

GAMBLING COMMISSION

Cashless and card-based technologies in gambling: A review of the literature

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Contents

| | |
|--|-----------|
| Acknowledgements | 4 |
| 1 Executive summary | 5 |
| Methodology | 5 |
| Definitions and form | 5 |
| Cashless and card-based technology in other jurisdictions | 6 |
| Cashless and card-based responsible gambling features | 6 |
| Card-based technologies as determinants of gambling and problem gambling behaviour | 7 |
| Ticket-based systems as determinants of gambling and problem gambling behaviour | 8 |
| Remote loading as a determinant of gambling and problem gambling behaviour | 8 |
| Controversies in cashless and card-based technologies | 9 |
| Conclusions | 9 |
| Recommendations | 10 |
| Aims and scope of report | 11 |
| 3 Methodology | 12 |
| Electronic databases | 12 |
| Specialist libraries | 14 |
| Grey literature | 16 |
| Professional and informal networks | 16 |
| Other jurisdictions | 16 |
| Stakeholder engagement | 16 |
| 4 Review of literature | 17 |
| 5 Definitions and form | 34 |
| Card systems | 34 |
| Ticket Systems | 35 |
| Remote loading | 37 |
| Radio Frequency Identification (RFID) | 37 |
| Integrated technology | 38 |
| Cost implications | 38 |
| Cashless and card-based technology in other jurisdictions | 39 |
| Canada | 39 |
| USA | 39 |
| Australasia | 39 |
| Europe and the rest of the world | 40 |
| 6 Absence of evidence base for regulators | 44 |
| 7 Cashless and card-based responsible gambling features | 44 |
| Pre-commitment | 44 |
| Account information and transparency | 45 |
| Self-exclusion | 46 |
| 8 Cashless and card-based technologies as determinants of gambling and problem gambling behaviour | 47 |
| Card-based systems: impacts on problem gambling and potential | |

| | |
|--|-----------|
| for responsible gambling | 47 |
| Strengths and weaknesses of the research | 47 |
| Advantages of card-based systems | 50 |
| Disadvantages of card-based systems | 53 |
| Stakeholder views on the implications of card-based systems for the prevention and reduction of problem gambling | 54 |
| Implementation and promotion of card-based systems | 56 |
| Ticket-based systems: impacts on problem gambling and potential for responsible gambling | 57 |
| Perceived advantages of ticket-based systems among stakeholders | 58 |
| Perceived disadvantages of ticket-based systems among stakeholders | 59 |
| Stakeholder views on the implications of ticket-based systems for the prevention and reduction of problem gambling | 59 |
| Remote loading: impacts on problem gambling and potential for responsible gambling | 61 |
| Perceived advantages of remote loading among stakeholders | 62 |
| Perceived disadvantages of remote loading among stakeholders | 63 |
| Stakeholder views on the implications of remote loading for the prevention and reduction of problem gambling | 63 |
| 9 Controversies in cashless and card-based technologies | 65 |
| Mandatory or voluntary? | 65 |
| Stakeholder views on mandating cashless and card-based technologies | 66 |
| Unintended consequences | 67 |
| Marketing or consumer protection? | 67 |
| Is card sharing an issue? | 68 |
| 10 Industry leaders in cashless, card-based and tracking technology in responsible gambling | 69 |
| Saskatchewan Gaming Corporation – ‘iCare’ | 69 |
| Nova Scotia Gaming Corporation (NSGC) – ‘Gameplan’ | 69 |
| Svenska Spel – ‘Playscan’ | 70 |
| 11 Ongoing and planned research on cashless and card-based technology | 70 |
| Nova Scotia Gaming Corporation (NSGC) | 70 |
| The South Australia Pre-Commitment Trial | 70 |
| 12 Conclusions | 71 |
| 13 Recommendations | 72 |
| Short-term recommendations | 72 |
| Medium to long-term recommendations | 72 |
| References | 75 |
| Appendix 1: Stakeholders’ submissions | 80 |
| Written stakeholder submissions | 80 |
| Stakeholder meetings | 80 |
| Appendix 2: List of acronyms | 82 |
| Appendix 3: Industry stakeholder survey | 84 |
| Appendix 4: Academic/clinician/concern sector survey | 87 |
| Appendix 5: Stakeholder submission information | 90 |

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1 Executive summary

- 1.1 The aim of this report is to provide the Gambling Commission and its stakeholders with an overview of empirical evidence and other relevant literature by which to better understand the arguments for and against the introduction of cashless and card-based technologies including cashless and card-based responsible gambling features (CCRGF) to reduce problem gambling and promote responsible gambling. This report also identifies current and emerging cashless and card-based technologies, considers various approaches to regulation in other jurisdictions and identifies ongoing and planned research.

Methodology

- 1.2 Eleven electronic databases and eleven specialist online libraries were searched for relevant literature using a comprehensive set of keywords relating to cashless and card-based technology. This search was repeated towards the end of the research process to ensure new publications were taken into account.
- 1.3 Information was also gathered from:
- web-based search engines
 - forty-nine gambling regulators from various jurisdictions
 - regulator and industry websites
 - professional and informal networks within the gambling field including any relevant unpublished literature which may inform the review.
- 1.4 Stakeholders, including representatives of the gambling industry (ie operators and manufacturers), the academic community and the concern sector submitted views either through stakeholder meetings or through a written submission.

Definitions and form

- 1.5 Card systems are available in two forms:
- Magnetic stripe cards** feature encrypted data contained within the magnetic stripe which identifies the user's account. These cards are cheap to manufacture and allow instant account set-up; however they are prone to damage and provide less security than other card-based technologies.
- Smart cards** utilise a chip which stores data directly on the card itself in a more secure manner than magnetic stripe technology. They are more durable and have a larger storage capacity. However, these facilities come at a greater cost of production.
- 1.6 Ticket systems use vouchers printed with barcodes to 'carry' funds by means of identifying a unique transaction number which corresponds with the amount of currency represented by the ticket. These tickets may be inserted into Electronic Gaming Machines (EGMs)¹ for play or may be redeemed for cash, either by a cashier at a kiosk, or in some jurisdictions, by the EGM itself. EGMs can be modified to support Ticket In/Ticket Out technology (TITO) or Ticket Out (TO). Systems are also available from which tickets may be purchased for insertion into EGMs via debit or credit card transactions at a terminal.
- 1.7 Remote loading refers to cash payment at a central desk or kiosk whereby the value in credits is downloaded to the EGM of choice within that same venue. Remote loading is distinguished from other forms of cashless payment in that the transaction requires interaction with a member of staff, and therefore the cash payment for credit to use EGMs is 'indirect'.

¹ Electronic Gaming Machines (EGMs) is a blanket term for electronic devices used for gambling and is used throughout this document. This includes fruit/slot machines and fixed odds betting terminals (FOBTs) in Great Britain, 'pokie' machines in Australia, slot machines in the US and other jurisdictions, video lottery terminals in Canada, and interactive video terminals in Norway.

- 1.8** Radio Frequency Identification (RFID) tags can be inserted into any medium (eg gaming chips, key ring), and have a unique identifying signal which can be associated with any account. The value of this technology is that it offers contactless transfer of information. This technology also carries a high level of security.
- 1.9** Some cashless systems integrate a combination of technologies to enhance performance and application. For example, one system incorporates a Universal Serial Bus (USB) key and biometric identification (eg fingerprint-based identification) to provide a comprehensive cashless and consumer protection solution which can be used both online and offline.
- 1.10** In terms of feasibility and operator engagement, consideration must be given to the direct and indirect costs of implementing and maintaining such technology. Consideration should be given to the potential cost of:
- the user-held device (eg card, RFID chip, USB key etc)
 - converting a machine to be able to read the device
 - the back-office system needed for monitoring and managing the technology
 - any associated staff training
 - any EGMs becoming obsolete as a result of incompatibility.

Cashless and card-based technology in other jurisdictions

- 1.11** Regulators were contacted in 73 different provinces, states and countries to find out what policies and regulations were in place with regards to cashless technologies, what trials were currently underway and what future plans were in place for implementing and updating such policies.
- 1.12** In all, information was collected from 49 jurisdictions. There was little consistency in regulation across jurisdictions, with some mandating the use of cashless technology for gambling (eg Illinois and Michigan), some encouraging use on a voluntary basis where it is made available, and others banning it completely (eg Indiana, Iowa and Nebraska). A number of jurisdictions which did have regulations in place had technical standards regarding the implementation of TITO/TO systems.
- 1.13** Many jurisdictions had no specific regulations in place, indicating that perhaps regulation has not yet caught up with advances in technology. A number of jurisdictions also highlighted that there is a lack of solid evidence on which to base recommendations for policy and regulation, and were awaiting the outcome of research, such as the trial of pre-commitment measures currently underway in South Australia.

Cashless and card-based responsible gambling features

- 1.14** A Responsible Gambling Feature (RGF) is a characteristic which can be incorporated or added onto a gambling device which aims to minimise problem gambling, enhance player control and promote responsible gambling behaviour. For the purposes of this review consideration has specifically been given to Cashless and Card-based Responsible Gambling Features (CCRGFs):

Pre-commitment enables a gambler to pre-select limits on time and/or money spent during a gambling session. This is thought to allow gamblers to make more rational decisions about the money and time they spend on gambling, rather than during the gambling session itself when they may be frustrated, disappointed, excited or chasing their losses.

Account summaries or activity statements give clear and accurate information regarding game play and patterns of net expenditure. Allowing players access to up-to-date and accurate information is thought to reduce biased or irrational gambling-related decisions and assist the problem gambler in developing and maintaining control.

Self-exclusion may also be available through card-based systems where players have the option to exclude themselves from play for a wide variety of time frames. Exclusion features should not permit any decision to be reversed within a short time frame. Although self-exclusion is traditionally considered to be a more extreme, rigid and possibly stigmatising option, card-based technology now permits the player more flexibility (eg self-exclusion for the evening if intoxicated).

Card-based technologies as determinants of gambling and problem gambling behaviour

- 1.15** Overall, there are few studies which empirically investigate the nature of cashless and card-based technology and its impact on gambling behaviour. Each study has its limitations, which range from studies being fundamentally flawed, to having a few methodological shortcomings. Three government enquiries or consultations (IPART, 2004, Independent Gambling Authority, 2005 and the Gambling Commission 2006) relating to cashless and card-based technologies and their impact have also been used to inform this review.
- 1.16** It has been suggested that some gamblers have problems making rational decisions and maintaining control outside the gambling experience, and hence, these gamblers may benefit from pre-commitment. For this reason, limit-setting in monetary and temporal terms has been considered as a possible solution. However, there was mixed support in the literature: 47% of survey respondents said that they would at least try setting limits when playing EGMs (McDonnell-Phillips Pty, 2006), whilst in another study, measuring actual behaviour, only around 12% had actually tried such features at least once over a 6-month period (Schellinck and Schrans, 2007).
- 1.17** There has also been some support for the claim that gamblers may underestimate how much money and time is being spent while gambling. Offering account summaries (eg spend statements, financial transactions) has been suggested as one way to counteract such bias. The literature suggests that such strategies are much more popular among players and used more often relative to limit-setting features. Survey data revealed that 67% of respondents found the account summaries beneficial (Nisbet 2005a) and based on behavioural data it was concluded that over two-thirds of gamblers looked at their account summaries at least once over a 6-month period (Schellinck and Schrans, 2007).
- 1.18** Despite some initial concerns regarding card-sharing (ie players using other players' cards to circumvent limits and other restrictions), it was concluded that those players using at least one feature at least three times, over the 6-months period of the research, were more likely to have longer player sessions, play more often, deposit more but also withdraw more, all without having a higher net expenditure than those players who did not adopt the Responsible Gambling Device.
- 1.19** The general view of the industry as represented in the literature was that card-based technologies may represent significant savings in terms of time and money. Stakeholders in this review were largely in agreement with this position. Additional benefits identified by stakeholders included: player monitoring to facilitate marketing, auditing and responsible gambling objectives; more barriers restricting underage play; and improved flexibility for game development.
- 1.20** There was consistent support both in the literature and in stakeholder views that player concerns regarding confidentiality and privacy may limit player engagement with card-based systems. Other reservations voiced by stakeholders regarding card-based systems included: investment costs for both implementation and maintenance of software or hardware; increased convenience and removing the 'reality of spend' and/or 'reality checks' may facilitate problem gambling; and players may be inconvenienced with unwanted marketing materials or the requirement to use too many commercial loyalty cards.

- 1.21** Other commercial disadvantages cited included concerns regarding machine malfunction, particularly since some on-site research revealed that repairs consumed a significant amount of staff time. Operators are also concerned about potential losses in revenue as a result of restricting player spending, particularly since research has suggested that problem gamblers' spending accounts for a large proportion of overall revenues.
- 1.22** A specific concern regarding the operation of card-based responsible gambling initiatives in Great Britain relates to management issues and unintended consequences. If initiatives are managed as a corporate-wide (or even sector-wide) rather than as a nationwide initiative, then firms who have responsible gambling restrictions placed on their products may lose customers to another firm, or another form of gambling, where there are fewer or no restrictions. There is a strong case for a consistent and all-encompassing initiative; however, given the complexity of the British gaming machine industry, such an initiative may prove difficult.
- 1.23** In terms of the prevention and reduction of problem gambling, stakeholders voiced confidence in card-based systems compared to ticket-based or remote loading technology. However, across all forms of technology there was limited consensus among stakeholders regarding its impact on problem gambling. A lack of empirical evidence was cited as a possible factor contributing to the variation in stakeholder views.
- 1.24** Some factors have been clearly and consistently identified as critical to the successful implementation and adoption of card-based systems including: ensuring that the technology is reliable and easy to use; that customers are encouraged to trial the card as this increases the chances of acceptance; that concerns relating to privacy and confidentiality are adequately addressed; and perhaps most importantly, that the value and benefits of engaging with the card are clearly and effectively communicated to the consumer.

Ticket-based systems as determinants of gambling and problem gambling behaviour

- 1.25** To date, there has been limited empirical research investigating the impact of ticket-based systems on gambling behaviour. In government enquiries, there has also been little consensus among stakeholders on this point. However, in a study collecting views from key informants, there was general agreement that Ticket Out (TO) payments are unlikely to have a significant impact on problem gambling.
- 1.26** Various benefits of using ticket technology were suggested by stakeholders in this review, with costs savings, convenience, ease of use and security being the most cited responses. Other reported advantages related to a cleaner, less problematic experience during the gambling process and more checks preventing underage gambling.
- 1.27** Most concern among stakeholders related to removing the 'reality of spend' through the use of non-cash alternatives and 'non-direct payment'. Other possible limitations which were cited included concerns about ticket expiration; the inability to track players; less protection against money laundering; facilitating problem gambling through less staff interaction, increased speed of play and increased convenience; and the initial cost implications for implementing and maintaining software and hardware.
- 1.28** The vast majority of stakeholders were either undecided or disagreed that ticket-based technology could prevent or reduce problem gambling.

Remote loading as a determinant of gambling and problem gambling behaviour

- 1.29** There is currently no publicly available empirical research on remote loading or its impact on any aspect of gambling behaviour. However, remote loading carries with it the option to use debit cards in some licensed betting offices, and this may be a cause for concern. Much like ATMs and other forms of electronic funds transfer, such a facility offers access to additional funds to gamblers within the venue, within session.

- 1.30** Some research has suggested an association between problem gambling and remote loading. Specifically, there is evidence indicating that problem gamblers may require longer breaks in play than currently produced by getting additional funds within the venue, and that having access to additional funds with little or no cooling-off period may increase gambling-related risk. The evidence supporting this claim is neither conclusive nor robust, and we recommend further research to clarify the potential relationship between access to additional funds and increased gambling-related risk.
- 1.31** Despite such concerns, numerous advantages were cited among stakeholders regarding using remote loading in a gambling-related context, including, contrary to claims made above, that remote loading does force breaks in play and so has a positive impact on problem gambling.
- 1.32** Other frequently cited advantages included: improved security and reduced risk of various types of crime; lower operating costs by removing the need to handle cash or remedy cash-related machine malfunctions; protection against money laundering and improved restrictions against underage players.
- 1.33** Some emphasis was placed on the fact that remote loading assists in promoting another of the Gambling Commission's three licensing objectives in addition to protecting children and the vulnerable (ie keeping crime out of gambling). Some stakeholders insist that the promotion of one objective (eg protecting vulnerable people) should not be at the expense of another objective, particularly since there is robust evidence that remote loading can reduce some gambling-related crimes.

Controversies in cashless and card-based technologies

- 1.34** The debate regarding whether cashless and card-based technology and associated responsible gambling features should be voluntary or mandatory continues. In terms of the relevant literature there are views which support and oppose both options. Overall, there exists more support for any such technologies to be initially made available on a voluntary basis.
- 1.35** Clarity is required in relation to what exactly is being considered in the 'voluntary versus mandatory' debate: is it the *availability* of responsible gambling features; the *use of* responsible gambling features or the *measure of the restriction* (eg level of limits) since these will all have potentially different implications.
- 1.36** There are various outstanding issues which need to be considered when reviewing the feasibility of cashless and card-based responsible gambling, such as: vigilance regarding the potential for unintended consequences; the function of cards and other technologies (eg to what extent they should be used for marketing, auditing or responsible gambling and to what extent these are competing aims); and the role of card-sharing in potentially undermining the impact of such technologies.

Conclusions

- 1.37** Empirical evidence regarding the use and impact of card-based and cashless technology in gambling is limited. However, the evidence does suggest that CCRGFs are used by some, but not all, gamblers and for this reason it warrants further investigation.
- 1.38** CCRGFs relating to transparency and information (eg activity statements) are more popular than the more restrictive CCRGFs such as pre-commitment (eg limits on time and spending) or self-exclusion.
- 1.39** Evidence also suggests that for players to begin to use new technology they need to be informed, the systems need to be reliable and easy-to-use, the registration process needs to be efficient, and security and confidentiality must be prioritised.

- 1.40** Many gambling regulators do not currently have definitive regulations on cashless and card-based technologies despite being aware of their potential to both help and harm gamblers and problem gamblers. Those with regulations in place remain cautious, with many monitoring the outcomes of ongoing research and/or engaging in their own research in order to implement, progress and/or amend regulations on cashless and card-based technology with more assurance.
- 1.41** Some industry stakeholders do not feel that the costs or challenges in adopting such technology would be proportionate with the commercial opportunities available within the current regulatory framework in Great Britain. In relation to some other jurisdictions (eg Canada, United States and Australia), industry stakeholders feel that current regulations are more restrictive in terms of limits on numbers of machines and stakes and prizes thereof.

Recommendations

- 1.42** It is recommended that a UK feasibility study is undertaken to assess the capabilities of these technologies and the associated costs and challenges associated with their implementation. This is particularly important given that, in Great Britain, EGMs vary considerably in their structure, site and provision.
- 1.43** Pilot studies across at least two different sites should also be carried out to explore actual impact on player behaviour and to explore attitudes of both players and floor staff to technology. Exploratory research should consider attitudes and behaviour of both players and staff.
- 1.44** Experimental research involving cashless and card-based technology should be done in ecologically valid settings such as live gambling venues. Findings from laboratory-based experiments are limited in that they usually do not involve real gambling conditions.
- 1.45** A long-term aim for research should be to assess the effectiveness of CCRGFs regardless of popularity among customers (ie run trials which mandate usage of all features) while also considering the impact on commercial appeal and customer enjoyment of the game. This should also help inform the 'mandatory versus voluntary' debate.
- 1.46** On a larger scale, we must recognise that as a result of concern expressed by stakeholders, the potentially prohibitive costs of investment and the apparently limited infrastructure currently in place, key decisions relating to CCRGFs may require a broad review of the current legislation on EGMs. If through a broader review of machine numbers, stakes and prizes the potential to enhance the level of consumer protection can be identified, this may also have positive implications for the level of choice and product appeal for consumers. However, before any such review is considered, there must be convincing evidence of the net benefit of cashless and card-based technology for customers, the wider gambling industry and most importantly for problem gamblers.

2 Introduction

- 2.1** Several authors conducting recent reviews or research studies in the area of gambling and/or problem gambling behaviour have identified the need for further research on the nature and impact of card-based technology (IPART, 2004; Productivity Commission, 1999; Abbott, Volberg, Bellringer and Reith, 2004; Queensland Office of Gaming Regulation, 2005; White et al, 2006; May-Chahal et al, 2005). Most draw our attention to the lack of evidence regarding the potential for cashless or card-based systems to exacerbate current levels of problem gambling, but also to the absence of evidence for their potential to mitigate harm through associated responsible gambling features. In particular, one of the challenges of this kind of research is that “the design of such interventions is not a ‘common-sense’ task and must be approached with caution” (Livingstone & Woolley, 2008, p.155). Given the complex nature of Electronic Gaming Machines (EGMs) and the limited empirical evidence that exists regarding how they may determine gambling behaviour, consideration should be given to the potential for unintended (and potentially negative) consequences of machine modifications and interventions (see Bernhard and Preston, 2004).
- 2.2** In February 2008, The University of Salford and The Gambling Lab Limited were contracted by the Gambling Commission to provide a comprehensive literature review on the impact of cashless technologies on gambling, with a particular focus on the areas of problem gambling behaviour and social responsibility. The overall aim of the project was to provide the Gambling Commission and its stakeholders with an overview of empirical evidence and relevant literature by which to improve understanding of the arguments for and against the introduction of cashless technologies, card-based technologies and other related technologies in the context of problem gambling.
- 2.3** Currently in Great Britain, given the growing popularity of some categories of EGMs, the Minister for Sport, Gerry Sutcliffe, is considering whether some forms of EGMs may be a cause for concern. Furthermore, while some sectors of the British gambling industry (eg the bingo sector) are facing adversity in a number of ways (eg the negative impact of the smoking ban on revenue) there have been increasing calls from industry stakeholders for increases in stakes, prizes and numbers of EGMs to rejuvenate deteriorating operations. In June 2008, the Minister decided to consult on raising the EGM numbers in bingo operations from four to eight and also to review (ahead of schedule) stakes and prizes of Category C and D EGMs (those offering lower stakes and jackpots – eg jackpots currently £35 or less). The outcomes of these reviews had not been concluded before this report had gone to press. However, it is clear that the British gambling industry, particularly in relation to EGMs, is experiencing a period of regulatory and commercial change. It is timely then, that other aspects of EGM operations, namely the role of cashless and card-based technology in gambling, are also currently being considered, and this is the focus of this report.

