm-minimisation perspective for several reasons:

- Aggregate gambling expenditure across licensed operators and modes (i.e., land-based and online) can be easily tracked by the customer's bank via the relevant merchant category code;
- Pre-commitment could be applied via the relevant merchant category code so that expenditure limits are comprehensive and effective across all licenced operators and modes (as opposed to consumers having to set limits with individual operators);
- Financial institutions are better placed than gambling operators to conduct affordability checks as banks already have access to information about their customers' financial situation, including income, spending, and debts;
- Potential conflicts of interest for gambling operators are diminished if financial institutions have responsibility for conducting affordability checks and ensuring customers set gambling expenditure limits appropriate to their personal financial situation;
- Consumers could use their existing bank-issued debit card (either via physical card or smartphone app), rather than having to use a gambling- or venue-specific card.

Multi-stakeholder collaboration is critical to advancing our understanding of this complex issue: government, the gambling industry, the financial services industry, researchers, gambling and financial counselling providers, and consumers all have relevant knowledge and expertise that must be considered.[40]

Given the absence of robust scientific evidence in this area, research studies are needed to provide an evidence base for the creation of harm-minimisation policies and practices relating to in-venue cashless gambling systems. Conceptual studies are needed to advance our understanding of how payment methods impact gambling behaviour and interact with individual characteristics, including vulnerabilities to experiencing gambling harms. Qualitative studies involving end-users should seek to understand the influence of payment-related environmental factors in the pathways from recreational gambling to problem gambling. These findings would be useful for identifying touchpoints for payment-related interventions to prevent and minimise gambling-related harms. In-venue live trials should take place as part of a regulatory sandbox approach to examine the effects of new payment systems on customer gambling behaviour, and to optimise design features for harm minimisation. Trials should carefully consider the optimal implementation of any new technology to ensure the aims and capabilities are appropriately understood by consumers and venue staff, and crucially to avoid misperceptions. Unintended negative consequences need to be investigated, such as consumers transitioning to alternative and less regulated forms of gambling, swapping cards, or taking other actions to circumvent restrictions. Ultimately, it is imperative that any proposed system shows substantive evidence for effective gambling harm minimisation.

Research and collaborative work currently underway

Our research takes place within the Gambling Treatment and Research Clinic, the only university-affiliated gambling treatment service in Australia, and the Technology Addiction Team, a multi-disciplinary team in the Brain and Mind Centre at the University of Sydney. The Technology Addiction Team brings together expert researchers from psychology (Associate Professor Sally Gainsbury, Emeritus Professor Alex Blaszczynski, Dr Nicola Black), psychiatry (Associate Professor Vladan Starcevic), economics (Professor Agnieszka Tymula), public health (Associate Professor Nicola Newton), law and ethics (Dr Sascha Callaghan), and criminology (Associate Professor Garner Clancey) to focus on the role of technology in behavioural addictions and harm minimisation. One of the team's strategic priorities is to investigate the future of digital payments in gambling, including

[39] Swanton, T. B., Gainsbury, S. M., & Blaszczynski, A. (2019). The role of financial institutions in gambling. *International Gambling Studies*, *19*, 377-398. https://doi.org/10.1080/14459795.2019.1575450

[40] Gainsbury, S. M., Black, N., Blaszczynski, A., Callaghan, S., Clancey, G., Starcevic, V., & Tymula, A. (2020). Reducing Internet gambling harms using behavioral science: A stakeholder framework. *Frontiers in Psychiatry*, *11*, 598589. https://doi.org/10.3389/fpsyt.2020.598589; Swanton, T. B., Blaszczynski, A., Forlini, C., Starcevic, V., & Gainsbury, S. M. (2019). Problematic risk-taking involving emerging technologies: A stakeholder framework to minimize harms. *Journal of Behavioral Addictions*. https://doi.org/10.1556/2006.8.2019.52

potential harm minimisation interventions that could be implemented at the point of payment, or by using transaction data.

Associate Professor Sally Gainsbury is Director of the Gambling Treatment and Research Clinic, and Founder and Leader of the Technology Addiction Team. Her research focuses on the impact of technology on gambling and behavioural addictions, including understanding the use of technology to minimise harms. She has led and worked with numerous university and consulting teams and policy makers to design and evaluate harm-minimisation policies for gambling venues, including technology-based systems. She is a highly experienced and respected researcher in the gambling field and serves on many policy advisory boards internationally. She is the academic member of Liquor and Gaming NSW Gaming Technology Working Group, which is currently considering cashless payments in their Regulatory Sandbox. In 2020, she served as subject matter expertise on a NSW Office of Responsible Gambling project on Technology Solutions for harm-minimisation. She has authored several peer-review papers on the impact of payment methods on gambling harms. A/Prof Gainsbury has won numerous awards and fellowships in recognition of her research excellence and its impact for the community, including being named the 2019 NSW Tall Poppy of the Year by the Australian Institute of Policy and Science. A/Prof Gainsbury has authored over 110 peer-review journal publications and received over $4 million in research funding.

Emeritus Professor Alex Blaszczynski is an academic and clinical psychologist with a long history of involvement in treatment and clinical studies on gambling disorders, the psychology of gambling, and principles and policies related to responsible gambling behaviour. He has developed several theoretical models and principles which have fundamentally shaped the gambling field and approach to minimising gambling harms. He has conducted extensive research on the measurement on gambling-related harms and the effectiveness of responsible gambling strategies, as well as understanding attitudes towards and the tokenisation of money.

Thomas Swanton, supervised by A/Prof Gainsbury, is currently undertaking a three-year program of PhD research focused on understanding the impact of payment method on gambling behaviour. Mr Swanton was awarded a PhD Scholarship through the NSW Government's Gambling Research Capacity Grants program, funded by the NSW Responsible Gambling Fund, and supported by the NSW Office of Responsible Gambling. A/Prof Gainsbury also supervises Marie Dietz, who is completing her Master's thesis on the role of cash in facilitating controlled consumer spending among land-based gamblers.

The Technology Addiction Team is hosting a series of round table forums with key stakeholders to progress the dialogue in this area. In October 2020, we held a round table with representatives from the Queensland Department of Justice and Attorney-General's Liquor, Gaming and Fair-Trading Division, social service agencies, and the gambling industry to discuss harm-minimisation considerations around the use of non-credit digital payment methods within gambling venues. In November 2020, we held a round table with representatives from major financial institutions and industry associations on the role of the financial services industry in addressing gambling-related harm.

Our team has active collaborations with two international teams conducting leading research in the area of digital payments for gambling: the Payments Research Collaborative based at the International Gaming Institute at the University of Nevada Las Vegas (USA),[41] and the Personal Finance Research Centre based at the University of Bristol (UK).[42]

[41] Schultz, N. (2020, September 16). Researchers at UNLV International Gaming Institute launch collaborative on RG and cashless gaming solutions. https://www.unlv.edu/news-story/researchers-unlv-international-gaming-institute-launch-collaborative-rg-and-cashless

[42] Evans, J., Collard, S., & Fitch, C. (2020). A blueprint for bank card gambling blockers: Executive summary. http://www.bristol.ac.uk/media-library/sites/geography/pfrc/A%20Blueprint%20for%20Bank%20Card%20Gambling%20Blockers%20-%20Exec%20Summary.pdf