Aims and scope of report

- 2.4** This report identifies current and emerging cashless and card-based technologies, evaluates existing research literature and other grey literature on this topic, considers variations across jurisdictions and also identifies and describes ongoing or planned research. However, the development and implementation of cashless and card-based technology is relatively new and not necessarily wide-spread in most jurisdictions. To date, there is a limited amount of empirical research investigating the impact of cashless and card-based technology, particularly in the context of problem gambling and social responsibility. As a consequence, it was deemed necessary to extend our ‘fact-finding’ exercise to include ‘opinion’ as well as ‘facts’. For this reason, the research team sought formal (where views were permitted to be presented in this report) and informal (views not permitted to be presented in this report) input from researchers, industry stakeholders and concern sector organisations in order to inform the final report.

In the absence of a large body of empirical evidence, it is useful to consider all available information provided that the limitations and potential biases of this information are considered in the review process.

- 2.5** Although the initial brief was to evaluate the literature on cashless technology, there is much overlap in the literature between card-based player account systems which have the potential for cashless gambling, and actual cashless gambling technology. Much of the literature and evidence which relates to player account systems is relevant and informative to the study of cashless technology despite the facility for cashless gambling often not being utilised. Coupled with the paucity of research which focuses specifically on 'true' cashless technology, the scope of this project has been widened to incorporate information on card-based technology.
- 2.6** Although most forms of online gambling could be classified as 'cashless gambling', consideration of this topic was beyond the remit of this review, except where such information could directly inform policy on cashless gambling in an offline environment.
- 2.7** This report considers:
- types of technology available
 - regulation in other jurisdictions
 - responsible gambling features
 - impacts of technologies on problem gambling
 - controversies in cashless and card-based technologies
 - examples of industry leaders
 - ongoing or planned research

all of which are considered in the context of cashless or card-based systems and the impact on problem gambling and/or responsible gambling.

3 Methodology

- 3.1** In order to fulfil the specifications of this review, a comprehensive search of the relevant literature was undertaken alongside a process of procuring information from key individuals and organisations within the gambling industry. The collection of this literature was carried out in four concurrent phases, comprising:
- a search of online electronic databases
 - a search of specialist web-based libraries
 - grey literature accessed through web-based searches and professional contacts
 - professional and informal networks contacted via discussion groups
 - contacts made with industry stakeholders and other jurisdictions.

Electronic databases

- 3.2** A search of the following online databases was conducted to find any potentially relevant literature:
- Academic Search Elite
 - Business Source Premier
 - Ingentaconnect
 - ISI Web of Knowledge
 - Key Note
 - Lexis Nexis
 - Mintel
 - PsycArticles
 - PsycInfo
 - Science Direct
 - Swetswise

Academic Search Elite features full text for over 1,200 journals, as well as abstracts and indexing for over 3,000 scholarly journals. It also includes coverage of over 1,700 peer-reviewed journals. It is the world's largest academic multi-disciplinary database and covers a wide range of academic areas including social sciences, humanities, education, computer sciences, engineering, physics, chemistry, language and linguistics, arts and literature, medical sciences, ethnic studies and more.

Business Source Premier is a mainly full-text journal database covering all aspects of accountancy, business and management, including full texts for more than 300 of the top scholarly journals in this field.

Ingentaconnect is a comprehensive multi-disciplinary document delivery service providing access to thousands of online journals from leading scholarly, academic and business publishers.

ISI Web of Knowledge indexes the published literature of the most significant conferences, symposia, seminars, colloquia workshops and conventions in a wide range of disciplines in science and technology and lists literature from 1990 onwards.

Key Note provides market research reports in a wide range of market sectors. These reports contain a combination of market analysis, commentary, statistics and forecasts.

Lexis Nexis contains the up-to-date text of UK legislation, law reports, legal encyclopaedias and commentaries, together with a number of specialist practitioners' texts.

Mintel provides consumer market research reports, with full access to all marketing, leisure, retail, finance, industrial British lifestyle reports.

PsycArticles is a database of searchable full-text, peer-reviewed articles from over 50 scientific journals. The database covers general psychology and specialized, basic, applied, clinical and theoretical research in psychology.

PsycInfo contains more than one million citations and summaries of journal articles, book chapters, books, dissertations and technical reports, in the field of psychology. It also includes information about the psychological aspects of related disciplines such as medicine, sociology, education, linguistics, anthropology, business and law. Journal coverage, which extends from 1887 to present, includes international material selected from more than 1,700 periodicals in over 35 languages.

Science Direct offers full-text access to all Elsevier journals published online, covering mainly the sciences, technology, medical, social sciences, psychology, environment and business and management subject areas.

Swetswise is an electronic journal service providing access to the table of contents and abstracts of over 17,000 journal titles. Full-text articles from over 2,500 of these journals can be viewed. Subject coverage spans the majority of academic disciplines including the arts, business, geography, history, language, management, marketing, medicine, philosophy, religion, sciences, social sciences and technology. Swetswise archives back to 1995.

3.3 The searches were performed during February 2008, and repeated in June 2008 to check for new literature, utilising the following key words:

- (Gambling or gaming) and ('automated payment')
- (Gambling or gaming) and (card system)
- (Gambling or gaming) and (Card Technology System)
- (Gambling or gaming) and ('cashless wagering' or 'cashless technology')
- (Gambling or gaming) and ('chip cash')
- (Gambling or gaming) and ('chip tracking')

- (Gambling or gaming) and (coinless)
- (Gambling or gaming) and ('customer relationship management')
- (Gambling or gaming) and ('player card')
- (Gambling or gaming) and ('player management' or 'player tracking')
- (Gambling or gaming) and (pre-commitment')
- (Gambling or gaming) and ('responsible gaming device')
- (Gambling or gaming) and ('slot ticket' or 'ticket system' or 'ticket in ticket out' or TITO)
- (Gambling or gaming) and ('smart card' or 'swipe card').

3.4 Each search on each database produced varying numbers of titles and abstracts, with varying degrees of overlap between each database. Full lists of titles and abstracts were viewed, and for those articles which appeared relevant to this review, full texts were accessed and downloaded.

Specialist libraries

3.5 A search of the following online libraries was conducted during February 2008, using the same search terms as outlined above. These libraries are specialist collections put together by governments from jurisdictions worldwide, and by gambling-related organisations. Any material which appeared relevant to this review was accessed and downloaded.

- Alberta Gaming Research Institute: <http://gaming.uleth.ca>
- Australasian Gaming Council: www.austgamingcouncil.org.au
- eCOMMUNITY: International Journal of Mental Health and Addictions: www.pasinfo.net
- Electronic Journal of Gambling Issues: www.camh.net/egambling/
- Gambling Research Australia Secretariat: www.gamblingresearch.org.au
- Institute for Problem Gambling: www.gamblingproblem.net
- New Zealand Ministry of Health: www.moh.govt.nz
- North American Association of State and Provincial Lotteries, Gambling Studies: www.naspl.org/studies.html
- Ontario Problem Gambling Research Centre: www.gamblingresearch.org
- Queensland Government, Responsible Gambling: www.responsiblegambling.qld.gov.au
- Responsible Gambling Council: www.responsiblegambling.org
- Victoria Gambling Research Panel: www.grp.vic.gov.au.

3.6 A search was also conducted on our behalf in June 2008 by Glenda Northey, Research Librarian at the Problem Gambling Foundation of New Zealand (PGFNZ), of a new electronic problem gambling library set up in May 2008 by PGFNZ.

Literature search outcome

3.7 Presented below is the outcome of the literature search (Table 1 and Table 2). Eleven databases and twelve specialist libraries were searched according to the protocol outlined above.

3.8 It is important to note that not all search terms and databases yielded results, and not all search terms required refining terms, therefore only the fruitful searches have been included in the following table. Depicted in the tables are the databases and search terms used, including the number of 'hits', or pieces of evidence, that were found. There was considerable overlap both within and between databases, and as such there were over 100 pieces of evidence which were highlighted during the search. Titles and abstracts were viewed for each piece of evidence, and those which appeared relevant to this review (n=40) were accessed and downloaded.

Table 1: Specialist library searches

| Database | Search terms | Refining terms | Hits |
|-----------------------------------|----------------------------------|----------------|------|
| Alberta Gaming Research Institute | Cashless | - | 3 |
| | Player Tracking | - | 1 |
| | Responsible Gambling Device | - | 3 |
| | Smart card | - | 1 |
| | Ticket In Ticket Out | - | 3 |
| Australasian Gaming Council | Card-based System | - | 11 |
| | Card Technology | - | 30 |
| | Cashless | - | 72 |
| | Coinless | - | 11 |
| | Player Management | - | 4 |
| | Player Tracking | - | 40 |
| | Responsible Gambling Device | - | 7 |
| | Smart card | - | 82 |
| | Ticket In Ticket Out | - | 19 |
| | Ticket System | - | 6 |
| | Customer Relationship Management | Gambling | 11 |
| Pre-commitment | - | 80 | |
| eCOMMUNITY: IJMHA | Responsible Gambling Device | - | 24 |
| Gambling Research Australia | Cashless | - | 1 |
| Responsible Gambling Council | Automated Payment | - | 16 |
| | Cashless | - | 4 |
| | Ticket In Ticket Out | - | 3 |
| | Pre-commitment | - | 1 |

Table 2: Relevant Database Search Results

| Database | Search terms | Refining terms | Hits |
|-------------------------|------------------------|----------------|------|
| Academic Search Elite | Card System | Gambling | 26 |
| | | Gaming | 96 |
| | Card Technology System | Gambling | 6 |
| | Cashless Wagering | - | 1 |
| | Cashless Technology | - | 27 |
| | Chip Cash | Gambling | 3 |
| | Chip Tracking | Gambling | 1 |
| | Coinless | - | 7 |
| | Player Card | Gambling | 72 |
| | Player Management | Gambling | 5 |
| | Player Tracking | Gambling | 2 |
| | Smart Card | Gambling | 5 |
| | Swipe Card | Gambling | 1 |
| Business Source Premier | Card System | Gambling | 53 |
| | Card Technology System | Gambling | 10 |
| | Cashless Wagering | - | 2 |
| | Chip Cash | Gambling | 7 |
| | Chip Tracking | Gambling | 1 |
| | Coinless | Gambling | 2 |
| | Player Management | Gambling | 35 |
| | Player Tracking | Gambling | 7 |
| | Slot Ticket | Gambling | 7 |
| | Smart Card | Gambling | 13 |
| | Swipe Card | Gambling | 1 |
| Ticket System | Gambling | 27 | |

| Database | Search terms | Refining terms | Hits |
|---|-----------------------------|----------------|------|
| Metasearch: *Ingenta Connect *ISI Web of Knowledge *PsychArticles *PsycInfo *ScienceDirect | Card-based System | Gambling | 6 |
| | Card Technology System | Gambling | 2 |
| | Cashless Technology | - | 3 |
| | Coinless | - | 2 |
| | Player Management | Gambling | 2 |
| | Responsible Gambling Device | - | 2 |
| | Slot Ticket | - | 7 |
| | Smart Card | Gambling | 2 |
| Mintel | Card System | - | 1 |
| LexisNexis | Cashless | Gambling | 17 |
| | Player Tracking | - | 2 |
| | Ticket In Ticket Out | - | 5 |
| SwetsWise | Cashless Technology | - | 1 |

Grey literature

3.9 Grey literature comprises a range of both published and unpublished information which is not available for access through conventional means of literature searching. It includes industry reports, conference papers, government documents, newspaper, magazine and periodical articles, theses, personal communications (including web-based discussions) and patent documents. The research team used web-based search engines such as Google Web and Google Scholar in order to find any available useful grey literature in order to inform the report further.

Professional and informal networks

3.10 Individuals and organisations within the gambling field that were considered to have knowledge and expertise potentially relevant to this investigation were contacted to be given the opportunity to take part in the research. These included the main academic authors in the field. Contacts were generally made by email, phone or in person at networking events. Some grey literature and unpublished literature was accessed in this manner.

3.11 Additionally, members of the Gambling Issues International (GII) discussion group were contacted and relevant information held by them was requested. GII is a mailing list forum for professionals working within the gambling field. This forum has nearly 600 members from 17 countries, represented by researchers, clinicians, educators, policy makers and others.

Other jurisdictions

3.12 Seventy-three gaming regulatory bodies from international jurisdictions were contacted in order to inform the review on policy and practice with regard to cashless technology. Due to language barriers, information was most readily available from North America, Australia and some parts of Europe. A total of 49 jurisdictions provided information useful to this review.

Stakeholder engagement

3.13 During the initial stages of this literature review, it became clear that empirical research evidence on the nature and impact of cashless and card-based technology in gambling was very limited.

To supplement this review, it was decided that various stakeholders in Great Britain would be consulted and asked for their views on the nature and impact of cashless and card-based technology on problem gambling and for promoting responsible gambling. Stakeholders included gambling industry representatives in terms of manufacturing and operations, trade associations, concern sector groups and academics actively researching in the field of gambling. Some stakeholders outside Great Britain with significant experience and knowledge in this area were also invited to give their views.

- 3.14** During March 2008 to July 2008, we contacted a range of stakeholders identified by both the research team and the Gambling Commission. Industry stakeholders were also notified about the opportunity to submit views via a regular Gambling Commission e-bulletin. The ultimate aim of any stakeholder meeting was to obtain views either formally or informally. In an attempt to standardise responses and to avoid misrepresenting views, stakeholders were advised that their input would only be included in the final report if they submitted their views in writing or via the online data collection tool. An overview of stakeholders and full list of submissions and meetings is included in Appendix 1 of this report. The stakeholders listed under 'submissions' were only those stakeholders who responded to the survey in writing or through the online data collection tool. Those listed under 'meetings' did not submit views formally (in writing or through the online data collection tool) unless also listed under 'submissions'.
- 3.15** The online data collection tool comprised a brief survey asking questions relating to the nature and potential impact of such technology on problem gambling and the promotion of responsible gambling. The surveys comprised both open-ended and closed questions which asked about central loading, ticket-based and card-based systems. The full surveys have been included in Appendices 3 and 4 of this report.
- 3.16** Information based on stakeholder submissions has been presented throughout this report in the appropriate section and have been appropriately identified. Information was summarised and presented in both tabular form (to minimise repetition) and written form where further explanation was required. Information has only been included where submission responses were comprehensible and complete. See Appendix 5 for the summaries of stakeholder submissions in tabular form.
- 3.17** Contact was made either via telephone, e-mail or in person. Some stakeholders wished to meet in person before submitting further information via the online collection tool. The purpose of the face-to-face meeting was to permit stakeholders an opportunity to find out more about the review before submitting information more formally; however it also allowed the research team to collect potentially useful information which could indirectly inform the review even if this was not included explicitly in the final report. A full list of face-to-face consultations is included in Appendix 1 of this report.

4 Review of literature

- 4.1** A summary table of the articles, reports and documents which report on cashless and card-based technology in gambling is presented in Table 3. While only some of these have been peer-reviewed and report on empirical investigations, we have identified the strengths and weakness of the literature where appropriate to guide the reader in considering this review. It is also important to point out that research is rarely without limitations and that while findings should be considering in the appropriate context, they should not be routinely dismissed because a methodological weakness has been identified.
- 4.2** Table 3 also indicates that the literature in this area is in its infancy and from an empirical point of view, we know very little. Most of the literature suggests that future research is needed and highlights the inconsistency in views across various stakeholders. Throughout the rest of this report, we will provide a more thorough discussion of the relevant aspects of the research summarised in Table 3.

Table 3: Summary table of relevant literature on cashless and card-based technology

| JOURNAL ARTICLES | | | | | | | | |
|---------------------------------|-----------------------|-----------------|-------------------|--|----------------|--|--|--|
| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
| Loveman, G. (2003) | Las Vegas, USA | Journal Article | N/A | Smart card - magnetic - Brand name 'Total Rewards' | No | <p>*Outlines Harrah's use of smart cards in marketing (no discussion of social responsibility), along with how this information is used in order to draw in customers - incentives and rewards.</p> <p>*Eg If customer not visited in 3 months send a tailored promotion.</p> <p>*Discusses benefits of excellent customer service based on technological advances - eg paging floor attendants to check on players regularly.</p> <p>*Suggests that tailored marketing doesn't entice patrons to gamble more, just entices them to gamble at a Harrah's venue more.</p> | <p>*In-depth overview of a CRM strategy that works in terms of increasing company profits</p> | <p>*No discussion of the effects of this particular customer loyalty program on problem gambling or social responsibility. *No data presented for the assertion that they are not enticing patrons to gamble more, just enticing them away from other establishments *Views presented may be driven by self-interest</p> |
| Watson, L. & Kale, S. H. (2003) | Queensland, Australia | Journal Article | Literature Review | Cashless technology in general – focuses on the value of customer relationship management to casino industry | Yes | <p>*Customer loyalty is demonstrated to have a significant impact on casino profits. Three criteria are outlined which are necessary for loyalty to make a difference: should be in best interests of company to form long term relationships with customers, customers must be able to be measured and separated with respect to their profitability for the company, and services must be able to be differentiated across customers. *Detailed analysis of how these three criteria could be met: forming long term customer relationships [<i>loyalty cards eg Harrah's; collecting data on profitability and projected profitability and using this to tailor rewards and marketing</i>] Measuring and separating players [<i>divide in terms of money and time spent, regulars or seasonal tourism</i>] differentiating services across customers [<i>wanted by customers, customers willing to pay for higher levels of service, perceived value to customers different eg some like social side, some prefer excitement of possibility of winning</i>].</p> <p>*Calculations are shown to demonstrate profitability.</p> <p>*Increasing prime customer retention rates and turning 'valued customers of tomorrow' into prime customers can substantially increase takings. May be a slow process. In depth knowledge of customer base is required and technology is the way to become customer expert.</p> | <p>*Comprehensive literature review *Academic focus and published in respected journal</p> | <p>*Focuses on managerial impacts but little mention is made of impact on customers</p> |

JOURNAL ARTICLES

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|--|-------------------------------|-----------------|---|--|----------------|---|---|---|
| Talbot, D. (2005) | Connecticut USA | Journal Article | N/A | Integrated technology - Smart cards and cameras - Brand name 'Mind Play' | No | <p>*Outlines why radio-frequency tagged chips discarded in place of camera technology and smart card systems.</p> <p>*RFID gave no indication of how gamblers played certain cards, and the chips themselves were expensive.</p> <p>*MindPlay system uses cameras and image recognition software to track hands dealt, amounts bet and player behaviour.</p> <p>*Players 'log in' to the system by swiping their smart cards at a table.</p> <p>*Player's skill is tracked along with info on how profitable they are to the casino.</p> | *N/A - Anecdotal evidence only | |
| Nisbet, S. (2005a; 2005b; 2005c; 2006) | New South Wales, Australia | Journal Article | * Stakeholder interviews (N = 25) * Player Survey (N = 134) | Smart card | Yes | <p>*Reported advantages of cashless systems included convenience, choice and security among players; cost savings, marketing opportunities and increased security among operators and venues; protection of tax revenue and increased security in the view of regulators; tentative support for stakeholders for the promotion of responsible gambling</p> <p>* Reported disadvantages included: reduced anonymity, social interaction and privacy among players; costs of implementation, risk of fraud, uncertainty of player reaction and job losses were concerns for industry stakeholders. SPECULATION</p> <p>*Card systems may save problem gamblers from embarrassment – this may facilitate problem gambling (speculation based on Blaszczyński et al, 2003)</p> <p>*Social (protect customers from overspending) and financial (increase profits) aims from such technology are conflicting aims</p> <p>*incentives to operators and players should be given</p> <p>* Venues must play important role in promoting use of cards</p> <p>IMPLICATIONS AND RECOMMENDATIONS</p> <p>consideration must be given to potentially conflicting aims of consumer protection and profit maximisation</p> <p>*Significant role for operators in card promotion</p> <p>*regulators must consider incentives for adoption among players and operators</p> <p>* General adoption and acceptance of cashless technology may be lower among problem gamblers</p> <p>*Future research should consider pre- and post-implementation data and employ longitudinal methods to consider the lifecycle of the player-technology dynamic.</p> | <p>* Broad range of stakeholder interviews *survey respondents recruited from gambling venues</p> <p>*High response rate among survey respondents</p> <p>*Systematic and considerate use of academic theoretical frameworks to develop research agenda *player recruitment took place across various days and times</p> | <p>*Self-selected sample</p> <p>*Over-representation of gambling industry personnel in stakeholder interviews</p> |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|--|---------------|-------------------------------------|---|-----------------------------|----------------|--|---|---|
| Parliament of the Commonwealth of Australia (2001) | Australia | Government Policy Document | Submissions from stakeholders | Cashless technology | No | *Brief mention throughout of smart card technology. *Suggests that information regarding this technology should be reviewed but not under the remit of this document. | *N/A - Policy document only | |
| Liquor Administration Board (2002) | NSW Australia | Government Document - Annual Report | N/A | Smart card | No | *Briefly mentions changes in policy re: gaming machines in NSW. *Cites card-based systems as 'major new technology' being trialled in NSW at the time of the report. | *N/A - Annual report only | |
| Australian Government (2003) | Australia | Government Report | N/A | N/A | No | *Highlights need for robust customer tracking initiatives in order to combat financial crime in gambling, also acknowledges that this need for timely and accurate information on possible money laundering activity must be balanced in order to minimise compliance burden on gambling industry and negative impacts on legitimate gambling patrons. | *Gathers views of key personnel in gambling industry | *Submissions may not be impartial and may be driven through self interest |
| Hing, N. (2003) | NSW Australia | Research Report | Mail Survey (n=706) On-site survey (n=248), descriptive stats | Cashless technology | No | *Information directly relevant to cashless technology is sparse. In terms of harm minimisation, qualitative results indicate that players would like cashless gaming introduced in poker machine design in order to allow limits to be set. | *Mixed method approach - qualitative and quantitative data gives big picture in terms of harm minimisation strategies | *Sample technique could encourage bias (no way to tell how valid responses from mail survey were, eg may have been filled out by someone within the household who was unaware of anyone else's gambling habits and preferences; face to face responses required for the on-site survey) and may have contributed to an under reporting of problem gambling in club patrons. |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---|---------------------|-------------------------------------|-------------------|---|----------------|---|---|--|
| IPART (2004) | NSW Australia | Government Research Report | N/A | Smart cards/ Ticket In Ticket Out | No | <p>*Controls on player reward schemes - no empirical evidence cited, stakeholders disagree whether controls are useful - IPART recommends no changes to 2001 recommendations should be made, eg incentives limited to \$1000 value, activity statement must be available upon request.</p> <p>*Pre-commitment Measures included on smart cards - no specific evidence cited, significant number of stakeholders expressed support, voluntary pre-commitment cards recommended, research into these cards deemed high priority.</p> <p>*TITO bar coded credit slips - again no empirical research cited - supported by submissions as a harm minimisation measure - responsible gambling information could be printed on tickets, *However a contradictory view from a worker's union suggested that TITO would harm employees as there would likely be job losses. IPART recommend TITO should not be introduced specifically as a player protection measure.</p> | | *Views may be driven by self interest *Views often not supported by empirical evidence |
| Australian Institute for Primary Care (for Gambling Research Panel, Australia) (2004) | Victoria, Australia | Discussion paper | Literature Review | Cashless Technology | No | <p>*Card-based player loyalty schemes are an important aspect of gambling industry marketing and revenue consolidation.</p> <p>*Suggests that pre-commitment is useful and describes its use by crown casinos, with their Crown Casino Play Safe initiative - allows both time and spend limits to be set.</p> <p>*However the 'limits' only stop participation in loyalty scheme. Players can gamble past these limits but are warned that they won't accrue any more loyalty points.</p> <p>*Self-excluded customers are not banned from gambling, simply excluded from loyalty scheme.</p> <p>*Smart card drawbacks discussed - multiple card ownership, therefore problem gamblers may not be picked up. Potential for card trading.</p> <p>*Highlights the lack of research in this area. Suggests what little research there is, is poorly designed and misleading conclusions may be drawn.</p> | *Comprehensive review of literature pertaining to harm minimisation | *No further conclusions drawn or recommendations made regarding cashless technology. |
| Liquor Administration Board (2005) | NSW Australia | Government Document - Annual Report | N/A | Ticket In Ticket Out/ Smart card - magnetic | No | <p>*Outlines developments in legislation made during year 2004-05. Thermal printer allowed on EGMs in order to allow Ticket In Ticket Out technology to be introduced. Card-based cashless gaming systems (magnetic stripe) are allowed to have account limit of \$200 [\$1000 where approved by the board]</p> | *N/A - Annual report only | |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---|---------------------|----------------------------|--|-----------------------------|----------------|--|---|--|
| Omnifacts Bristol Research (2005)-NSCG Stage 1 Research Project | Nova Scotia, Canada | Commercial Research Report | 121 monthly VLT players using 70 machines across 10 sites - used actual player data, player surveys and focus groups | Smart card - magnetic | No | <p>*Player characteristics and demographics were not significantly different between users and non-users of the RGD</p> <p>*44% of participants used card system every time they played</p> <p>*Approximately 70-90% of participants reported that the card system was easy-to-use and useful</p> <p>*Approximately 80% reported that the card assisted in playing more responsibly</p> <p>*Concerns regarding use included: malfunction, general annoyance by features (eg noises and pop-ups), the card was 'useless' since players could avoid limits by removing card, perceptions that it reduced their chances of winning and perceptions that it slowed down the machine</p> <p>*Some less frequent players claim they simply did not need the RGD (ie knew what they were spending and could keep good control over spending).</p> <p>*Concerns were raised regarding system faults concluding that this may reduce future participation in the system</p> <p>*87% reported using the accounting features compared to only 15-52% reporting using the limit features</p> <p>*Of participants using limit features, 61% stated that they stopped playing when they hit their limit compared to 44% who removed the card and kept playing</p> <p>*Over 90% claim that the system improves awareness of play and 75% claim to spend less money *3% reported spending more as a result and 42% that VLT play was more enjoyable</p> <p>*13% opposed mandatory usage of cards PG classification *concerns regarding privacy were raised in the focus groups although 80% exhibited a willingness to reveal personal information *Operators of RGD test sites suggested that they should receive incentives for trials *30% claimed RGDs revealed overspending</p> <p>RECOMMENDATIONS</p> <p>*Pop-ups and associated sound effects should be removed - these features attracted unwanted attention to the player</p> <p>*More advice and instruction is required regarding limit setting to ensure that players understand how it works</p> | <p>*Mixed method approach</p> <p>*Recruited a variety of non-problem, low-risk, moderate risk, and problem gamblers</p> | <p>*Self-report data and actual card use data did not tally *Card use was not mandatory, hence, card data may not give complete and accurate overview of card use (eg Players could get around limits by simply removing the card)</p> <p>*limited sample size</p> |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---------------------------------------|-----------------|---------------------------|---|-----------------------------------|----------------|---|--|--|
| | | | | | | <p>*Initial registration for the cards expected to be a difficult phase of implementation - careful planning is advised.</p> <p>INDUSTRY SUBMISSIONS:</p> <p>*Aristocrat (Australian gaming machine manufacturer) considered that moving to a mandatory pre-commitment system may cause problem gamblers to engage in identity fraud or move to less regulated areas of gambling</p> <p>*ACA (Australian Casino Association) stated that: smart card technology is extremely costly and complex; there is currently no available commercial solution for implementation; would be difficult to administer; there will be issues relating to privacy; there is no evidence to support that such technology will assist PGs; less intrusive options exist (RGDs achieved via the machine itself or exclusion using machine technology)</p> <p>*The AGC (Australian Gaming Council) speculated that players will set high limits to keep options open; spend up to a limit which may have been lower than the set limit; obtain card through a black market</p> <p>*The AHA (Australian Hotels Association) were "fundamentally opposed" and suggested problems for the vast majority who do not have a problem, concerns were also raised about privacy</p> <p>*The ALH (Australia Leisure and Hospitality Group) expressed concern regarding unintended consequences particularly in the context of limited evidence regarding the impacts of such technology</p> <p>*Clubs SA (The Licensed Clubs Association of South Australia) supported voluntary use but only after their effectiveness has been demonstrated and suggest that trade would be undermined by costs (staff, monitoring, hardware etc). They suggest that the bureaucratic load for the consumer would restrict current play levels and does not provide a solution to PG</p> <p>*Skycity stated that smart card technology will reduce enjoyment among players and threaten the viability of the gaming machine operations (due to costs of implementation and management), reduce competitiveness with other non-mandated jurisdictions (including internationally).</p> | | |
| Independent Gambling Authority (2005) | South Australia | Government Inquiry Report | *Written submissions from stakeholders *Open presentations from stakeholders | Smart cards/magnetic stripe cards | No | | *Gathers views of key personnel in various stakeholder organisations *Submission collated and presented by independent body | *Views may be driven through self-interest *Views often not support by empirical evidence |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|----------|--------------|-------------|-------------|-----------------------------|----------------|--|-----------|------------|
| | | | | | | <p>CONCERNED SECTOR SUBMISSIONS</p> <p>*South Australian Heads of Christian Churches Gambling Taskforce supplied their perception of an ideal smart card technology system which included core mandatory features (eg general limits) and optional features (eg limits per activity). Limits could only be decreased 24 hours following last gambling session with the customer being unable to gambling in any venue until limit conditions had passed.</p> <p>*Sue Pinkerton (Problem gambling research consultant and recovered problem gambler) stated that an effective system would be identity verified (PIN or biometric), a daily spend limit, 24 hour limit setting cool-off period, onscreen display of historical data; automatic interruption of play after 30 minutes of continuous use, self-exclusion request restricts gaming access for minimum period of 12 months (followed by 6 months probation), restriction requests taking immediately effect and relaxation requests taking 72 hours</p> <p>*Problem Gambling foundation of New Zealand (PGFNZ) - for smart card technology to be effective must be the only way to play a gaming machine, be able to be used on all sites, provide information to players, track limits, must be monitored and that information should not be available to the industry</p> <p>*Salvation Army, despite seeing potential for effective systems, stated that current technology on offer does not take full advantage to technology available generally and that it seems cost-inefficient compared to rehabilitation and community education programmes</p> <p>*Hon. Nick Xenophon ("No Pokies Platform") submitted that a 24-hour delay for pre-commitment payments, potential to limit maximum lines played per game and provision of clear account history information was necessary</p> | | |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---|--------------------------------|----------------------------|--|-----------------------------|----------------|---|---|---|
| | | | | | | <p>CONCLUSIONS</p> <ul style="list-style-type: none"> *Appropriate cashless technologies are currently available in South Australia and that this may be available at a reasonable price *There was over \$100m divergence in estimated costs of implementation between the gambling operators (upper limit) and manufacturers (lower limit) *For limit setting and self-exclusion features to be implemented effectively identification through card use (or equivalent) would have to be mandatory *Funds must be allocated for research to assess the impact of such systems | | |
| Bernhard, B. J., Lucas, A. F. and Jang, D. (2006) - NSGC Stage 3 Research Project | Nevada and Nova Scotia, Canada | Commercial Research Report | *Focus Groups * Quantitative analysis of card data (n = 12,814) | Smart card - Magnetic | No | <p>FOCUS GROUPS</p> <ul style="list-style-type: none"> *Preference for optional card and RGD use * Predict initial resistance in learning to use the device *concerns about privacy and security *Concerns about counterstrategies including "back rooms", thefts and black markets *concerns about unintended consequences such as chasing *Considered to be potentially more helpful to at risk rather than problem gamblers *Preference for statements rather than limit features *PG and PG in recovery were more cynical regarding the potential impact of the RGD <p>QUANTITATIVE ANALYSIS</p> <ul style="list-style-type: none"> *Half of players used at least one RG feature at least once *Win/loss statement features were used more frequently than limit-setting features *3% or less of players used various types of limit setting features *Heavier machine use associated with RGD use <p>RECOMMENDATIONS</p> <ul style="list-style-type: none"> *Provision of more, optional responsible gambling information (odds and warning sign of PG) *did not support using card-based technology for diagnosis. | <ul style="list-style-type: none"> *Among first to use VLT card data *High level of ecological validity *High level of reliability (refers to actual card data) *Mixed method approach * Varied group of gamblers comprising focus groups | <ul style="list-style-type: none"> *Focus group specific to Las Vegas Residents *Self-selected sample in focus group *Limited quantitative analysis on potentially useful data set |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---|---------------------|----------------------------|--|-------------------------------------|----------------|--|--|--|
| White, M., Mun, P. et al. (2006) | Canada | Research Report | Literature review. Survey of 'key informants' (n=42) and focus groups with EGM problem gamblers (n=12) | Ticket In Ticket Out and Smart card | No | Literature review phase found no evidence relating to the hypothesis that TITO technology is associated with problem gambling. The study had the broad aim of exploring the views of 'key informants' (researchers, specialists, counsellors and problem gamblers) regarding best practices in the management of EGMs in terms of risk for problem gambling. Key Informants endorsed the mandatory registration and use of smart cards, preferably with mandatory setting of pre-determined spending limits. | *Questionnaire used for the survey was reviewed and developed by a number of key researchers with the field. | *No definition of 'smart cards' given to key informants, so despite a high level of optimism about their use for addressing problem gambling, we do not know what aspects of smart card technology informants were addressing. *Reliability and validity of the questionnaire unknown. |
| Schellinck and Schrans (2007) - NSCG Stage 3 Research Project | Nova Scotia, Canada | Commercial Research Report | Player data from Video Lottery Terminal (VLT) use over 6 month trial using 9 test sites and 51 VLT terminals | Smart card - magnetic | No | <p>*2% of players were involved in 'regular' card sharing</p> <p>*71% of regular VLT players tried the Responsible Gambling Features (RGFs) at least once (accounting features were most popular)</p> <p>*48% of regular players used RGFs on a regular basis</p> <p>*use of RGFs was associated with longer sessions and more money staked</p> <p>*As a consequence of using RGFs there was no impact on player expenditure or frequency of play but players did tend to cash out with more money and there was a greater percentage of sessions where the player terminated their session with a profit</p> <p>*Some limited evidence of reduced overall expenditure occurring after extended use</p> <p>*When expenditure-related factors (eg session length, amount won per session) were controlled for, most RGFs were associated with an overall decrease in expenditure</p> <p>*PGs were more likely to use the accounting information for the current session of play whereas other players were more likely to use accounting features detailing expenditure over a cumulative period of time</p> <p>*Overall RG use had no impact on frequency of play, however, for high-risk players they were more likely to play for longer but spend less money per session</p> <p>RECOMMENDATIONS</p> <p>*Include education strategy to support RGFs</p> <p>*Use of player data to monitor players to alert to changes to riskier behaviour</p> <p>*Monitor and research player behaviour, and gather baseline information before implementing further changes</p> | <p>*Among first to use VLT card data</p> <p>*High level of ecological validity</p> <p>*High level of reliability (actual card data more reliable than self-report data)</p> <p>*Created pre-post measures for comparison</p> | <p>*No baseline for comparison (pre-RGD activation)</p> <p>*More information regarding machine characteristics would have made findings even more meaningful (eg staking options; multiple line bet opportunities etc)</p> |

GOVERNMENT AND COMMERCIAL RESEARCH REPORTS

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|-------------------------------|--|-------------------|--|-----------------------------|----------------|---|--|---|
| McDonnell-Phillips Pty (2006) | All Australian state and territory jurisdictions | Commercial Report | Computer-aided telephone interviewing (CATI) | Pre-commitment | | <p>*47% and 30% of EGM players respectively reported that they would try limit setting and using pre-paid cards when gambling</p> <p>*These figures were higher among problem gamblers</p> <p>*82% of EGM players preferred monetary as opposed to time limits</p> <p>*Gamblers preferred to make decisions regarding parameters over shorter timeframes (e.g. a week rather than a month)</p> <p>*63% thought that card-use should be voluntary and 60% of players thought that voluntary limits would not have a negative impact on their level of enjoyment when playing</p> | <p>The survey was piloted to ensure meaning and comprehension</p> <p>*Data collection during various days and times; sampled taken from all Australian state and territory jurisdictions</p> <p>*Employed random sample where feasible</p> <p>*The refusal rate (26%) of regular gamblers was relatively low once they had been identified</p> <p>*Data was appropriately weighted for both EGM and TAB players; there was very low drop-out rate among those eventually taking part</p> | <p>*Only 5 CPGI items were used to calculate a 'total predicted risk score' (although Chronback alpha was .84)</p> <p>*The percentage of completed surveys relative to phone calls was around 1% raising concerns about sampling bias; sample does not use unlisted or mobile numbers</p> |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|---------------------|---------------|--------------------|-------------|-----------------------------|----------------|--|--------------------------------|------------|
| Ben-Meir, D. (1997) | NSW Australia | Marketing material | N/A | Smart card - magnetic | No | <p>*A successful card-based system must be secure, cost effective, convenient, non-threatening.</p> <p>*Card systems increase profitability by cutting down on staffing needs and increasing turnover through the correct implementation of marketing eg add card readers to existing EGMs as opposed to introducing entirely new games.</p> <p>*Document promotes Watermark Magnetics - new type of magnetic swipe card technology. Cheaper than chip cards, just as secure - no instances of card fraud using this system to date.</p> | *N/A - Marketing document only | |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|--------------------------|----------------|-------------------------|-------------|--|----------------|--|---|--|
| Strow, D (2000) | Las Vegas, USA | Newspaper article | N/A | Ticket In Ticket Out | No | <p>*Describes introduction of ticket-based cashless system, where the tickets can be both printed and received by the slot machine (TITO) – previously only TO.</p> <p>*Market not ready for whole floor to be coinless as some players like the experience of playing with coins, however profit margins can be increased by introducing portion of slots as ticket machines – decrease in overheads.</p> <p>*Suggests local casino patrons more likely to play on coinless machines than out of town visitors.</p> | *N/A - Anecdotal evidence only | |
| Nickell, J. A. (2002) | Las Vegas, USA | Industry Document | N/A | Smart card - magnetic - Brand name 'Total Rewards' | No | <p>*Customer relationship management (CRM) overview (from profit/loss point of view, not discussing social responsibility).</p> <p>*Discusses increased revenue from implementation of program – \$100 million increase in revenue in the first two years. Age, distance a person lives from the casino, what games a person plays and how much money they spend are the key marketing factors – differences in these factors allow specific mail shots and offers to be tailored to individuals, eg those living further away may receive discounted hotel rooms, those close by may receive free meals.</p> | *Useful diagrammatic overview of Harrah's CRM procedure | <p>*Anecdotal evidence only</p> <p>*Cites general findings, no specific background literature detailed</p> <p>*No comparison with any other company's CRM procedures</p> |
| AMC Convergent IT (2003) | NSW Australia | PowerPoint Presentation | N/A | Smart card - magnetic - Brand name 'Gambler Subtle Assist' | No | <p>*Proposes a customer relationship management program which could be used across a number of forms of gambling 'one card for all' and describes it in detail – the What [for all gamblers, prevents underage gambling, identifies possible problem gambling and criminal activity, adaptable, secure], How [pre-set limits, player pauses, exclusions, activity statements, warnings, central record of gambling behaviour, legislate GSA card, magnetic card] and Why [any gambler could run into difficulty – watch all gamblers, reduce social costs, real data likely to support research, proactive help for problem gamblers].</p> <p>*Significant emphasis on social responsibility.</p> <p>*Patent pending but shows an overview of a model which on the surface looks like it would work in terms of both revenue and customer satisfaction/social responsibility.</p> | *N/A - Marketing document only | |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|--------------------|---------------|------------------------------|-------------|-----------------------------------|----------------|--|--|---|
| Palmeri, C. (2003) | USA | Newspaper article | N/A | Ticket In Ticket Out | No | <p>*TITO available on around 10% of USA's 600,000 slot machines.</p> <p>*Suggests benefits of TITO to players – no coin handling so less dirty, no need to spend time getting change in different denominations for different machines.</p> <p>*Benefits to industry: reduces costs of labour and equipment by 30% or more (no hand payouts, hopper refills, and coin handling equipment); increases speed of play by 15% and reduces machine downtime (no hopper refills) and as such increases profits.</p> <p>*TITO seen as stepping stone to integration with player tracking, marketing & accounting systems</p> | *N/A - Anecdotal evidence only | |
| Aristocrat (2003) | NSW Australia | Submission to review (IPART) | N/A | Smart cards/magnetic stripe cards | no | <p>*Pre-commitment may be one of the most effective technical responsible gaming strategies available In 2003 NSW player card regime ineffective (part 6 of Gaming Machine Regulations), lessons should be learnt from Victoria (Gaming Machine Control Act 1991, 2002 amendments Section 82A and 82B) operators may need to be able to offer limited inducements alongside pre-commitment and other social responsibility strategies in order for it to be an attractive and viable option</p> <p>*Activity statements not endorsed because of implications for chasing; forcing the use of cards unlikely to work - players often wish to protect their self identity and so recreational gamblers may switch to other activities; costs of introducing systems would put many clubs out of business.</p> <p>*Further research needed into pre-commitment.</p> | *No strengths as submissions to review cannot be seen as impartial documents | * Aristocrat is a supplier of gaming machines and could benefit financially from the suggestions made herein and hence may be difficult to present impartial argument |
| ALHMWU (2003) | NSW Australia | Submission to review (IPART) | N/A | Ticket machines and Smart cards | No | <p>*Cashless technologies remove the need for shop floor workers and the removal of human interaction may be detrimental to problem gambling.</p> <p>*Suggests a potential for money laundering and crime</p> | *No strengths as submissions to review cannot be seen as impartial documents | <p>*Representing the workers therefore hard to be impartial as unlikely to endorse anything which may reduce the number of jobs available.</p> <p>*Fails to acknowledge any of the benefits of cashless technology to the player, focuses on drawbacks of cashless technology to industry workers</p> |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|--|---------------|------------------------------|---|--|----------------|---|--|--|
| AMC Convergent IT (2003) | NSW Australia | Submission to review (IPART) | N/A | Smart card - magnetic - brand name 'Gambler Subtle Assist' | No | *GSA effectively meets needs of all stakeholders with little compromise to each group. Links with PowerPoint presentation described above. | *No strengths as submissions to review cannot be seen as impartial documents | *AMC are the developers the GSA system and as such may be difficult to be impartial |
| Blaszczynski, A., Sharpe, L. & Walker, M. (2003) | NSW Australia | Submission to review (IPART) | Literature Review | Smart card | No | *Detailed analysis of literature on all aspects of harm minimisation strategies. Player card scheme unlikely to take up pre-commitment opportunities (due to chasing, difficulty budgeting, may limit wins [and losses]) and suggests that pre-commitment will only work should those who really need it take it up. *Suggests a 'pokie card' scheme linked to banks where players gamble with an agreed credit limit. Suggests this may be self limiting even to problem gamblers. | *Thorough review of literature from the harm minimisation field | *Does not provide evidence to back up claims that gambling with pre-set credit limits could be self-limiting for all gamblers. |
| Clubs NSW (2003) | NSW Australia | Submission to review (IPART) | N/A | Smart card | No | *Clubs NSW does not support the mandatory use of smart card systems as they may not be financially viable for all clubs, and suggests that the restrictions on existing systems should be reviewed. *Smart cards should not only be used for pre-commitment - concerns re: cost for club vs. impact on problem gambling and ease of use for the gambler. *Smart cards aim should be to improve integrity and efficiency of gaming machine operations for employees, patrons and the club. *Suggests they should be allowed to offer incentives based on smart card information in order to make introduction of smart card systems cost efficient. | N/A | *Suggestions may be driven through self interest |
| Hing, N. (2003) | NSW Australia | Submission to review (IPART) | Mail Survey (n=706) On-site survey (n=248), descriptive stats | Cashless technology in general | No | Documents development of responsible gambling measures in NSW. Outlines Clubsafe program (launched May 2000) | *Based on Hing (2003) research outlined above - see above for details | *See above (Hing 2003) for details |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|----------------------|-----------------|-------------------|-------------|--|----------------|---|---|--|
| Higgins, A. (2003) | Las Vegas, USA | Magazine article | N/A | Ticket In Ticket Out | No | *Advantages of TITO: cut down on hopper fills and simplifies hand payouts which in turn reduces employee overheads and increases profit; machines can be used in any denomination so system can be used worldwide; integrates with casino accounting systems; communication between casino and player is improved; player tracking systems allow rewards schemes and identification of potential problem gamblers; increased security and reliability due to card data being stored. | * Provides brief yet informative history of development of slot technology over the years | *Anecdotal evidence only *Assumes reader has relatively detailed technical knowledge of gaming machine software design |
| Tompkins, J. (2004) | USA | Newspaper Article | N/A | Smart card - system integrating cameras and image recognition software | No | *Discusses MindPlay (MP21) a system whereby wagers are counted and gamblers watched via a mix of electronic swipe cards and cameras with image recognition software. *Suggests that it allows managers to know who is profitable (playing fast and loose) and who is not (playing calculated risks slowly). *TableLink - radio-frequency tags on chips to track a players bet - this is a system compatible with most games except craps and roulette, whereas MP21 works only with blackjack and pai gow poker so far. TableLink does not judge a players skill level. | *N/A - Anecdotal evidence only | |
| Paustian, C. | California, USA | Industry Document | N/A | Smart card - magnetic | No | *Began tracking player behaviour in 2000, seen a marked increase in profits. Loyalty program based on earning points to redeem for meals, discounts on gifts, parking, valet services etc Tiered status (platinum, diamond) | *N/A - Anecdotal evidence only | |
| Carr-Gregg, J. F. C. | Australia | Industry Document | N/A | Ticket In Ticket Out | No | *The IPART review for the NSW government (2004) did not permit Ticket In Ticket Out technology to be introduced - this paper suggests that their reasoning as wrong because: a) Suggests that gaming machine floor staff would be unlikely to be able to intervene in problem gambling, therefore the fact that TITO eliminates the need for as many floor staff is seen to be irrelevant; and b) TITO results in quicker cash out allowing gamblers to exercise will power, unlike when waiting for staff to come to make payouts - suggests that players likely to reinvest winnings into machines. | | *Relies heavily on the construct of will power - but gives no definition, and cites no empirical evidence which is directly relevant to the problem gambling field. Any evidence there is weak and not directly related to gambling. |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|-------------------------|----------------|------------------------|-------------|-----------------------------|----------------|--|--------------------------------|------------|
| Smith, R. (2004) | Las Vegas, USA | Newspaper article | N/A | Ticket In Ticket Out | No | <p>*Describes the implementation of Aristocrat's Oasis Casino Management System in Golden Nugget casinos.</p> <p>*No discussion of social responsibility measures. Quickest is the TITO system branded by Aristocrat.</p> <p>*All 1260 slot and video poker machines were to be upgraded or replaced with TITO, and player tracking and marketing/promotions tools to be implemented.</p> | *N/A - Anecdotal evidence only | |
| Sanders, P. (2005) | Las Vegas, USA | Newspaper Article | N/A | Radio-frequency ID chips | No | <p>*Outlines another casino (Hard Rock, LV) which has introduced player tracking, this time in the form of radio frequency ID tagged chips in its high rollers room. Improves security - can 'weed out' fake chips and prevents them being taken off property.</p> <p>*Also allows management to keep track on how high rollers tend to bet.</p> | *N/A - Anecdotal evidence only | |
| Blaszczynski, A. (2005) | USA | Conference Proceedings | N/A | Cashless technology | No | <p>*Considers some of the disadvantages of cashless technologies to gamblers. They may forget cards, those problem gamblers who reach preset limits, will they obtain fraudulent cards, will there be a black market trade in cards?</p> <p>*Suggests that revenue will decrease from recreational gamblers, and compulsive gamblers may not be deterred from betting past their limits as they will find ways to get access to extra cards.</p> | *N/A - Speculation only | |
| Burton, B. | USA | Magazine article | N/A | Ticket In Ticket Out | No | <p>*Provides a players viewpoint on the introduction of TITO technology.</p> <p>*It is inconvenient and time consuming to switch machines when no ticket reader available (have to go to kiosk to get money to put back in other machines).</p> <p>*Players tend to play faster and play off all credits without cashing out</p> | *N/A - Anecdotal evidence only | |
| Business Wire, (2006) | Las Vegas, USA | Magazine article | N/A | Ticket In Ticket Out | No | <p>*Showcases EDITH (Electronic Debit Interactive Terminal Housing) a system by which a players debit card can be used to purchase a slot voucher for use in TITO machines.</p> <p>*Affords players with increased convenience which will be demanded as use of TITO becomes established.</p> <p>*QuikPlay (manufacturers of EDITH) believes the system will decrease venues cash handling costs even further.</p> <p>*Players can exclude themselves from withdrawing</p> | *N/A - Marketing material only | |

OTHER GREY LITERATURE

| Citation | Jurisdiction | Publication | Methodology | Type of cashless technology | Peer reviewed? | Key Findings | Strengths | Weaknesses |
|-------------------|--------------|------------------|-------------|--------------------------------|----------------|---|--------------------------------|------------|
| | | | | | | cash from debit cards using these devices as part of a responsible gambling strategy. *Limit setting is also allowed. | | |
| Hodl, J. J.(2007) | USA | Magazine Article | N/A | Smart card - chip and magnetic | No | *Describes a number of advances in cashless technology *Smart cards with chipcards which carry funds on them and magnetic stripe cards which hold card values on a central computer. Introduces the concept of account based gaming, whereby a player deposits money with a casino which can then be used to place bets via the casinos sportsbook. *Accounts based and smart card gaming are hailed as the next big step towards true cashless gaming. | *N/A - Anecdotal evidence only | |

5 Definitions and form

- 5.1** Cashless and card-based technology in gambling, in relative terms, is a new phenomenon and, as a consequence, defining, conceptualising and classifying such technology are not straightforward. Complicating the task further is the growing rate with which new technologies are being developed and the variation in the extent to which different jurisdictions will permit, encourage and mandate such technologies.
- 5.2** Particularly relevant to this review is the potential for confusion in distinguishing between cashless and card-based technology. It is important at an early stage to clarify that although card-based technology is often synonymous with cashless technology, they are not necessarily the same thing. Card-based technology can be used to collect player information and provide responsible gambling features while at the same time allowing the customer to pay for credits with cash.
- 5.3** Table 4 gives an overview of the various types of technology available, along with some examples of company and brand names which provide the system to the market, the jurisdictions in which they are available, and whether they offer cashless gambling, consumer protection, marketing tools or a combination of the three. It is important to note that although commercial details and brand names have also been presented, this table is not exhaustive and is intended to give an overview of the technologies available rather than be an exhaustive list of all the systems on the market.

Card systems

- 5.4** There are two types of card system which offer cashless gambling and player tracking features. The first to be introduced was the magnetic stripe card, which features an encrypted set of data on the card stored within the magnetic stripe which enables the user's account to be identified. No actual data other than account identification is stored on the card itself – it must be read by and matched with the account held on the central database in order to access the account. Some advantages of magnetic stripe cards are that they are cheap to manufacture, and they can be activated immediately allowing customers to sign up for an account and start to play immediately. However, the security offered by magnetic stripe is not robust – magnetic stripe cards may be 'skimmed' (the data on them copied and transferred illegally to another card), the magnetic stripe itself can degenerate with use either by the stripe getting worn out after multiple insertions into a machine or being wiped of information if it is bent or comes into close contact with another magnet. Despite these drawbacks, magnetic stripe cards are often the medium of choice for companies who want the capability of *cashless gaming, consumer protection and/or player marketing*. As can be seen in Table 4 a number of magnetic stripe gaming systems have been identified. Although the cards are capable of supporting various companies, we have only identified two companies which actually utilise all three in a magnetic card system – Worldsmart Technology Pty Ltd, who are based in South Australia and manufacture the J-Card, a player loyalty card which allows cashless gaming and also allows players to set time and expenditure limits. Secondly, TechLink Entertainment, who are based in Canada and produce the 'Gameplan' system, which is currently in use as a player loyalty card offering a wide range of responsible gambling features (see 'Cashless and Card-based Responsible Gambling Features' below).
- 5.5** The second type of card system is a smart card, which has a chip, much the same as those found on chip and pin debit and credit cards in the UK. Unlike the magnetic stripe card, these store information directly on the card. Smart cards have the advantage of being a more secure way to store data, they are more durable and unless physically damaged the chip will not lose the information stored on it. The capacity for data storage on a smart card is more extensive than that available on a magnetic card. Therefore, comprehensive information regarding a customer's account (eg account balance, play history etc) can be accessed directly from the card. The added security of encoding data on a chip means that the cards make the accounts less susceptible to crime.

IGT offer a smart card solution in South Africa (Hodl, 2006) which enables player to load funds directly onto the card and gamble in a cashless environment; however, as yet this card does not offer responsible gaming features.

Ticket Systems

- 5.6** Ticket systems use printed vouchers to 'carry' funds. These vouchers carry a barcode, typically 18 digits, which can be read by a barcode scanner to determine the cash-out transaction which took place and therefore exactly how much money is 'on' the ticket. Many jurisdictions which have Ticket In, Ticket Out (TITO) or Ticket Out (TO) policies have regulations regarding what can be printed on a ticket, such as date, time, machine number, and value. TITO tickets can usually be exchanged between all machines in a gaming establishment which use internationally recognised protocols. At the end of play tickets can be redeemed for cash at a staffed kiosk or retained for use at a future time.
- 5.7** The player has a choice whether to insert cash or a bar-coded ticket, and if the amount to be withdrawn is under a certain amount winnings can be withdrawn in cash or via ticket. It is important to note that TITO/TO technology can be used in conjunction with other systems such as card-based player loyalty systems and remote loading devices. In betting shops in Great Britain Fixed Odds Betting Terminals (FOBTs) can accept cash or credits can be loaded remotely by using cash or debit card at the cashier's desk and funds are directly transferred to the FOBT. To collect winnings or unused credit players print out tickets for redemption at the counter. The Global Draw is a UK-based company which provides Ticket Out systems for EGMs and FOBTs.
- 5.8** Ticket systems are usually anonymous as they do not require registration, however loyalty cards may be used in conjunction with ticket-based systems. In the absence of player tracking capabilities, ticket-based systems are unlikely to permit more advanced functions such as tailored marketing, auditing, or analysing problem gambling behaviour.. Although marketing cannot be tailored to the individual given the lack of personal data collected, adverts and promotions may be printed on the back of tickets. Aristocrat produce a TITO system called Quickets (Smith, 2004) which can incorporate promotional offers printed on the back of tickets.
- 5.9** Systems are also available by which consumers can pre-purchase tickets for use in TITO machines. The EDITH (Electronic Debit Interactive Terminal Housing) console, manufactured by QuikPlay allows consumers to buy tickets by inserting their debit cards into the console and choosing how much to transfer onto the ticket (Business Wire, 2006). EDITH terminals are located on the gaming floor, usually at the end of a row of compatible gaming machines. The Ticket Out Debit Device (TODD) system allows consumers to access funds from their bank accounts without leaving the EGM they are playing. Customers can do this by swiping their debit or credit card through the TODD system which is housed on the EGM itself, and entering their PIN. Funds are then loaded directly to the EGM or if the user requires, can be printed out on a bar-coded ticket, which can be used in another EGM. Both the EDITH and TODD systems support responsible gambling through the Self Transaction Exclusion Program (STEP) run by parent company Global Cash Access. STEP allows gamblers to exclude themselves from accessing their money through the devices, or to set a daily limit for withdrawal. Limits may also be set on a system-wide basis by casino operators or regulators.

Table 4: Overview of forms of cashless and card-based technology in gambling

| <i>Type of Technology</i> | <i>Medium</i> | <i>Company Examples</i> | <i>Brand Names</i> | <i>Jurisdiction</i> | <i>Gambling Type</i> | <i>Cashless Gaming</i> | <i>Consumer Protection</i> | <i>Marketing</i> |
|---------------------------------|---------------------------------------|--|--|------------------------------|--|------------------------|----------------------------|------------------|
| <i>Card Systems</i> | <i>Magnetic Stripe</i> | Tabcorp Holdings Ltd | Account Play | NSW, Australia | EGMs | Yes | No | Yes |
| | | AMC Convergent IT | Gambler Subtle Assist | Australia | EGMs | Yes | Yes | No |
| | | Crown Casino | Crown Club Card <i>Play Safe</i> | Victoria, Australia | Various | No | Yes | Yes |
| | | Worldsmart Technology Pty Ltd | J-Card | South Australia | EGMs | Yes | Yes | Yes |
| | | Harrah's | Total Rewards | USA | Various | No | No | Yes |
| | | TechLink Entertainment | Gameplan | Canada | EGMs | No* | Yes | Yes |
| | <i>Smart Card</i> | IGT | Smart Card Solution | South Africa | EGMs | Yes | No | No |
| <i>Ticket Systems</i> | <i>Ticket In/Ticket Out</i> | IGT | EZ Pay Ticket System | USA | EZ Play EGMs (Some versions also support non-slot terminals) | Yes | No | No |
| | | Aristocrat Technologies Inc (USA)/ Aristocrat Leisure Ltd (Australia) | Oasis Casino Management System (Quickets) | USA, South Africa, Australia | EGMs | Yes | No | Yes |
| | <i>Ticket Out</i> | Global Cash Access | Ticket Out Debit Device (TODD) | USA | EGMs | Yes | No | No |
| | <i>TITO Voucher Purchasing</i> | Scientific Games | The Global Draw | UK, Austria | EGMs/FOBTs | Yes | No | Yes |
| <i>Central Loading Accounts</i> | <i>Linked Terminals</i> | QuikPlay LLC | EDITH | USA | EGMs | Yes | No | No |
| | | Progressive Gaming International | Rapid Bet Live™ | USA | Wagering | Yes | No | No |
| | | Standing Stone Gaming | Oneida/ Oneida II | NY, USA | Wagering | Yes | No | No |
| <i>Radio Frequency ID</i> | <i>RFID Chips</i> | Gaming Partners International | RFID Chips | USA, Holland, Macau | Table Games | No | No | Yes |
| | <i>RFID Contactless Cards</i> | Playsafe Monitoring | Quantum/Loyalty System & Sentinel | UK | EGMs | Yes | No | Yes |
| | <i>Keytag – RFID Contactless Chip</i> | Maxetag Pty Ltd | Maxetag | Australia | EGMs | No | Yes | Yes |
| <i>Integrated Technologies</i> | <i>Magnetic Card/ Cameras/RFID</i> | MindPlay | MP21 | USA | EGMs | No | No | Yes |
| | <i>Magnetic Card/ RFID</i> | Mikohn Gaming | TableLink | USA | Table Games (Blackjack) | No | No | Yes |
| | <i>Smart Card & Biometric ID</i> | Safe Gaming System Inc | Safe Gaming System | USA | EGMs | Yes | Yes | No |
| | <i>USB Key & Biometric ID</i> | Responsible Gaming Networks | Player Protection Key/ SafetyNet System | Australia | EGMs, FOBTs, Wagering, Lotteries, Internet | Yes | Yes | Yes |

Remote loading

5.10 This refers to loading funds at a central desk or kiosk whereby funds are downloaded to the gaming terminal of choice within that same venue. EGMs are linked to a central desk or kiosk usually through a wireless connection. A key distinction between remote loading and other forms of cashless payment is that the transaction requires interaction with a member of staff and therefore the payment for credit to use EGMs is 'indirect'. In Great Britain, remote loading credits can be purchased using cash or debit card therefore the classification of this payment method as a form of 'cashless technology' relates to the indirect nature of payment even though at some point there is an exchange of cash. Remote loading is also referred to as 'credit loading' and/or 'central loading'. As explained previously, remote loading facilities can be used in conjunction with both ticket-based technology and card-based systems. For example, the 'Standing Stone Oneida II' system has a remote loading facility and uses a player loyalty card system for marketing. The Oneida system was invented to circumvent New York State laws which, until recently, prohibited EGMs. However a loophole did exist in that depositing money with the casino to pay for EGM play rather than payment directly into EGMs meant that no regulations were being broken and people would be able to gamble (Hodl, 2006).

Radio Frequency Identification (RFID)

- 5.11** RFID tags can be embedded in anything from gaming chips and cards, to key rings and loyalty cards. The technology gives each item a unique identifying code which can then be associated with a player's account. In the gaming environment, the RFID is used to track the movements of gaming chips to show the betting activities of a player. These gaming chips look just like any other gaming chip used at a casino gaming table, however they have RFID chips embedded within them, and RFID readers in the gaming table itself. An example of such a system is the RFID gaming chips produced by Gaming Partners International which are currently in use in the USA, Holland and Macau.
- 5.12** Maxetag Pty Ltd has developed a cashless gaming system in operation in Australia which utilises an RFID chip embedded in a key ring. Casino patrons present the key ring at a kiosk or an automated cash machine in order to top up the funds available to pay for EGM play. The player can opt to lock the key ring after topping up their funds which disables further top-ups for 24 hours (Maxetag, 2008). When the key ring is presented to make payment at any EGM the player selects an amount to credit and those funds are transferred directly to the machine. The player can collect the money back onto the key ring either to cash out at the kiosk or to transfer to an alternate machine.
- 5.13** Playsafe Monitoring is a UK based company which provides RFID contactless cards and a cashless system under the 'Quantum' and 'Sentinel' brand names. Quantum is a loyalty system which incorporates data capture for marketing purposes as well as cashless capability, whereas Sentinel is designed to be a specifically cashless product. These systems allow cashless gaming and consumer marketing, and although responsible gambling features are not currently being used in their systems they do have the capability for parameter setting and self-exclusion (Stenning, 2008).
- 5.14** An advantage of RFID, other than contactless communication, is its level of security. Information stored on the card cannot be accessed until an authentication sequence using randomised and fully encrypted challenges and responses between reader and card has been completed. The randomised method of communication makes the recording and replaying of transactions impossible. The contents of the card are therefore protected which also enables cashless transactions to occur offline, if IT functionality and networking are compromised.

Integrated technology

- 5.15** A number of systems employ a combination of the technologies outlined above. MindPlay's 'MP21' system integrates magnetic swipe cards, cameras with face recognition software and RFID chips embedded in gaming chips to track movement around the casino and tailor marketing towards individual clients (Tompkins, 2004). Mikohn Gaming's 'TableLink' system requires users to swipe magnetic stripe cards at the gaming table before using gaming chips embedded with RFID chips to gamble. This allows for player behaviour and preferences to be monitored (Tompkins, 2004).
- 5.16** For extra security, some companies have introduced systems which require biometric identification, such as fingerprints, alongside card-based or cashless technology. This ensures that the person who owns the cards is the only one who is able to use it. Responsible Gaming Networks of Australia offer a Player Protection Key the principal component of the 'SafetyNet' system consisting of a Universal Serial Bus (USB) key and biometric identification system which can be used with any form of gambling (Ryan 2008). The system comprises of a USB key which can plug into any EGM, gambling network, home PC or laptop computer in the world, providing it offers a USB port. The USB key also contains a fingerprint scanner for biometric ID. All new computers have USB capability and the Gaming Standards Association, which represents all EGM manufacturers, has globally adopted the USB standard. The 'SafetyNet' system offers cashless gaming, consumer marketing and player protection. According to Ryan (2008) the key characteristic of this system which differentiates it from any other system currently on the market is that one key can be used to access all forms of gambling, both offline and online. Hence players can set one pre-commitment level which applies to every form of gambling they may wish to undertake rather than only being able to set limits in one gaming establishment. The incorporation of biometric ID may also eliminate the capacity for card sharing and underage gambling.

Cost implications

- 5.17** Based on availability, we asked some of the manufacturers of the various types of technology described above to give an indication of the cost to the operator of either modifying existing machines to utilise their technology, or installing new machines already housing such technology. Given the commercially sensitive nature of such information many manufacturers were unwilling to give an indication of the costs. Relative cost of each type of technology is difficult and complex to determine. Not only must we determine the cost of the user-held device (eg card, RFID chip, USB key etc), but we must take into consideration the cost of converting a machine or system of machines to be able to read the information on the device, and the back-office system needed for the implementation of the technology. Furthermore, sources have also suggested that costs of staff training and the potential for some EGMs becoming obsolete must also be considered.
- 5.18** The cost for each component of the system will differ according to the size of operation, the number of user-held devices needed, whether machines are to be modified or if new machines are to be installed, and the ongoing support requirements of the operator. The different manufacturing costs and technology available in different countries must also be taken into consideration.
- 5.19** Given the inherent difficulties in estimating the cost of the implementation of cashless technology, it is not surprising that we found few references to cost within the literature. Tabcorp Ltd suggest that, dependent upon quantity in production, magnetic cards could cost around AUD\$0.60 (GBP£0.27) and smart cards around AUD\$2.00 (GBP£0.91). However, it is important to note that while the cards may be relatively cheap, Simpson (2003) has also indicated that to convert a machine to TITO functionality could cost between USD\$1200 and \$1500 (GBP£600 to £750). It is important to note that these figures are five years old.

Cashless and card-based technology in other jurisdictions

5.20 Regulators were contacted in 73 different provinces, states and countries to find out what policies or regulations were in place, what trials were currently underway and what future plans for changing these policies and regulations were being considered. Communication problems with some non-English speaking jurisdictions restricted the amount of information we were able to retrieve, with a total of 49 jurisdictions giving information useful to this review. This information is detailed in Table 5 below.

5.21 There were significant differences in regulation across different jurisdictions. This is particularly apparent in North America, with some states restricting cashless gambling entirely (such as Indiana and Iowa) and others making cashless gambling mandatory (Illinois and Michigan).

Canada

5.22 In most Canadian provinces there are no regulations or policies regarding cashless and card-based gaming in place, however in a number of provinces certain types of cashless gambling are available. For example, in Quebec, Ticket Out machines are available in casinos but TITO and card-based gaming are not currently available. In Alberta, TITO was introduced in all casinos and Racing Entertainment Centres between 2006 and 2008; however this is still not subject to regulation. In Saskatchewan, all EGMs based in licensed bars and restaurants employ Ticket Out devices, and card-based systems are available in casinos. Nova Scotia does not currently have any regulations in place although cashless gambling (TITO) and card-based systems are employed by operators.

USA

5.23 In the USA each of the 50 states has its own regulations with regards to land-based gambling. Some states do not allow gambling at all, others allow it, but only on Tribal or riverboat casinos and others allow gambling but have different restrictions in place on operations. Colorado, Indiana, Iowa, and Nebraska do not allow cashless gambling in any form. The Colorado Division of Gaming is however currently reviewing its gambling regulations and expects its regulations with regards to card-based systems and cashless gambling to change during 2008. Some states permit cashless gambling in Tribal casinos (such as Connecticut, Florida, New Mexico, New York, North Dakota and Wisconsin); however they have not implemented any restrictions over its use. A number of states, including Alaska, California, Delaware, Missouri, and Montana, have no regulations currently in place.

5.24 As previously mentioned, in Illinois and Michigan cashless gambling is mandated. In Illinois patrons aboard riverboat casinos are required to use tokens, chips or electronic cards in order to gamble. In Michigan it is mandatory to use cashless technologies for wagering. Those states which allow cashless gambling but do not mandate its use vary in terms of what forms of cashless technology is allowed; most often TITO has specific technical standards outlined in policy documents (Kansas, Maine, Mississippi, and South Dakota). These standards relate to the information stored on printed tickets, and the equipment used to print and read them.

Australasia

5.25 Of the nine jurisdictions in Australasia (eight Australian territories and New Zealand) six have no regulation in place with regards to card-based and cashless technology (Australian Capital Territory, New South Wales, Victoria, South Australia, Tasmania and New Zealand). However, the Australian Capital Territory has a Code of Practice in place which applies to all of its casinos, which prohibits TITO but allows Ticket Out. New South Wales currently has no regulation in place but TITO and smart card technology is currently used in its clubs and casinos.

The Office of Liquor, Gaming and Racing in NSW are currently awaiting the outcome of a trial of pre-commitment tools in South Australia (see Ongoing and Planned Research below) before deciding what regulations to put in place. In Victoria, whilst there is no legislation in place, various manifestations of cashless gaming have been available in the past, and currently both TITO and card-based systems are used in Crown Casinos. The Crown Casino card is a loyalty card with a central loading facility, and has pre-commitment features. New Zealand does allow cashless gambling but has no particular policies or standards in place – systems are approved on a case-by-case basis.

- 5.26** The three Australasian territories which do have regulations in place are Western Australia, Queensland and the Northern Territories. In Western Australia, the Department of Racing, Gaming, and Liquor have mandated that EGMs in casinos may only be operated via the insertion of cash, and although card-based systems are legally allowed there are none currently in use. In the Northern Territories, cashless gambling is not permitted. A contact at the Racing, Gaming and Licensing division highlighted the lack of evidence with regard to the impact of cashless gambling on responsible gaming and the inherent difficulties in making policy decisions related to this. Loyalty cards are permitted in the Northern Territories but cash must be used for payment. In Queensland, card-based systems are allowed; however the systems must be approved by the Office of Gaming Regulation and must have player protection features such as pre-commitment.

Europe and the rest of the world

- 5.27** As a consequence of the language barrier it was difficult to gather information with regards to regulation and policy across Europe, Asia, South America and Africa. However, seven European and one African country were able to submit information in English. Both Hungary and Ireland do not currently allow cashless gambling. Hungary only allows coin-operated EGMs, and the Department of Justice in Ireland is currently seeking further guidance on cashless gambling and until this is forthcoming it is not permitted. Croatia and South Africa both allow cashless technology, and currently token-operated machines and central-loading card systems are available. There is no specific legislation in place in Latvia or Poland, although TITO is available.
- 5.28** Norway and Sweden are interesting cases in Europe, as they have both recently reviewed their legislation. In Sweden, the National Gaming Board has mandated that essentially only token machines with Ticket Out capability are allowed, and are only allowed to be run by the state-owned gaming company Svenska Spel. In Norway, new regulations have been introduced after a short ban on the use of EGMs. All EGMs have to be licensed by the state-owned company Norsk Tipping AS, and will only be available to gamblers who are registered users of pre-paid cards from September 2008. The Norwegian Gaming Authority has mandated that loss limits will be set for every player at a rate of 50 NOK (£5) per game, or 400 NOK (£40) per day and 2200 NOK (£220) per month (Bakken, Oren & Gotestam, 2008). Bakken et al also report that play must also be interrupted on an hourly basis for a cooling-off period of ten minutes. These are the most restrictive regulations identified in this review. We recommend that developments be closely monitored as this kind of intervention will provide vital information on the advantages and disadvantages this kind of restrictive legislation has not only for the levels of problem gambling but also the commercial appeal of the product.

Table 5: Overview of Regulations and Policy on Cashless and Card-based Technology in Jurisdictions Worldwide

| <i>Jurisdiction</i> | <i>Office title</i> | <i>Regulation/Policy</i> |
|----------------------|--|---|
| <u>Canada</u> | | |
| Alberta | Gaming & Liquor Commission | No specific legislation in place - introduced TITO in all Alberta casinos and Racing Entertainment Centres between 2006 and 2008 |
| Ontario | Alcohol & Gaming Commission of Ontario | No specific legislation in place |
| British Columbia | Gaming Policy Enforcement Branch | No specific legislation in place |
| Quebec | Gambling Equipment Certification & Control Lab | Ticket out available - no specific legislation in place |
| Manitoba | Gaming Control Commission | No specific legislation in place |
| Saskatchewan | Liquor & Gaming Authority | VLTs located in licensed bars and restaurants are coin in, ticket out devices |
| Nova Scotia | Alcohol & Gaming Authority | Cashless gambling available - card-based & TITO - no specific restrictions in place |
| <u>USA</u> | | |
| Alaska | Tax Division - Gaming | No specific legislation in place |
| Arizona | Department of Gaming | TITO is the only form of cashless gambling allowed |
| California | Division of Gambling Control | No specific legislation in place |
| Colorado | Division of Gaming | None currently allowed, although a review of the regulations is underway |
| Connecticut | Division of Special Revenue | Allowed in Tribal casinos only |
| Delaware | Gaming Control Board | No specific legislation in place |
| Florida | Lottery | EGMs prohibited in state (Tribal casinos – no specific legislation) |
| Idaho | State Racing Commission | Racing only, no EGM legislation |
| Illinois | Illinois Gaming Board | Cashless wagering is mandatory on riverboat casinos - patrons are required to use tokens, chips or electronic cards for wagering. |
| Indiana | Gaming Commission | Not allowed |
| Iowa | Racing & Gaming Commission | Not allowed |
| Kansas | State Gaming Agency | All cashless gambling allowed, casino gambling only recently allowed - regulations on TITO to be implemented in Oct 2008 |
| Maine | Gambling Control Board | TITO allowed, specific regulation regarding technical standards in place |
| Michigan | Gaming Control Board | Cashless gaming mandatory for wagering |

| <i>Jurisdiction</i> | <i>Office title</i> | <i>Regulation/Policy</i> |
|------------------------------|---|---|
| Minnesota | Gambling Control Board | No cashless gambling allowed in any state operated areas |
| Mississippi | Gaming Commission | TITO and central loading accounts allowed, specific regulation regarding technical standards in place |
| Missouri | Gaming Commission | No specific legislation in place |
| Montana | Department of Justice Gaming Control | None available - no specific legislation in place |
| Nebraska | Charitable Gaming | Not allowed |
| Nevada | Gaming Commission and Gaming Control Board | TITO and wagering accounts available |
| New Jersey | Casino Control Commission | TITO and tokens allowed |
| New Mexico | Gaming Control Board | Allowed in Tribal casinos only |
| New York | Racing and Wagering Board | Tribal Casinos allow cashless technology Standing Stone |
| North Dakota | Gaming Division | TITO allowed in Tribal Casinos |
| South Dakota | Commission on Gaming | TITO allowed, specific regulation regarding technical standards in place |
| Wisconsin | Division of Gaming | Cashless gambling and server based systems allowed at Tribal casinos only |
| <u>Australasia</u> | | |
| Australian Capital Territory | Gambling & Racing Commission | Only Ticket Out allowed (No TITO) - not regulation but Code of Practice which casinos stick to |
| New South Wales | Casino Control Authority/Office of Liquor Gaming & Racing | TITO and smart cards allowed but no specific regulation in place as yet - awaiting the results of a trial in South Australia |
| Western Australia | Department of Racing Gaming & Liquor | Loyalty cards are legal but not currently available. EGMs in casinos can only legally operate upon insertion of cash. |
| Queensland | Office of Gaming Regulation | Card-based systems are allowed, must be approved systems and have player protection features. |
| South Australia | IGA/ Dept of Treasury & Finance | No regulation, there is work being done around this currently. Pre-commitment trial about to start in hotels there trying to move people towards using loyalty cards as pre-commitment tools, and legislative amendments currently being made |
| Victoria | Commission for Gambling Regulation | No particular legislation in place although variations of cashless gambling have been available in the past. TITO is allowed. Crown has a central loading player pre-commitment loyalty card with no restriction on amount of funds held. |
| Tasmania | Gaming Commission | No specific regulation in place |

| <i>Jurisdiction</i> | <i>Office title</i> | <i>Regulation/Policy</i> |
|---------------------------------|---|--|
| Northern Territories | Racing Gaming & Licensing Division | Not permitted, in absence of any evidence, loyalty systems only allowed if no cashless aspect |
| New Zealand | Gambling Commission | No specific legislation in place |
| <u>Europe</u> | | |
| Croatia | Tax Administration, Ministry of Finance | Cashless technology is allowed: token-operated machines, central loading card systems |
| Hungary | Tax and Financial Control Administration | No cashless technology allowed - only coin-operated EGMs |
| Ireland | Department of Justice | Currently seeking further guidance on cashless gambling, not allowed at the moment |
| Latvia | Lotteries and Gambling Supervisories Inspection | TITO allowed - no specific legislation |
| Norway | Gaming & Foundation Authority | New regulations, all EGMs operated by Norsk Tipping AS, the Norwegian state-owned gaming company, will only be accessible to pre-registered users via prepaid cards from September 2008. There will be limits on how much an individual can lose and there will be a cooling-off period after one hour of continuous play, loss limits to \$80 per day or \$440 per month, per player, even if they have multiple cards |
| Poland | Ministry of Finance | TITO and tokens allowed, no specific rules |
| Sweden | National Gaming Board | Essentially only token machines are allowed. Token machines pay winnings in the form of certificates of value that can be exchanged for cash. Token machines are allowed in hotels or restaurants holding a permit to serve alcohol and in bingo halls. Permits to arrange gaming on token machines can only be granted to state-owned gaming companies. The government has granted Svenska Spel a permit to arrange gaming on a maximum number of 7,500 token machines. |
| <u>Rest of the world</u> | | |
| South Africa | National Gambling Board | Cashless gambling is allowed – smart cards available but no specific regulation |

6 Absence of evidence base for regulators

- 6.1** As part of this review, we tried to identify what, if any, evidence base other jurisdictions may have used to inform their decisions about cashless and card-based technologies. Each jurisdiction contacted was asked whether they had documents relating to their decision-making process, or if they knew of any research or information on which their policies had been based.
- 6.2** The majority of jurisdictions could not provide information in this regard. The possible reasons for this were:
- it may be that no formal decision-making process had taken place with regards to cashless technologies in that jurisdiction. This is particularly likely to be the case in jurisdictions such as Ontario, British Columbia, California and Missouri where there is no specific regulation in place, and therefore there is not likely to have been an information-gathering exercise undertaken with regard to cashless technology
 - the contact person within each regulatory body may have been unaware of any evidence used during the decision-making process
 - internal, rather than publicly available documents were part of their decision-making process.
- 6.3** There were a number of regulatory bodies which stated that they were awaiting the outcomes of current research before implementing or making changes to their current regulations. Australian jurisdictions such as New South Wales in particular were awaiting the results of the pre-commitment trial currently underway in South Australia. The jurisdictions which ban cashless technology completely (Northern Territories, Australia; Nebraska and Minnesota, USA) reported that they did so in the absence of any evidence regarding its impact on problem gambling.

7 Cashless and card-based responsible gambling features

- 7.1** Responsible Gambling Features (RGFs) are characteristics which are incorporated or added onto a gambling device or medium which aim to minimise problem gambling, enhance player control and generally promote responsible behaviour by both players and operators. RGFs are still relatively new in terms of their development, adoption and use in the gambling industry. RGFs can apply to all aspects of the gambling experience including spending, awareness, playability, reward and game speed.
- 7.2** RGFs can be further sub-divided according to whether they are implemented by direct machine modification or design (eg reduction in reel speed), or whether they are enforced via player monitoring such as through card-based technology. As far as the authors are aware, there are currently no RGFs being made available through the operation of other forms of cashless technology such as central loading or ticket-based technology.
- 7.3** For the purposes of this review consideration has only been given to cashless and card-based responsible gambling features (CCRGFs). Features available through such technology are discussed below.

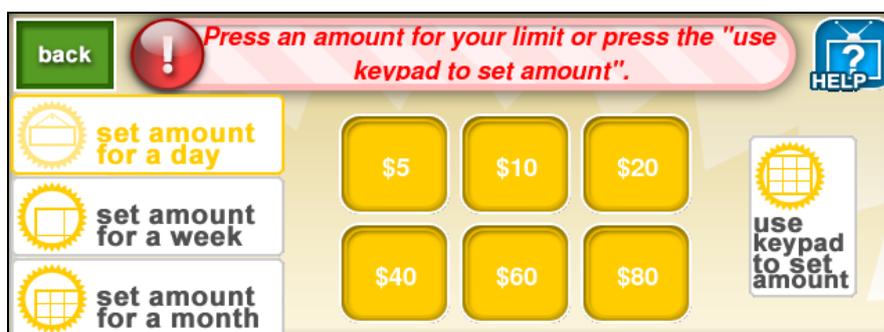
Pre-commitment

- 7.4** Pre-commitment refers to preselecting limits on the amount of money and/or time spent playing on a gambling game (usually an EGM) over a given period of time. Periods of time available for limit setting can be as brief as one hour or as long as one year. For pre-commitment to work original decisions and related limits should be implemented immediately and not be permitted to change. The aim of pre-commitment is essentially to permit the customer to make clear and well-informed decisions when they are thinking clearly, rather than when frustrated, disappointed, excited or chasing their losses.

This approach emphasises consumer control which is particularly important given that some experts believe that a lack of control may be a determinant of problem gambling (eg Dickerson, 2003). See Figure 1 for an example of money-limiting features (offered as part of 'Gameplan' by Techlink Entertainment) which have recently been trialled in Nova Scotia.

- 7.5 Figure 1 shows the Money Limit Features available on EGMs in Nova Scotia via Techlink Entertainment's Gameplan CCRGF system. Users can choose the level of financial pre-commitment and the period of time over which this limit should remain.

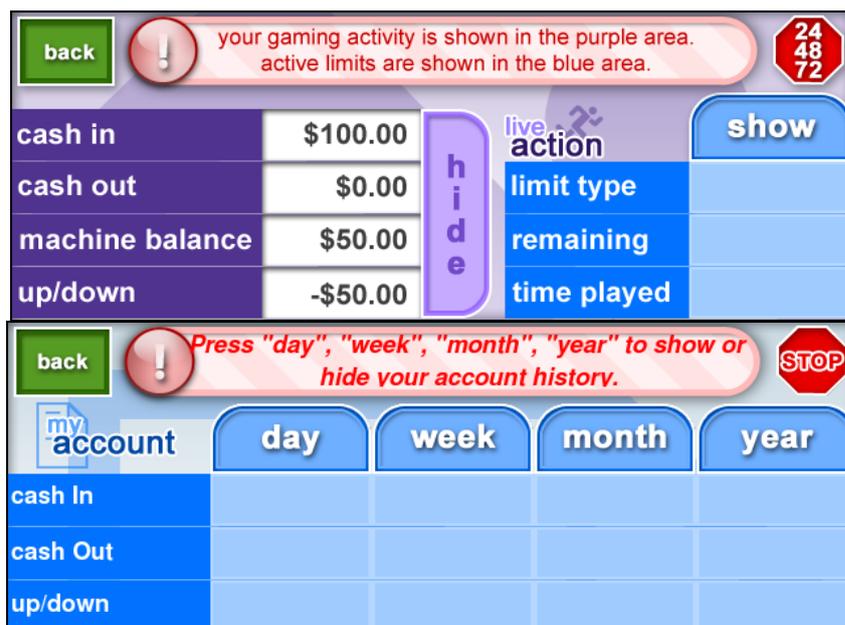
Figure 1 Money Limit Features



Account information and transparency

- 7.6 Account information and transparency refers to giving clear and accurate information to customers to allow them to be fully informed when making gambling-related decisions. Transparency is considered an important aspect of responsible gambling, as problem gamblers, it is argued, operate using cognitive biases when deciding whether to commence or terminate play, how to play and how much to spend.
- 7.7 For example, Wagenaar (1989) identified that players focus too much on how much they win (ignoring to some extent how much they lose) rather than the net expenditure. Particularly relevant to CCRGFs are options for players to access their account information and activity statements which offer various forms of information relating to time and money spent over a designated period of time. In terms of helping the at-risk or problem gambler, such features will facilitate accurate recall of net expenditure which may minimise the impact of heuristics and biases. Detailed information about net expenditure may also be useful to non-problem gamblers to help them track spending either for the purposes of limiting their own play or purely for their own interest. Activity statements should offer comprehensive and up-to-date information on deposits, withdrawals, wins, losses and net expenditure based on a preferred time frame such as day, week, month or year. (See Figure 2 for an example of the capabilities of the 'Gameplan' individual account summary.) In a broader sense, transparency can also include informing the player of the true odds of winning for a particular game and the pay-back ratio (the average amount returned to players as a percentage of total gambling revenue). However, this information is not normally delivered through CCRGFs. Technology is now being used to communicate more than just patterns of expenditure to customers. Some operators are using advanced techniques for analysing customer behaviour in relation to possible signs of problem gambling and communicating concerns to players and various responsible gambling options for such players (see 'Industry leaders' below).
- 7.8 Figure 2 shows features of the Individual Account Summary Available on Electronic Gaming Machines in Nova Scotia via Techlink Entertainment's Gameplan CCRGF system. This screen shot shows the total amount deposited during the current session, total amount taken out and the current balance. Information can also be obtained on the account balance for different time periods and any pre-commitment levels set.

Figure 2 Individual Account Summary



Self-exclusion

7.9 Self-exclusion is also possible to enforce via card-based systems, and may also offer more control and options than previously available through staff-enforced and offline systems. It is possible for players to exclude themselves from play for a wide variety of time frames which may be as brief as one hour or which may even include permanent exclusion. Like any successful pre-commitment features, such exclusion features should not permit any decision to be reversed within a short timeframe (eg no less than 24 hours). However, how long that time frame may be is determined by the regulator or operator. Where self-exclusion was once considered a more extreme, rigid and possibly stigmatising option, card-based technology now permits the player more flexibility. For example, Svenska Spel currently offer exclusion features which are brief and player specific and may even be suitable for players who may not regularly experience problems eg the 'drunk button' which permits players to exclude themselves during times when they believe they may become intoxicated and subsequently may exercise poor judgement and control when gambling. See Figure 3 for the 'Gameplan' example of a self-exclusion feature.

7.10 Figure 3 shows Self-Exclusion Options available on EGMs in Nova Scotia via Techlink Entertainment's Gameplan CCRGF system. Options are available to find out how long the current session has been underway, and to self-exclude for one week, one month or for an amount of time determined by the player and set on a calendar.

Figure 3 Self-Exclusion Options



8 Cashless and card-based technologies as determinants of gambling and problem gambling behaviour

- 8.1 The majority of the existing literature, limited as it may be, focuses on card-based technologies rather than other forms of cashless technology such as ticket-based systems and remote loading. Below we will review the literature on each of these in turn while also considering stakeholder submissions on each of the following areas: advantages, disadvantages and potential impact on problem gambling and social responsibility.

Card-based systems: impacts on problem gambling and potential for responsible gambling

- 8.2 The prospect of using developing technology to meet the dual aim of increased revenue and social responsibility in the form of player protection is appealing for both players and the industry. However, to date progress has been slow in the implementation and adoption of card-based technology systems. Minimal research, particularly empirical research, exists from which to make recommendations regarding the application of card-based systems. Essentially, only a few research studies investigating the application of card-based technology systems for EGMs are available for review. Three of these studies (Omnifacts Bristol, 2005, 2006, Bernhard, 2006, Schellinck & Schrans, 2007, McDonnell Phillip Pty 2006, and Nisbet 2005a, 2005b, and 2006) involve data collection and have produced multiple articles exploring the data at different stages and from different perspectives. Findings were also considered from three independent government enquiries considering aspects relevant to cashless and card-based technology in gambling. These inquiries included New South Wales's Independent Pricing and Regulatory Tribunal's review of the effectiveness of gambling harm minimisation measures (IPART, 2004), South Australia's Independent Gambling Authority's inquiry into smart card technology (IGA, 2005) and the Great Britain Gambling Commission's consultation which included a focus on card-based systems and player tracking (Gambling Commission, 2006).
- 8.3 Prior to discussing the findings of this literature, it is useful to give an indication of the strengths and weaknesses of the research programmes in order to provide a context in which to view the outcomes. It was deemed appropriate for the review to consider the strengths and weaknesses of the empirical research as opposed to the independent government enquiries. These are discussed below.

Strengths and weaknesses of the research

- 8.4 Nisbet (2005a, 2005b, 2006) explored the use of card-based technology with cashless capabilities for VLTs in the Australian province of New South Wales (NSW). These three articles were based on a two-stage research study, which firstly conducted qualitative interviews with key stakeholders (ie operators, social groups, manufacturers) to extract the core processes associated with the use of card-based technology, to inform future quantitative data collection with the provision of measurement items. Secondly, Nisbet (2005a, 2005b, 2006) used the items generated from the explorative qualitative research to adapt the Technology Acceptance Model (Davis, 1989) to relate specifically to the card-based technology in use at the selected casinos in NSW. The Technology Acceptance Model (TAM; Davis, 1989) posits that an individual's beliefs about the usefulness of a technology and its 'ease of use' are the primary factors affecting attitude and therefore intention to use such items. Nisbet (2005a, 2005b, 2006) used the TAM as a template to guide research into whether players would adopt the card-based technology and begin to use its range of features.
- 8.5 Nisbet found that for certain aspects of card-based technology to be deemed 'useful' they must be accessible in a particular way. For instance, 67% of participants felt that a detailed analysis of financial transactions would be useful, but only if they could request and access it privately without the need to ask a member of casino staff.

This was supported by members of casino staff reporting that they are very rarely asked to provide such financial information.

- 8.6** The primary methodological limitations of this research programme were sampling concerns, non-standardised administration of the questionnaire, the pre-determined structure of the core issues to measure, and the untested validity and reliability of the developed measure. As the research used a convenience sample, with no data collection outside morning, afternoon or early evening sessions, our ability to generalise from these findings to the wider research population is limited. Furthermore, data was collected via self-completion questionnaires and questionnaires being completed via interview, with no indication in the results of any observed differences in reported attitudes. Given that gambling, particularly problem gambling, is still considered to be socially undesirable by some it is probable that participants may not be as candid when being interviewed by a researcher as opposed to self-completing an anonymous questionnaire.
- 8.7** There is also concern regarding the development of a measure to explore the core issues regarding this specific card-based technology system, specifically the inability of new items to emerge from customer perspectives. Stakeholders, by definition, have political agendas and therefore when interviewed may not propose a comprehensive list of core issues depending on their political aims. The players, having had extended experience of using the system, would be in a privileged position to state the core issues with card use; however the solitary use of structured questionnaires does not enable participants to generate core themes to assess in future studies. Although the psychometric properties of the TAM measure (Davis, 1989) have been demonstrated, Nisbet (2005a, 2005b, 2006) has adapted the instrument substantially and therefore we cannot make conclusions with any confidence regarding the validity and reliability of the measurement tool. Furthermore, as Livingstone and Woolley (2008) point out, Nisbet's analysis demonstrates a significant relationship between the belief that the card is a useful tool in managing expenditure, and having ever used it or continuing to use it. Therefore, Nisbet's conclusion that card-based technologies may not be particularly helpful is undermined to some extent by the finding that over 70% of respondents have never actually used a cashless gaming card. Nevertheless, despite such limitations, Nisbet's work is the first attempt to systematically identify key issues involved in card-based technology from a wide range of stakeholder perspectives. Nisbet was also the first to highlight the potentially conflicting social and financial aims arising from such technology. Hence, while the findings from this research should be treated with caution, Nisbet has been responsible for pushing the international research agenda in the direction of card-based technology.
- 8.8** The second major study consisted of a four-stage research programme funded by the Nova Scotia Gaming Corporation (NSGC) into a card-based responsible gaming device (RGD) that enabled players to: track the time and money spent during a range of time periods, set time and spending limits and also provided a 48-hour self-exclusion feature. However, unlike the card-based technology system in NSW the NSGC counterpart did not feature cashless gambling capabilities. Furthermore, whereas the card-based system in NSW was voluntary, card use for EGM operation in the specific test regions in Nova Scotia, Windsor and Mount Uniacke, was mandatory (except in Stage 1) although the employment of the responsible gambling features was voluntary.
- 8.9** It is difficult to evaluate critically the methodological soundness of this study because there is a lack of detail regarding the research design of this stage. As the data was collected via participant self-report, there is concern regarding the validity and reliability of the findings as they are open to bias since participants often have difficulty remaining cognisant of their actual behaviour.
- 8.10** Stage 2 involved modifying the RGD in response to the findings that emerged from Stage 1 in order to increase the 'usability' and functionality of the system. Stage 3 was an investigation into the effectiveness of the RGD in encouraging responsible gambling (Omnifacts Bristol, 2006).

Effectively the study measured awareness of the RGD and its features, attitudes towards the RGD, and the relationship between feature use and time and monetary expenditure. They found that 63% of panellists reported spending less money, 72% of panellists reduced the amount of minutes they played, and 63% decreased the amount of gambling sessions they had due to using the RGD.

- 8.11** The main methodological limitation of this study was the use of self-report data for the production of baselines from which to compare behavioural change after the introduction of the RGD. Furthermore, the 'panellists' used in a focus group capacity were sampled to a significant extent from those who participated in Stage 1, somewhat defeating the purpose of conducting a further study, given that it is probable that a replication of attitudes from Stage 1 will be produced. Finally, there is also concern regarding the removal of 'outliers' from the data, which although statistically sound, may not be suitable when researching 'abnormal' populations where excessive behaviour may be pertinent to the research aims.
- 8.12** Stage 4 consisted of two further independent research studies using data from Stage 3 to assess the behavioural impact of the RGD features (Schellinck & Schrans, 2007; Bernhard, Lucas & Jang, 2006). Schellinck & Schrans (2007) reported a relatively low uptake of parameter setting, with only 11.1% of the sample using the spending limits feature once during a six-month trial period, and less than 1% using another parameter setting feature.
- 8.13** Bernhard, Lucas & Jang (2006) also collected supplementary qualitative data via focus groups for participants in Las Vegas, who were provided with an opportunity to experience using the card when playing on EGMs. They found that very few supported the idea of mandatory parameter setting, however this may be explained by cultural differences, in that gamblers in Las Vegas may be used to a different gambling environment where gamblers have more choice and more control.
- 8.14** Although the provision of data from non-Nova Scotia residents is highly beneficial by providing a cultural contrast to compare against attitudes in Nova Scotia inhabitants, the Las Vegas data is not strictly comparable because they were not gambling with their own money. Whereas Nova Scotia residents using the card were risking their own funds when exploring the card features, the participants in Las Vegas were provided with free 'credit' on the EGM and the outcome of wagering had no financial consequence for the players.
- 8.15** Schellinck and Schrans (2007) conducted a similar independent assessment of the behavioural impact of the RGD features, using data collected from the Windsor trial (Stage 3). They acknowledged the major limitations of the data set and took positive steps to counteract them. To avoid the data set being skewed disproportionately by high frequency players, data was weighted to balance the impact of behaviour from low frequency and high frequency gamblers. Furthermore, the absence of baselines to measure change in behaviour with the rejection of retrospective self-reports, was counteracted by creating a post-registration, pre-feature use baseline period. Put simply, gambling behaviour recorded on the card system after registration was measured before participants began to use the features, meaning that accurate pre-feature use behaviour is recorded. In turn, there are limitations with this attempt to avoid using self-report measures, such as having to discard data from those players who began using the features immediately after registration. The removal of such a large percentage of participants may reduce the generalisability of the findings.
- 8.16** McDonnell-Phillips Pty (2006) carried out a nationwide survey in Australia exploring attitudes and behaviours in relation to pre-commitment. Overall, there were 482 respondents (approximately 60 in each Australian jurisdiction) completing 45-minute telephone surveys, with only those reporting gambling at least once a month being eligible to participate. Caution should be given when considering these findings since only 5 Canadian Problem Gambling Index (CPGI) items were used to calculate a 'total predicted risk score' (although reliability was high with a Chronbach's Alpha = 0.84).

Furthermore, the percentage of completed surveys relative to phone calls was low (around 1%) and the sample did not use unlisted or mobile phone numbers, both of which raise concerns about sampling bias. However, it should be noted that data was collected during various days and times, and random sampling was employed where feasible. Furthermore, refusal to participate among regular gamblers was relatively low (26%) once they had been identified. Essentially, this survey succumbs to problems experienced in most large surveys, and although as the authors suggest findings should be considered as indicative and exploratory, several steps were taken to maximise validity and reliability.

Advantages of card-based systems

- 8.17** The advantages of card-based technologies were considered in terms of potential benefits for the player, commercial benefits and stakeholder opinion.

Player benefits

8.18 *Parameter setting*

Dickerson (2003) proposes that the gambler is unable to make rational decisions on the gaming floor. Essentially, this suggests that gamblers suffer cognitive distortion during a gambling session that causes a deficiency making rational gambling decisions. Within session, gamblers often demonstrate heightened arousal (Goudriaan, Oosterlaan, De Beurs, & van den Brink, 2006; Coulombe, Ladouceur, Desharnais & Jobin, 1992) which can reduce rational thought, therefore the ability to set spending and time limits prior to gambling has potential to reduce poor decisions made when highly aroused.

- 8.19** It has been suggested that gamblers would 'embrace' a facility to predetermine limits on time and spend (AMC Convergent IT, 2003), however empirical research has shown that parameter setting features tend not to be used by the majority of gamblers. Schellinck and Schrans (2007) proposed that after experimentation with a feature, if a player continues to repeatedly use that feature it is evidence that the player finds value in using it. Schellinck and Schrans (2007) state that 11.1% of the sample set an expenditure limit for a single day at least once during the six-month trial period, however they do not state the rate of continued use of that specific feature. Less than 1% of the sample tried any other 'limiting' feature at least once during the six month trial period. Data presented in the Stage 3 report from Omnifacts Bristol (2006) show that use of parameter settings decreased substantially throughout the trial period. For example, of all the card users 7.7% had used the day spending limit feature in period one, however during period five only 0.6% used the day spending limit feature. This could suggest that players did not find the parameter setting feature useful. However, as articulated by Bernhard et al (2006) the low frequency of use of a safety feature is not synonymous with the feature being useless, for example, a fire extinguisher is rarely used but that does not reduce the value of retaining it for future use.

- 8.20** The inability of many individuals to account accurately their level of within-session monetary and time expenditure, is evident in Stage 3 of the NSGC report where players reported that on average they were underestimating time spent by a factor of three and underestimating money spent by an average factor of seven (Omnifacts Bristol, 2006). This suggests that pre-determined limits may be effective in reducing this cognitive bias. The specific impact of using parameter settings is not available because the effect of the features on gambling patterns was assessed as a whole rather than individually.

- 8.21** McDonnell-Phillips Pty (2006) reported from their survey of regular Australian gamblers that 47% and 30% of EGM players respectively indicated that they would at least try setting limits and would use pre-paid cards for gambling in the long term. More specifically, these figures are slightly higher among problem gamblers (with 51% using limits and 38% using pre-paid cards). Hence, these options appear popular among gamblers even though they do not currently appeal to all. They also reported that 82% of EGM players stated a preference for monetary as opposed time-related spend limits. In terms of parameter-setting time frames, 40% of EGM players selected weekly limits as their first preference with 23% selecting monthly.

8.22 Interestingly, the authors suggest that offering too many limits may confuse gamblers and that monetary limits are the most important factor in control for gambling responsibly. Over three-quarters of those surveyed supported use of a 'cooling off' period forcing gamblers to have break before readjusting limits although the most preferred to keep these breaks brief (with 35% selecting a cooling-off period of 24 hours as a first preference).

8.23 *Account information and transparency*

The core aspect of this feature within card-based technology is the ability to procure an accurate account of expenditure across several time periods, including daily, weekly, monthly or even year-to-date reports. Furthermore, there are options available to receive information regarding how much money has been deposited or withdrawn, or how much has been won over a specific time period. The benefit for customers is that they are presented with accurate information on which they can base future gambling decisions. It is acknowledged that players often have difficulty processing information vigilantly when gambling, and therefore underestimate how much they have spent during a specific gambling session. Furthermore, gamblers make erroneous judgements between sessions in terms of how much money they have lost, because dissonance needs to be reduced. Put simply, players can provide rational motivation to continue to gamble by deliberately not recording incurred losses accurately, and therefore acknowledge the reality of the behaviour. By presenting an accurate account of losses or profits incurred gamblers are provided with objective information that enables them to make informed decisions about gambling expenditure.

8.24 Research suggests that the accessibility of such information is crucial to the feature being useful (Nisbet, 2005a). The New South Wales card does not present the customer with a detailed analysis of their gambling outcomes directly on their EGM terminal. In NSW, customers are required to access their player information via specific access points located within the casino. Nisbet (2005a) reported that 67% of participants found the player account service beneficial as a responsible gambling strategy but many stated that they were reluctant to access this feature unless it was self-service rather than requiring service from a gaming manager. The manager of this venue reported that players rarely requested this feature (Nisbet, 2005a). When considering that 67% of the sample reported that the feature would be beneficial, yet most players do not access this feature, it is logical to conclude the feature has accessibility concerns.

8.25 The overwhelming finding across all studies is that the facility to access accurate reports of personal gambling behaviour is beneficial in terms of promoting responsible gambling by enabling players make informed choices (Bernhard et al, 2006; Omnifacts Bristol, 2005, 2006). In terms of usage, naturally this varied between samples and time periods. Bernhard et al, (2006) reported that 33.7% of participants viewed past expenditure accounts on at least one occasion, and 34.2% used the Live Action facility that enabled customers to view current expenditure on a specific EGM. Moreover, Schellinck and Schrans (2007) reported that over the six-month trial period 68.3% of players viewed any of their gambling account summaries at least once, and 59.2% accessed the Live Action feature at least once. It appears that this facility is effective in educating customers and providing them with an opportunity to remove cognitive biases that may lead to problematic gambling behaviour, which is a central tenet of responsible gambling (Dickerson, 2003).

8.26 *Behavioural impacts*

Omnifacts Bristol (2006) stated that 63% of panellists reported spending less money, 72% of panellists reduced the amount of minutes they played, and 63% decreased frequency of gambling sessions due to using the RGD. Overall, outcome indicators for this sample suggest that RGD use is related to more responsible gambling. However, these findings must be interpreted with extreme caution considering that behavioural change was assessed by comparing retrospective self-report behaviour with current gambling behaviour.

- 8.27** Bernhard et al (2006), in analysing data measuring actual behaviour, have shown that RGD usage is positively correlated with 'minutes played', and with other behavioural patterns associated with longer duration such as more 'cash played'. Interestingly, RGD feature users were also reported to have cashed in more money than participants who did not use RGD features (\$772 compared to \$287). However, caution is also advised when interpreting these findings because of significant threats to data reliability. There was evidence indicating that a substantial proportion of participants were sharing cards, and therefore the assumption that card data represents a single individual is no longer reliable. This is also supported by submissions to the 2004 IPART review which propose that card sharing and card trading may be a significant problem for effective parameter setting and account features (AMC Convergent IT, 2003). The IGA (2005) suggests that, in order to combat the possible problems which may arise from card sharing, regulations should be put in place to ensure 'significant consequences' for the operator should they be found to supply false or unnecessarily duplicated cards.
- 8.28** In contrast, Schellinck and Schrans (2007) were able to identify the level of card sharing within the data set (ie 5-6%), and devised a solution to using self-report data for pre-RGD feature use by measuring behaviour stored on the card prior to features being accessed. As a result of steps used to reduce threats to the validity and reliability of the data set, of the three studies exploring the behavioural impact of the NSGC RGD device, we can make conclusions with most confidence based on the analysis of Schellinck and Schrans (2007). Schellinck and Schrans (2007) developed a category of players as 'RGD adopters' in order to assess the impact of using various RGD features on several occasions. They found by examining the data that participants who only used a feature once or twice differed significantly from those who used the features more frequently. Consequently, RGD adopters were defined as participants who used at least one feature three or more times during the trial period. Schellinck and Schrans (2007) found that RGD adopters had significantly longer play sessions, higher frequency of play (in days), deposited more into the machine, had higher winnings and higher 'cash out' and finally finished a higher percentage of gambling sessions in profit than non-RGD adopters. Essentially, it is possible to conclude from these findings that participants who regularly used responsible gambling features experience more 'value' in their play, because they were able to gamble longer and win more, without having to increase expenditure.

Commercial benefits

- 8.29** Findings from the research conducted in New South Wales (Nisbet 2005a, 2005b) demonstrated that there are potential commercial benefits to using card-based technology if the cards have cashless gambling capabilities. Key stakeholders interviewed unanimously supported the statement that card-based EGM establishments would experience reduced operating costs. Effectively, venues would require fewer staff to deal with cash transactions (Nisbet 2005b). Moreover, operators would have reduced costs of processing and providing security for cash, and less staff time would be required to refill machines (Nisbet 2005b). Data has been published elsewhere supporting the statement that cashless operation through card-based technology substantially reduces operating costs (Glader, 2003; Berger & Hauk, 2002).

Perceived advantages of card-based systems among stakeholders

- 8.30** Of the sixteen stakeholders that had submitted views on this issue in this current review, the advantages cited most were related to player tracking, the use of RGFs, increased security/reduced crime and lower staff costs. Broadly speaking, most stakeholders suggested that player tracking through card-based technology could afford benefits such as using data for marketing and auditing purposes or monitoring and researching problem gambling. Furthermore, in terms of RGFs, there was general agreement among stakeholders that card-based systems can facilitate responsible gambling in some way, whether in terms of monetary spend limits or that such systems can also improve understanding and identification of problem gamblers.

However, there was less support for time-related spend limits (*Bingo Association; GamCare; Responsibility in Gambling Trust; anonymous industry stakeholder*) and self-exclusion functions (*Purcell and Associates; GamCare*).

8.31 Stakeholders also mentioned that such systems were convenient and easy to use (*Inspired Gaming Group; Bingo Association; Peter Collins; Gordon Moody Association; anonymous stakeholder*). Other advantages that were also mentioned but received the least support included:

- Reductions in underage play as a result of card registration (*GamCare*)
- Protection against money laundering (*Bingo Association*)
- Improved flexibility for developing, changing or updating games (*Inspired Gaming Group*)

8.32 A summary of stakeholder views on this issue is included in Appendix 5A.1.

Disadvantages of card-based systems

Player disadvantages

8.33 From a player perspective, there is some evidence that in spite of acknowledging the potential benefits of using a card, many remained reticent because they were sceptical about the confidentiality and anonymity of the data collected on the card (*Aristocrat 2003; Bernhard et al, 2006; Nisbet, 2005a*). It was felt that data might be used to track players who were valuable in terms of revenue to the casino, or that external parties such as tax inspection bodies, may question returns, based on the amount of funds gambled. Although participants were briefed very clearly on the importance of requisite official identification such as a driving licence in order to ensure that only one card was available for each individual, and that after registration gambling behaviour would not be tied to an individual's identity, participants remained sceptical of the level of proposed anonymity (*Bernhard et al, 2006*). It has also been suggested that the mandatory use of card-based technology to provide customers with activity statements may be ineffective (*Clubs NSW, 2003*) or may even encourage compulsive gambling (*Aristocrat, 2003*) although the reasoning behind this is not explained.

Commercial disadvantages

8.34 Within the body of research that explores the potential impact of card-based technology, it is evident that some commercial stakeholders are apprehensive and concerned about the impact of mandatory registration for cards in order to play EGMs. For example, in the Stage 3 study no site holder gave the RGD device a score above 5 out of 10 (*Omnifacts Bristol, 2006*). The primary concern of the gambling industry is a reduction in revenue (*Bernhard et al 2006; Omnifacts Bristol, 2006*). Owners within the Nova Scotia testing sites reported that not only was revenue down, but that they were wasting staff resources dealing with technological faults as a result of card malfunction. Site owners speculated that gamblers, particularly excessive gamblers, will be reluctant to register to receive a card if they become mandatory because they will be opposed to giving up anonymity (*Nisbet, 2005a; Clubs NSW, 2003*). IGA (2005), however, suggests that the collection of data by operators in the gambling industry poses no special confidentiality or privacy issues that would not apply to other industries. It may seem that if card use was mandatory throughout the jurisdiction EGM gamblers would be forced to register if they wanted to gamble on EGMs and therefore revenue will not be reduced. However, there are multiple alternative gambling opportunities to choose from including using EGMs online or travelling outside the jurisdiction to use a non-card-operated EGM, which was reported during Stage 3 (*Omnifacts Bristol, 2006*). Furthermore, there are concerns regarding the initial investment costs of introducing new technology and adapting existing EGMs to become card operational (*Clubs NSW, 2003; Omnifacts Bristol 2006*).

- 8.35** Schellinck and Schrans (1998) found from their survey yielding a sample of 927 regular EGM players that the problem gamblers (accounting for 4% of all players) contributed to 54% of the total revenue raised. As suggested by Blaszczynski, Sharpe and Walker (2003) this may have significant implications for reducing EGM revenues as a consequence of implementing RGFs. From a research perspective they also highlight the utility of this finding in that the inverse may also apply; that a significant impact on the minimisation of harm through the implementation of RGFs may be measured by a drop in EGM revenues.

Perceived disadvantages of card-based systems among stakeholders

- 8.36** There were 14 stakeholders overall from this current review commenting on the perceived disadvantages of card-based systems for problem gambling and social responsibility. The two most common responses were related to privacy and initial investment. Given that cash payment permits the gambler to retain some anonymity, there was concern that this would be lost with card-based technology (*Association of British Bookmakers and two anonymous industry submissions*). The potential costs were also source of concern for some, as there may be a hefty level of investment for both implementation and maintenance which may apply to software and hardware configurations (*Inspired Gaming Group; Association of British Bookmakers; Bingo Association*). Other concerns included:
- The 'reality of spend' may be removed implying that customers may spend more than they would otherwise using cash (*Gordon Moody Association; GamCare*)
 - It may remove the need for human interaction implying that there will be fewer reality checks during the session (*Gordon Moody Association; Carolyn Downes*)
 - The increased convenience may facilitate problem gambling (*Gordon Moody Association; GamCare*)
 - There may be a potential for the customer to be placed under too many demands (eg a card requirement for various different commercial transactions may become burdensome) (*Infogaming.com and one anonymous submission*)
 - Customers may not want to receive unsolicited marketing material (*Peter Collins; one anonymous industry submission*)
 - There may be potential for card-sharing which may undermine functionality (*Responsible Gaming Networks*)
 - Permits immediate transfer of funds with no breaks in play (*Responsibility in Gambling Trust*)

- 8.37** The ABB also expressed concern that if the card system is managed according to operator rather than industry wide, the players could reach their limits with one operator and then move on to play somewhere else where they have not reached a limit or where no options for pre-commitment are currently provided or enforced. Apart from the obvious commercial implications, there is also concern that customers may then move from playing with more socially responsible operators to less reputable firms. A complete summary of stakeholder views on this issue is included in Appendix 5 A2.

Stakeholder views on the implications of card-based systems for the prevention and reduction of problem gambling

- 8.38** There was little agreement among stakeholders in terms of the potential for card-based technologies to prevent problem gambling (see Table 6 for a full summary of views). In broad terms, industry stakeholders were more likely to agree that such technologies may play a role in prevention, whereas academics and concern groups were more likely to disagree. Nevertheless, card-based systems received more support for having a role in prevention than either ticket-based or remote loading technologies.
- 8.39** As indicated by the ABB above, there was some concern that, in the UK, "*such safeguards will only extend to single locations, or at best, a group of locations such as all casinos belonging to a particular operating company, or all branches of a particular LBO operator*" (an anonymous industry stakeholder).

8.40 *Responsible Gaming Networks* emphasised the fact this can only work provided that cards are non-transferrable (ie that card-sharing is not possible or that it can be restricted). Finally from an experiential perspective, caution was also urged to ensure that such features should not reduce the commercial appeal and level of enjoyment experienced by the customer while pursuing such objectives (*Peter Collins*).

Table 6: Stakeholder responses in relation to card-based technologies preventing problem gambling

Question: To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can prevent the development of problem gambling.

| | Industry stakeholders | | | | | | | | | | Academic/concern sector | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|-------------------|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Bingo Association | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | | | | | | | | | | | | | | | | |
| Disagree | | | | | | | | * | * | | * | | * | | | * |
| Neither Agree or Disagree | * | * | | | * | | | * | | | | | | | * | |
| Agree | | | | | | * | * | | | | | * | | | | |
| Strongly Agree | | | * | * | | | | | | * | | | | | | |

8.41 Much like views relating to prevention, there was limited agreement among stakeholders regarding the extent to which card-based systems may reduce current levels of problem gambling (see Table 7). Again, broadly speaking, industry stakeholders appeared more confident in effecting change than the academic and concern sector stakeholders.

8.42 An anonymous submission from an industry stakeholder made the following points:
“Although the card-based systems are not designed to target the problem gambler, it does allow them to take control of their behaviour by setting limits and self-excluding if necessary. The player is also able to have their problem gambling counsellor assist them in setting limits (if they choose to share their card and PIN with the counsellor). Further a card system allows a jurisdiction to set and impose strict limits on spending behaviours, regardless of the individual (eg loss limit of \$100 per week etc). The possibilities are endless.”

8.43 While there are strong views on the potential for card-based technology to have an impact on the prevention and reduction of problem gambling, there was limited consensus with many preferring to take a conservative position on the basis that there is limited empirical evidence on its effectiveness.

Table 7: Stakeholder responses in relation to card-based technologies reducing problem gambling

Question: To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can reduce the current level of problem gambling.

| | Industry stakeholders | | | | | | | | | | Academic/concern sector | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|-------------------|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Bingo Association | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | * | | | | | | | | | | | | | | | |
| Disagree | | | | | | | | | * | | * | | * | | | * |
| Neither Agree or Disagree | | | | | * | | | * | * | | | | | | * | |
| Agree | | | | | | * | * | | | * | | * | | | | |
| Strongly Agree | * | * | * | | | | | | | | | | | | | |

Implementation and promotion of card-based systems

- 8.44** In order for the proposed benefits of card-based technology for both customers and operators to accrue it is important that if cards are introduced, players must have awareness not only of the system, but the range of features and the potential benefits of regularly using such features.
- 8.45** The majority of participants had a positive attitude towards the cards and found value in the available features (Schellinck & Schrans, 2007; Bernhard et al 2006; Omnifacts Bristol, 2006). There was strong evidence supporting the idea that participants would not only trial and experiment with the available features, but that a substantial proportion would adopt the features and use them consistently in the future. Schellinck and Schrans (2007) reported that 71% of regular players used at least one feature once and almost 66% of regular players continued to use the features over the measurement period.
- 8.46** One of the major moderating effects on card use was the reliability of technology. Nisbet (2005b) demonstrated that credibility, determined by card reliability, was a significant factor in consumer acceptance of the card. Furthermore, in Stage 1 of the NSGC research programme, where card use was voluntary, one of the main reasons for rejection of card use was experienced technical faults (Omnifacts Bristol, 2005). It is apparent that if card use and feature use is to be adopted in gambling jurisdictions where card use is voluntary or mandatory, it is important that the technology is reliable.
- 8.47** Research also shows that the customers who have experience of using the card and its features have a more positive attitude towards the card (Schellinck and Schrans, 2007; Nisbet, 2005b). Therefore, it is imperative that customers are motivated to trial the card and experience the benefits of using the various features for there to be a wider uptake.

Furthermore, Bernhard et al (2006) reported that those who had a detailed demonstration of the card and its incumbent features had a more positive attitude towards the card. Also, as discussed previously, there were concerns over the confidentiality, security and anonymity of card-based systems. From this, it is clear that if such card-based technology is introduced, in either a mandatory or voluntary process, it is essential that customers are educated about how gambling data will remain confidential; otherwise this may impact the level of card registration. McDonnell-Phillips Pty (2006) reported similar views with around one third of respondents from their sample expressing concerns relating to privacy.

- 8.48** Potentially, the most important factor in participation intention in card use and use of card features is the perceived usefulness and ease of use for the card-based technology. Nisbet (2005a, 2005b, 2006), by applying the Technology Acceptance Model (TAM) to guide measurement of 'intention to use' the card, identified through structural equation modelling that the perceived utility of the card is determined to a large extent by perceived usefulness. In turn, perceived usefulness was defined mostly by the perceived security and reliability of the card, and to a lesser extent the ability to manage expenditure when gambling. As a result, it is concluded that to increase players' motivation to register for and use a card and its incumbent features, the provider must actively educate potential customers about the security, reliability and potential to make rational gambling decisions.
- 8.49** Ease of use, was also a significant aspect of the participants' intention to use the card-based technology (Nisbet, 2005a, 2005b, 2006). Overall, the majority of the data from the body of research suggests that participants find the card 'easy to use' (Schellinck and Schrans, 2007; Bernhard et al, 2006; Nisbet, 2005b). However, there were two sources of concern regarding the 'ease of function' of card-based technology and even responsible gambling technology as a whole. Firstly, focus group data suggested that elderly customers would be reluctant to use IT of any description because of lack of 'comfort' and experience with such devices (Responsible Gaming Council, 2007). Secondly, there was evidence of behaviour demonstrating a misunderstanding of self-determined spending limits (Omnifacts Bristol, 2005). Effectively, a proportion of players were unaware that self-determined spending limits were related to the amount of net loss rather than the total expenditure. Evidence showed that customers were reluctant to 'cash out' winnings because they believed that they may be prohibited from re-inserting the winnings as it would take them over their established spending limit (Omnifacts Bristol, 2005). This adds further emphasis to the importance of creating awareness not only about the existence of card-based technology and the potential benefits of using the features, but also highlights the importance of educating customers comprehensively about the operation of various features.

Ticket-based systems: impacts on problem gambling and potential for responsible gambling

- 8.50** To date, there has been no empirical research which has directly investigated the impact of ticket-based technology on problem gambling and the potential for promoting responsible gambling, despite the strong demand from various stakeholders for an evidence base to inform key policy decisions in this area (eg IPART, 2004).
- 8.51** However IPART (2004) did undertake a review of ticket-based technology as part of its examination of gambling features and their impact on gamblers, problem gamblers and the wider community. Through the tribunal's consultation with various stakeholders some views were presented supporting the use of ticket-based technology (TITO in particular) as a harm minimisation feature. It was claimed by some industry stakeholders (AGMMA, 2003) that players could cash out immediately without having to wait for an attendant and this in turn may minimise further 'impulse' gambling. Implicit in this claim is the assumption the gambler may be tempted to start playing another machine while waiting for the attendant. It was also suggested that responsible gaming information (such as helpline telephone numbers or responsible gambling advice) could be printed on tickets. However, the review also noted that it was possible that:

“The full TITO facility would reduce the circuit breakers inherent in gaming machine operations with manual insertion and retrieval of notes and coins.” (IPART, 2004, p112)

- 8.52** The IGA reports that in its basic form TITO provides anonymity to the gambler which in turn reduces its function for player tracking. Some stakeholders claim that the removal of the need for human contact with cashiers and attendants may negatively impact problem gambling and lead to a loss of jobs in the industry (ALHMMWU, 2003); however this is countered by the AGMMA (2003) which suggests that TITO systems will require similar input from staff, if not more, higher level input. This is due to ticket machines requiring ticket roll refills at least as often as machine hoppers need refilling, and for trained staff to deal with increased technological requirements of the system.
- 8.53** Ultimately, in the absence of any empirical evidence or consistent agreement among stakeholders, the IPART tribunal concluded that TITO should not have been implemented as a harm-minimization feature at that time. Consideration of the merits of TITO beyond harm minimization (eg commercial benefits) was outside the scope of the IPART review.
- 8.54** In another study, White et al. (2006) collected views from 69 ‘key informants’ including researchers, clinical specialists, counsellors and problem gamblers regarding EGM features and potential machine modifications which may be linked to problem gambling and social responsibility. Some findings from this research are particularly relevant to the current review. Respondents were asked how important ‘payout in tickets rather than cash’ may be in contributing to problem gambling. Overall, respondents viewed such a feature as relatively unimportant in contributing to problem gambling with the feature receiving an average score of 2.84 out of 5 ranking it at the bottom of the list of features which may contribute to problem gambling. Furthermore, consistent with the aforementioned finding, modifying machines to paying out cash rather than tickets was ranked as one of least effective means for reducing problem gambling according to experts responding to the survey. Therefore, although there is currently no empirical evidence on the impact of ticket-based systems on problem gambling and the promotion of responsible gambling, there seems to be some consensus among experts participating in the White et al survey that ticket-out payments are likely to have minimal impact in exacerbating problem gambling.

Perceived advantages of ticket-based systems among stakeholders

- 8.55** A total of fourteen stakeholders submitted views on this issue, in this current review. A wide range of potential benefits were identified of which the most popular were related to convenience, security and lower operator costs. The most cited advantage of ticket-based systems was cost savings which could be made from lower repair costs, lower overheads and lower personnel costs (*Infogaming.com; Inspired Gaming Group; Carolyn Downes; Peter Collins; three anonymous industry stakeholders*). Ticket-based systems were also suggested to be easy to use by both staff and customers (*Purcell and Associates; Inspired Gaming Group; Gordon Moody Association; one anonymous industry stakeholder*). They were also considered to be secure and to promote crime reduction (such as theft, burglary, criminal damage and fraud) and to promote staff and customer safety (*Inspired Gaming Group; Business in Sport and Leisure; Association of British Bookmakers; Gordon Moody Association; one anonymous industry stakeholder*).
- 8.56** Other advantages which were proposed included:
- It offers a greater degree of anonymity for the player compared to other cashless options (*anonymous industry stakeholder*)
 - Less dirty and problematic (eg machines may not accept some notes) than cash (*anonymous industry stakeholder*)
 - It forces players to leave machines and interact with staff when cashing in tickets (*Association of British Bookmakers; Carolyn Downes*)
 - Underage players will be discouraged since there are now greater checks in that they have to interact with staff to cash in any tickets at the counter (*GamCare*).

8.57 Some stakeholders suggested that ticket technology could facilitate account monitoring and improve transparency (*Inspired Gaming Group; Business in Sport and Leisure; GamCare*) and could help enforce pre-agreed limits between customer and operator (*GamCare*), although it was not made clear in the submission exactly how these would be achieved. However, *Inspired Gaming Group* highlighted in their submission that:

“Current regulation requires that the screen shows pop-ups inviting players to print receipts after set limits and options to print tickets after any win greater than £50. This, again, assists operators in managing their social responsibility obligations.”

8.58 A summary of stakeholder submissions on this issue is included in Appendix 5 B1.

Perceived disadvantages of ticket-based systems among stakeholders

8.59 There were fewer submissions on this issue with five industry and five academic/concern sector stakeholder submitting views. The most common concern was that tickets remove the reality of spend through using non-cash alternatives and ‘non-direct’ payment (*Responsible Gaming Networks; Gordon Moody Association; GamCare*). Other concerns that were expressed included:

- That the expiry date of the ticket may prove to be an issue if customers were liable to lose to the value of the ticket after a specified period of time before cashing in (*Infogaming.com*)
- Ticket maintenance may require specialist staff training (*Infogaming.com*);
- Tickets offer greater anonymity and therefore offer less protection against money laundering (*Purcell and Associates*)
- Tickets are less durable than other forms and may be open to machine failure (*anonymous industry stakeholder*)
- Costs of initial investment in product development and hardware (*Inspired Gaming Group*)
- Less need for interaction with staff (*Carolyn Downes*)
- Players can not be tracked and there may be restrictions on the level of auditing, monitoring and marketing that can be done as a result (*Peter Collins*)
- Increased convenience may facilitate problem gambling (*GamCare*)
- May permit immediate transfer of funds which may facilitate problem gambling (*Responsibility in Gambling Trust*).

8.60 Regarding the point made above regarding ticket expiration, we made some initial enquiries with customer service divisions of some UK betting and casino companies. Within the betting sector, expiration does not seem to be an issue with records being kept in shops for a period of between three and eighteen months and even after that period, records will be kept at head office. Therefore, ticket receipts from EGMs in licensed betting offices will, for the most part, be honoured indefinitely.

8.61 One response from the casino sector mentioned that while there was no expiry date for ticket redemption, any large sums being redeemed after the 24-hour period may be subject to a money laundering investigation. Interestingly, an anonymous source from the UK casino industry claimed that, in their casino, they prefer tickets to be redeemed as soon as possible as they sometimes experience problems with people collecting discarded tickets with a small value (less than £1.00) on them and redeeming them all at once, and therefore feel that the 30-day limit will discourage this behaviour.

8.62 A summary of stakeholder submissions on this issue is included in Appendix 5 B2.

Stakeholder views on the implications of ticket-based systems for the prevention and reduction of problem gambling

8.63 Of the fifteen stakeholder submissions only two supported the view that tickets can prevent the development of problem gambling or reduce current levels of problem gambling (*Inspired Gaming Group and Business in Leisure and Sport – see Tables 8 and 9*).

Table 8: Stakeholder responses in relation to ticket-based technologies preventing problem gambling

Question: To what extent do you agree with the following statement? Using ticket-based technologies (eg ticket-in-ticket-out and ticket-out) in gambling can prevent the development of problem gambling.

| | Industry stakeholders | | | | | | | | Academic/concern sector | | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|-----------------------------|---------------------------|---------------------------|-------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | | * | | | | * | | | | | | | * | | |
| Disagree | | | | | | | | * | * | | * | * | | | * |
| Neither Agree or Disagree | * | | | | * | | * | * | | | | | | * | |
| Agree | | | | | | | | | | | | | | | |
| Strongly Agree | | | * | * | | | | | | | | | | | |

Table 9: Stakeholder responses in relation to ticket-based technologies reducing problem gambling

Question: To what extent do you agree with the following statement? Using ticket-based technologies (eg ticket-in-ticket-out and ticket out) in gambling can reduce the current level of problem gambling.

| | Industry Stakeholders | | | | | | | | Academic/Concern Sector | | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|-----------------------------|---------------------------|---------------------------|-------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | * | | | | | * | | | | | | | | | |
| Disagree | | * | | | | | | * | * | | * | * | | | * |
| Neither Agree or Disagree | | | | | * | | * | * | | * | | | | * | |
| Agree | | | | | | | | | | | | | | | |
| Strongly Agree | | | * | * | | | | | | | | | | | |

- 8.64** The most common reason cited by stakeholders for the lack of confidence in ticket-based systems is the lack of empirical evidence regarding its effectiveness.

Remote loading: impacts on problem gambling and potential for responsible gambling

- 8.65** There are currently no empirical research findings on the impact of remote loading on gambling behaviour. However, it is worth noting that among some operators in the UK remote loading carries with it the ability to load funds using a debit card within session while in the venue (Gambling Commission 2006). This is achieved by making an over-the-counter payment in the betting office using a debit card. While White et al. (2006) in consultation with the 69 experts found little support for ticket payment contributing to problem gambling, they did find considerable support for the claim that direct electronic fund transfers at the machine may be a significant contributor to problem gambling. In fact, such a feature was ranked as one of the most likely features from a list of 27 characteristics that may contribute to problem gambling. Additionally, among the researchers and problem gamblers responding to the survey, the elimination of electronic fund transfers was rated as most important machine modification for reducing problem gambling out of a possible 76 potential modifications. It was also rated as the second most effective modification amongst the 'specialists' responding to the survey.
- 8.66** Although, these findings specify a direct payment via electronic funds to the machine, they may have some relevance to debits being made at the counter for remote loading. Among experts there seems to be some consensus that direct payments from one's bank to play EGMs may be problematic. In this instance, it is important to determine what the potential impact may be for giving players access to more funds for gambling directly from their bank account without having to leave the venue, even if they have to temporarily leave the machine.
- 8.67** As the Association for British Bookmakers (ABB) suggest in their submission to this review, the inverse will apply here: "...where debit cards are used, there is no greater 'reality check' than, having lost your money, to revisit the counter to ask a human to allow you to spend more". There is, however, no further explanation for how such a process would actually work. However, it should also be noted that in the case of remote loading there would be a short break and necessary human interaction with shop floor staff when loading funds onto a machine. Many stakeholders view this as an important aspect of responsible gambling. Nevertheless, the issue of providing access to additional funds in-venue still remains.
- 8.68** McMillan, Marshall and Murphy (2004) explored the potential association between Automatic Teller Machines (ATMs) or electronic fund transfers in gaming venues and problem gambling. In interviews with problem gamblers and their families, respondents suggested that the trips outside the venue enforce a much needed 'break in play' providing a 'cooling-off period' which may allow gamblers the opportunity to consider the implications of their gambling. Therefore, the availability of ATMs in gaming venues and their close proximity to EGMs was a common cause for concern since it may permit gamblers to quickly withdraw more funds without properly considering the implications. McMillan et al include in their report a variety of supporting quotes, for example: "When I'm away from the club I can see the stupidity of it all. In my lucid moments I'm determined not to do it again [gamble until large amounts have been lost] but it's all too easy, the way the whole system is set up." (Self-identified problem gambler) (McMillan et al, 2004, p.168).
- 8.69** However, McMillan et al also report that a small number of respondents felt that the removal of ATMs might not have a significant impact of problem gambling, particularly those who have serious problems who might go to "extraordinary lengths" to obtain more funds for chasing: "Whether the [ATM] machines are there or not is 'irrelevant' for serious gamblers who would find other ways of obtaining money if they needed to" (Self-identified problem gambler) (McMillan et al, 2004, p. 168).

- 8.70** They also found that in interviews with gaming staff revealed that removing ATMs from the gambling venue may have negative consequences including:
- forcing gamblers to use ATMs in less secure environments (which may be particularly important for women)
 - some venues are not located near ATMs or banks therefore some venues will have an unfair advantage
 - pushing some gamblers to outside ATMs and banks where they can draw funds from their credit card using cash advances
 - it is not fair to the majority of customers who do not have a problem and rely on the ATM for reasons other than facilitating problem gambling.
- 8.71** While the above arguments relate directly to ATMs which are not under consideration in this review, we feel that, to some extent, the findings may also have implications for facilities to load credit via direct debit since both permit further access to funds within the gaming venue.
- 8.72** The ABB in their submission also make some interesting points regarding the risk of over-staking through remote loading: *“One of our large members has established that over the last 10 last weeks the average credit loaded was £45.62 per customer transaction, which should allay concerns about over-staking. This is less than 50% of the maximum stake permitted for one game and the typical playing session involves a number of games. As we have said earlier, bookmakers voluntarily apply a £200 limit to individual transactions and we would support DCMS writing this into Regulations.”*
- 8.73** However, there is no information regarding the number of transactions per customer per session. Therefore, while the average credit loaded was £45.62 per customer transaction, the customer can make repeated transactions within a single gambling session. Furthermore, there are games available on these EGMs (Category B2) which may only have a maximum stake level of £1 but have a very fast event frequency (games lasting a couple of seconds per spin) and therefore, while ‘over-staking per bet’ may not present a problem, the ‘loss-rate per hour’ may be a more appropriate criterion for judging gambling-related harm.

Perceived advantages of remote loading among stakeholders

- 8.74** In all, nine stakeholders responded to this issue. The three most common benefits cited were improved security, lower operating costs and enforced breaks for players. The most frequent response referred to security benefits, where reduced cash being kept in machines and behind the cash desk would improve staff and customer safety and reduce theft, burglary and criminal damage (*Purcell and Associates; Inspired Gaming Group; Business in Sport and Leisure; Association of British Bookmakers and Gordon Moody Association*). There was also general support for the claim that remote loading can provide ‘circuit breakers’ in that being forced to leave the machine and interact with staff each time they load money onto the EGM may give players a reality check (*Inspired Gaming Group; Business in Leisure and Sport; Association of British Bookmakers, GamCare, Carolyn Downes*). Furthermore, like other forms of cashless and card-based technology, stakeholders suggested that remote loading will result in cost savings (*Purcell and Associates; Inspired Gaming Group; one anonymous industry submission*). Other perceived advantages included:
- Protection against money laundering (*Purcell and Associates*)
 - It is more effective in restricting under-age gamblers (*GamCare*).
- 8.75** It was also claimed that such technology can offer better value to customers and make games more enjoyable (*Business in Sport and Leisure; Gordon Moody Association*). More specifically, as *Business in Sport and Leisure* point out in their submission, remote loading: *“...provides value for money for the customer as manufacturers are able to afford higher paybacks which create more fun for the customer.*

In most machines with this technology, 97% of money staked is returned to the customer. More active games will offer better value for money”.

8.76 The Association for British Bookmakers (ABB) also highlights that quite apart from reducing problem gambling and offering customer protection, remote loading also reduces crime in gambling which promotes the first licensing objective of the Gambling Act 2005. In their submission, they point out that since promoting remote loading they have experienced an 80% drop in crime against machines in the last three years. They also point out that in 2006 there were 616 incidents involving betting shop premises and 54 cash-in-transit incidents. Overall, these crimes resulted in 73 injuries and involved 70% of robbers who were armed. They point out in their submission that: *“Wins on machines can be significant across a number of games. One large operator has paid out 822 winning tickets over the last three months with a value of between £3,000 and £10,000.”* The implications for criminal opportunities arise when staff may need to retrieve cash during shop opening hours to make large payouts such as these.

8.77 A summary has been included in Appendix 5C.1.

Perceived disadvantages of remote loading among stakeholders

8.78 Out of a total of fourteen submissions in this current review, issues relating to privacy and ‘reality of spend’ were cited as the biggest drawbacks of using remote loading. In terms of privacy, some stakeholders highlighted that customers may not feel comfortable with staff knowing how much they are spending (*Association of British Bookmakers; one anonymous industry stakeholder*). Much like other forms of cashless technology considered in this review, some (*Responsible Gaming Networks; Gordon Moody Association; GamCare; one anonymous concern sector stakeholder*) suggested remote loading may shift player focus away from the amount being spent either through the use of non-cash alternatives or ‘non-direct payment’ (ie paying at the counter rather than at the actual machine where the gambling takes place). Other stakeholder concerns included:

- Operator will be trusted to ‘hold credit’ but will not be liable to financial services rules for acting as a ‘bank’ (*Purcell and Associates*)
- The initial investment in product development and hardware (*Inspired Gaming Group*)
- Inconvenience and waiting time to make transaction (*two anonymous industry stakeholders*)
- Lack of confidence from customer regarding transactions since there is no record of the transaction such as a card, ticket or receipt (*anonymous industry stakeholder*)
- Inconvenience when moving from machine to machine because of need for staff involvement (*anonymous industry stakeholder*)
- Despite being considered as a key advantage for many of the stakeholders in this review, some consider that staff costs may actually prove to be prohibitive (*Carolyn Downes*).

8.79 A summary has been included in Appendix 5C.2.

Stakeholder views on the implications of remote loading for the prevention and reduction of problem gambling

8.80 In total, four 4 stakeholders (*Inspired Gaming Group; Business in Sport and Leisure; Association of British Bookmakers; Peter Collins*) agreed or strongly agreed that remote loading could prevent problem gambling and five (*Inspired Gaming Group; Business in Sport and Leisure; Association of British Bookmakers; Peter Collins; Purcell and Associates*) felt that it could reduce current levels of problem gambling. See Table 10 and Table 11 for a full breakdown of stakeholder responses.

Table 10: Stakeholder responses in relation to remote loading preventing problem gambling

Question: To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the EGM) in gambling can prevent the development of problem gambling.

| | Industry stakeholders | | | | | | | | Academic/concern sector | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|---|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure Association of British Bookmakers | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | * | | | | * | | | | | | | | | |
| Disagree | | * | | | | | | * | * | | | | | |
| Neither Agree or Disagree | | | | | | * | * | | | * | | * | * | * |
| Agree | | | | * | | | | | | | * | | | |
| Strongly Agree | | | * | * | | | | | | | | | | |

Table 11: Stakeholder responses in relation to remote loading reducing problem gambling

Question: To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the EGM) in gambling can reduce the current level of problem gambling.

| | Industry stakeholders | | | | | | | | Academic/concern sector | | | | | |
|---------------------------|-----------------------|------------------------|---------------------------|---|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure Association of British Bookmakers | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Strongly Disagree | * | | | | * | | | | | | | | | |
| Disagree | | | | | | | | * | * | | | * | | * |
| Neither Agree or Disagree | | | | | | * | * | | | * | | | * | |
| Agree | | * | | * | | | | | | | * | | | |
| Strongly Agree | | | * | * | | | | | | | | | | |

- 8.81** One anonymous industry stakeholder emphasised that the focus should not be the technology but the staff. In their submission, this stakeholder argued that problem gamblers can “get around any restriction” and therefore, successful policies to address problem gambling and promote social responsibility must rest with competent and well-trained staff rather than with technology of gimmicks.
- 8.82** Again, like other new gambling technology, some stakeholders felt they did not have enough empirical evidence to commit to an answer either supporting or refuting such claims. Furthermore, the lack of empirical evidence may be best reflected in the absence of any consensus which is again recorded for capabilities of cashless and card-based technologies to address problem gambling.

9 Controversies in cashless and card-based technologies

Mandatory or voluntary?

- 9.1** In Stage 1 of the NSGC program, during the development of the RGD, use of the card to play EGMs was voluntary. It was reported that 44% of participants removed their card and continued gambling without their card when self-imposed spending limits were reached (Omnifacts Bristol, 2005). Hence, it may be that the ability to pre-set spending limits and avoid irrational spending decisions when in an aroused state will be redundant if the player can continue to gamble by simply removing their card thereby reversing any previous decisions taken to set limits. This view is also endorsed by Dickerson et al (2003) and Livingstone and Woolley (2008), who suggest that all gamblers should require such a card to gain access to and continue to play any EGM within the venue so that the EGM would be inoperable without the card inserted in the machine. Hing (2003) and the IGA (2005) support this view, suggesting that self-exclusion and pre-commitment programmes will only work if players are forced to insert their card into an EGM in order to play it.
- 9.2** Findings from the focus groups conducted in Las Vegas demonstrated strong opposition to mandatory card registration if one wanted to gamble on EGMs (Bernhard et al, 2006). It is probable that this finding may be a result of cultural differences between Las Vegas, who are used to a ‘free’ gambling industry (Bernhard et al, 2006), and Nova Scotia residents, who are used to the gambling industry being state-owned who were more in favour of making card registration mandatory (Omnifacts Bristol, 2006). These cultural opinions are also apparent in Australia, where it has been suggested that a compulsory pre-commitment system would run against Australia’s democratic traditions (Australian Casino Association, 2003). There was some support for mandates found in the NSGC research programme, where some customers proposed that an expenditure limit, determined by the state, should be implemented for everyone (Schellinck & Schrans, 2007; Omnifacts Bristol, 2006). Aristocrat (2003) suggest that if mandatory pre-commitment measures were introduced then gamblers would drift into other forms of gambling which did not require this pre-commitment element, eg wagering, the internet, lottery. However this claim is not supported by empirical evidence.
- 9.3** IPART (1994) in its review of responsible gambling concluded that, in the absence of any empirical evidence at that time and no consensus amongst stakeholders, pre-commitment, including the use of smart cards, should not be introduced on a mandatory basis. However, given that capabilities for providing pre-commitment and card-based technologies already existed in many venues, the tribunal recommended that players should be encouraged to use pre-commitment cards on a voluntary basis where they were made available.
- 9.4** McDonnell-Phillips Pty (2006) in their review of the use of cards in pre-commitment reported that the 63% of respondents thought that card-use should be voluntary and 54% claimed that players should be responsible for deciding their own limits rather than having these imposed by the regulator or the operator.

Importantly, 60% of players thought that voluntary limits would not have a negative impact on their level of enjoyment when playing EGMs. Furthermore, as noted in other jurisdictions, there were some (22%) that thought spend limits should be mandatory and nearly twice as many again (40%) thought that limits should be set according to a person's disposable income.

- 9.5 Break Even Services, Victoria (cf. Productivity Commission, 1999, p 16.75) suggest that pre-commitment via card-based technology should be mandatory: *"It is our contention that all players should be required to consciously choose to participate in gambling activities through a smart card and be able to receive a number of harm minimisation and consumer protection measures by this means.... It is our belief that the obligation to obtain personal smart cards in order to gamble will not prove a disincentive for non-problem consumers"*.

Stakeholder views on mandating cashless and card-based technologies

- 9.6 Overall, there was consensus among the majority of stakeholders that using CCRGFs should be made voluntary for customers. Of the remaining submissions, three stakeholders (*Purcell and Associates; Gordon Moody Association; one anonymous concern sector stakeholder*) reported that such technologies should be mandated and three stakeholders (*Responsible Gaming Networks, Carolyn Downes and Peter Collins*) refrained from committing either way. See Table 12 for full breakdown of stakeholder responses on this issue.
- 9.7 *Peter Collins*, in his submission, responded: *"I believe that a democracy should allow its residents certain freedoms, even the freedom to make unwise decisions. Government intervention should remain at arm's length and not be intrusive"*.
- 9.8 *Responsible Gaming Networks* explains in their submission that this decision is not straightforward: *"Gambling should not be allowed without mandatory usage of a technology which provides the option of pre-commitment functionality (such as spending limits etc) being activated by those players who wish to utilise such functionality. However, the use of the pre-commitment functionality (such as spending limits etc) should initially be introduced as a voluntary option for all players. In those jurisdictions where this does not ultimately result in a major reduction in problem gambling then the pre-commitment functionality should be made mandatory for all players. In those jurisdictions where this does not ultimately result in a major reduction in problem gambling the Government/Regulator should introduce their own mandatory spending limits (as has recently occurred in Norway)."* Therefore, as described above, a proactive yet cautious 'stepped approach' could be employed where regulators could initially aim for minimal intervention and restrictions but offer the customer more control and choice in how they choose to gamble. In this way, mandates should be seen as a last resort should other less restrictive policies fail to reduce problem gambling.

Table 12: Stakeholder responses in relation to mandating cashless and card-based technologies

Question: If responsible gambling features (eg accounting features, spending limits etc) are made available through cashless technologies (any form) should usage among customers be mandatory or voluntary?

| | Industry Stakeholders | | | | | | | | | | Academic/Concern Sector | | | | |
|-----------|-----------------------|------------------------|---------------------------|---|-------------------|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure Association of British Bookmakers | Bingo Association | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Anonymous (Concern sector) |
| Mandatory | | * | | | | | | | | | | | * | | * |
| Voluntary | * | | * | * | * | | * | * | * | * | | | | * | |
| Undecided | | | | | | * | | | | | * | * | | | |

Unintended consequences

9.9 Bernhard and Preston (2004) draw our attention to the inherent challenges in harm minimisation and machine modification suggesting that these may also have consequences different to those originally intended. Similarly, Livingstone and Woolley (2008) urge caution in adopting and promoting gambler interventions without due consideration and carrying out ecologically valid research to explore actual impact on behaviour. For example, stakeholders must be cautious that accounting statements do not have in the unintended consequence of evoking chasing behaviour or that self-exclusion features do not have the unintended consequence of pushing the gambler to less responsible operators or more dangerous gambling activities. One of the ways to avoid or expose ‘unintended consequences’ is to follow the lead of the NSGC and carry out research trials which analyse both player behaviour and player attitudes in ecologically valid settings before implementing large-scale changes to policy, particularly where these require considerable investment and a significant change in infrastructure.

9.10 Conversely, we would also warn against immediate rejection of responsible gambling features during the initial implementation phase or during research trials, even if they show signs of eliciting ‘unintended consequences’. Features may have different impacts when they are new or are presented in an idiosyncratic context (eg a new product launch or placed in a new venue). For example, if operators inform customers about new options for setting limits on a particular game, this may have the unintended consequence of initially drawing more players to that game, thereby increasing gaming revenues through indirect marketing. However, it might be the case after an initial increase in level of play there will be net long-term benefit to players as suggested by findings in the NSGC trials.

Marketing or consumer protection?

9.11 Another challenge in considering cashless and card-based technology is deciding on their purpose. Some authors (Griffiths & Wood, 2008; Wood & Griffiths, 2008) call for a clear distinction to be drawn between ‘responsible gaming cards’ and ‘loyalty cards’. ‘Responsible gaming cards’ aim to prevent and reduce problem gambling through the RGFs or by analysing player behaviour.

'Loyalty cards' usually use data for marketing purposes and offer tailored inducements to 'reward' customer loyalty much like many other loyalty cards available in other areas of commerce. Wood and Griffiths (2008) report a consensus among an international panel of seven experts in the area of problem gambling and social responsibility regarding the view that player cards should only be used for the purposes of customer protection and not to promote further gambling.

9.12 However, the rationale for this distinction remains unclear. It stands to reason that card-based systems should not claim to do something they do not do or be subject to a conflict of interest. However, we would suggest that there is still scope for a multi-functional card-based system which permits player tracking to be used for marketing, auditing and consumer protection where appropriate, as demonstrated by systems currently on the market (eg Techlink's Gameplan System and Worldsmart's J-Card). In fact, based on information reviewed in this report, we would argue that having more than one card offering different functions may pose a problem both for the consumer and for the operator. Consumers may be less motivated to carry and use a variety of different cards during a gambling session. Operators may find costs of multiple card-based systems prohibitive, and perhaps more importantly, experience a situation where capabilities of various different card systems counteract each other. For example, in our view the goal of a successful card-based system would be one that appeals to the operator and the consumer, permitting non-predatory marketing where the card identifies that the player does not have a problem, but may restrict marketing or even recommend using responsible gambling features for those customers exhibiting signs of at-risk or problematic play. Wood and Griffiths (2008) widen the debate further by suggesting that the usage of 'Responsible Gaming Cards' could still be incentivised in that players could be 'rewarded' for 'responsible play' rather than for how much they actually spend. We also feel that this is an idea which warrants further investigation, particularly if it was part of a multi-functional card system.

Is card sharing an issue?

9.13 In the NSGC trials it was noted that some players were sharing cards to bypass certain restrictions (Bernhard et al, 2006). Blaszczynski (2005) also suggests that the use of cards is likely to disrupt the social gambler's experience, as they may not be motivated to purchase a card, or they may leave them at home. Blaszczynski suggests that it is likely that it will have a minimal impact on the problem gambler who will ensure they do have their cards and have access to additional cards (eg by borrowing or through a black market) if necessary. Ryan (2008) also suggests that this is a fundamental weakness in most card-based systems and that it needs to be addressed if such systems are to have any impact on preventing or reducing problem gambling.

9.14 In contrast, Schellinck and Schrans (2007) confirm that although 36% of test panel members from the NSGC trials report to have ever let somebody else use their card or have borrowed someone else's card, the majority (94%) of these individuals did so only on a rare or occasional basis. Overall, regular card-sharing only accounted for 1.7% of all play sessions. The key issue seems to be whether problem or 'at-risk' gamblers would be willing to regularly share cards with others players if it implied that they would be restricted or unable to gamble themselves as a consequence. In many respects, this claim seems counterintuitive. Furthermore, card sharing assumes to some extent an established social network among players. In fact, Schellinck and Schrans (2007) point out that the 2% who were regularly sharing cards were identified as bar staff which supports the view that players would normally need to be connected on a social basis to either permit use of their card or request use of a card belonging to someone else.

9.15 The Productivity Commission (1999) suggests that it is unlikely that players would "*lend problem gamblers their cards (with their pins) as that would leave them open to financial losses. In any case, if the problem gambler won on someone's else card the money would be credited to that person's account, not the problem gambler's*" (p. 16.74).

While this claim makes certain assumptions about the technology (eg that it is account-based only) it adds further support to the claim that card sharing is not straightforward and, at present, there is little evidence to suggest that it would, itself, undermine card-based gambling as a responsible gambling measure.

- 9.16** Notwithstanding the above, the feasibility and implications of card sharing still requires further investigation and should be taken into consideration while reviewing policy.

10 Industry leaders in cashless, card-based and tracking technology in responsible gambling

- 10.1** For many, the idea of using technology to protect and inform the player may seem contradictory to the profit motive driving commercial gambling operations. For the most part, technology (card technology in particular) has traditionally been used to collect information regarding customers to inform marketing and product design. It may not be surprising that, to date, few operators have used such technology to promote responsible play which may include limiting play, openness about spending and even player exclusion from the venue; all of which could be viewed as the ‘inverse’ of marketing. The following are operators who are currently using such technology in an attempt to protect and maintain their current customers.

Saskatchewan Gaming Corporation – ‘iCare’

- 10.2** The Saskatchewan Gaming Corporation was among the first gambling operators to pioneer the use of loyalty card data for customer protection rather than marketing. They combine the analysis of player data and staff training to operate a proactive responsible gambling programme. According to Davies (2007) the player data is collected through the ‘Player Club’ card which also functions as a loyalty card. Through analysing data the iCare system claims the ability to identify high risk players, the percentage of players at risk over time and the interaction made by casino staff as a response. The exact nature and operation of the iCare system is not currently public knowledge. Nevertheless, they emphasise that since they have discovered that gambling problems seem to develop over months and years rather than days, it is possible to use this data to research problem gambling as a live ‘quasi-experiment’. Gambling behaviour can be examined at the individual level in order to learn about problem gambling. More importantly, the impact on behaviour from any interaction or intervention made by the staff can be monitored which (save some limitations such as lack of control for extraneous variables) can provide ecological evidence regarding the effectiveness of staff engagement for problem players. It should be noted that to enable staff to engage appropriately with ‘at-risk’ or problem gambling, they undergo various levels of training. All staff receive basic training and senior management and other selected staff receive more intensive and specialised training. Essentially, by combining behavioural data analysis with training for staff, players can be monitored for risky or problem play; they can be informed of such behaviour and perhaps most importantly, subsequent impacts of staff engagement with the customer can be examined which may provide vital (and previously unavailable) information regarding what works and what does not when protecting the customer.

Nova Scotia Gaming Corporation (NSGC) – ‘Gameplan’

- 10.3** Since April 2005, the NSGC have been piloting a “player management tool” for their video lottery terminals (VLTs) which has been primarily generated by one of the NSGC’s strategic goals – that of ‘informed choice’. The player management tool is Techlink Entertainment’s ‘Gameplan’ initiative (see Cashless and Card-based Responsible Gambling Features above) which aims to offer players tools such as limits on time and money spent, account summaries and self-exclusion features to encourage responsible play.

While the exact findings of research exploring the nature and impact of this tool has been presented throughout this report, it is useful to note at this stage that the NSGC were careful not to introduce card-based technology without initially researching the potential impact on problem gambling and the commercial appeal of VLTs through various trials at various sites. Based on findings from various academic research teams (Omnifacts Bristol, 2005; Bernard, Lucas and Jang, 2006; Schellinck and Schrans, 2007) investigating the impacts of this tool in ecologically valid settings, NSGC believe the tool may be ready for province-wide implementation for the following reasons:

- a significant number of players were prepared to try and use the features
- a significant number of players considered the features to be useful
- there were no negative impacts or unintended consequences found for use of any of the features.

10.4 NSGC plan to monitor and evaluate the planned province-wide implementation of 'Gameplan' both at baseline and post-implementation to permit a robust evaluation of the product's impact on gambling behaviour (see 'Planned and ongoing research' below).

Svenska Spel – 'Playscan'

10.5 Svenska Spel, a state-owned gambling operator in Sweden, have also adopted a player-tracking approach to identify, understand and communicate to players regarding their potentially problematic or 'at-risk' behaviour. Using sophisticated data analysis techniques and artificial intelligence players are classified using a traffic light system: green indicating normal play; yellow indicating some risky or potentially problematic play; and red indicating serious gambling problems. What is particularly interesting with this approach is that future risk levels (within the next three months) are being predicted based on current and past gambling behaviour with 90% accuracy (Angervall, 2008). The outcome of classifying players according to risk is a tailored communication which informs the player of the Playscan findings and offers the player a variety of responsible gambling options which are voluntary rather than mandatory. It is interesting to note that Angervall also suggests that such tools are effective in promoting commercial interests as well as social interests and that for some products market share has actually increased since the inception of Playscan. This approach is currently available on most Svenska Spel online gambling products and will be rolled out to include EGMs in 2009.

11 Ongoing and planned research on cashless and card-based technology

Nova Scotia Gaming Corporation (NSGC)

11.1 As discussed previously, the NSGC are planning a province-wide implementation of their RGD to all their Video Lottery Terminals (VLTs) which will begin in winter 2009. A two-stage research initiative is planned in conjunction with this proposal. Phase one will include detailed baseline study of VLT players before implementation of the RGD. Variables under investigation are suggested to include problem gambling, demographics, various aspects of player behaviour and commercial performance. Phase two begins after the implementation of the RGD with the aim of assessing the impact on variables measured during phase one. Additionally, the research will also involve assessing player views of the RGD and barriers to adopting the device.

The South Australia Pre-Commitment Trial

11.2 Whilst there are currently no regulations in place in South Australia with regard to card-based and cashless technology, a trial of pre-commitment features is currently underway. Work is due to start during 2008 towards trialling pre-commitment loyalty cards in hotels and clubs across the territory.

This involves customers across four trial sites being encouraged to sign up for Worldsmart Technology's J-card in order to set limits on their play. The aim of the research is to determine whether a pre-commitment system would be used by gamblers if it were available, whether it would be cost-effective to install and whether it has any effect on rates of problem gambling (Worldsmart Technology Pty Ltd, 2008). The aim is to work towards all gamblers volunteering to set limits for their play, and legislative amendments are currently being prepared. It seems that a number of jurisdictions are aware of the forthcoming trial in South Australia and are awaiting the results prior to taking decisions about their own legislation.

12 Conclusions

- 12.1** Empirical evidence regarding the use and impact of card-based and cashless technology in gambling is limited however there are some key findings about which we can be reasonably confident. Based on available evidence, we would conclude that Cashless and Card-based Responsible Gambling Features (CCRGFs) are used by some, but not all, gamblers and for this reason it certainly warrants further investigation. CCRGFs relating to transparency and information (eg activity statements) are more popular than the more restrictive CCRGFs such as pre-commitment (eg limits on time and spending) or self-exclusion. However, it should be noted that player preferences may not necessarily be consistent with effectiveness as a harm minimisation tool (ie the customers may not necessarily always be right). The available evidence also suggests that for players to begin to use new technology: they need to be informed; the systems need to be reliable and easy-to-use; the registration process needs to be efficient; and security and confidentiality must be prioritised.
- 12.2** As pointed out by the Association of British Bookmakers (ABB) in their submission to this report, cashless technologies can also play a fundamental role in promoting another of the Gambling Commission's three key aims, namely that of keeping crime out of gambling. Such technology can remove the threat of violence, theft and burglary through the removal or reduction of cash stored in machines and behind cash desks or being moved in transit. This is particularly important for removing criminal opportunities at various times of the day or week (eg when emptying or refilling machines). Furthermore, card-based options may also permit auditing through player tracking which may reduce the level of money laundering in this type of gambling. Hence, it is important to consider these potential benefits when reviewing the advantages and disadvantages of this technology. Evidence supplied by the ABB already suggests positive and substantive changes in this regard as a result of implementing cashless gambling.
- 12.3** The debate regarding whether the implementation and player usage of such systems should be voluntary or mandatory remains unresolved. In terms of the relevant literature there are views which support and oppose both options. While mandatory use may have the potential to reduce revenue, threaten financial viability of sectors of industry and 'frustrate' players, a voluntary code of conduct may not have a significant impact on promoting responsible player behaviour. Furthermore, most experts surveyed in one research study (White et al., 2007) claim that mandatory implementation and usage would be more effective than a voluntary option for reducing the impact on problem gambling. However, the problem gamblers responding in this study felt that the voluntary option would be more effective as a harm minimisation feature.
- 12.4** Most jurisdictions throughout the world do not currently have definitive regulations on cashless and card-based technologies in place, although they may be aware of their importance. Those jurisdictions with regulations in place are proceeding with caution and are open to reviewing policy as new information becomes available. The majority of jurisdictions supplying information for this review regard cashless and card-based technology as having the potential to both harm and help gamblers.

Consequently, many jurisdictions are currently monitoring the outcomes of ongoing research and trials in this area with a view to implementing and/or amending regulations on cashless and card-based technology.

- 12.5** Some industry stakeholders voiced the opinion that the implementation and promotion of card-based and cashless technologies and CCRGFs in EGMs needed to be proportionate and evidence-based. In theory, industry stakeholders may not be against the use of such features, and they claim to support a responsible approach to the provision of gambling more generally. However, they feel that currently there is little evidence to support the effectiveness of CCRGFs in player protection. Additionally, they do not feel that the costs or challenges in adopting such technology would be proportionate to the commercial opportunities available within the current regulatory framework. In relation to some other jurisdictions, industry stakeholders feel that current regulations are more restrictive in terms of limits on numbers of machines and stakes and prizes thereof.

13 Recommendations

Short-term recommendations

- 13.1** Evidence suggests CCRGFs will be used and will be viewed as helpful by some gamblers. Hence, it is recommended that a UK feasibility study be carried out to assess the capabilities of current and soon-to-be-released cashless and card-based technologies and the associated costs and challenges associated with their implementation for various forms of gambling (EGMs in particular) in the UK. This is particularly important given that, in the UK, EGMs vary considerably in their structure, site and provision. Therefore, the roll out and regulation of such technology in this country may be more challenging than in, for example, a country where machines are more uniform, supplied by one operator and are monitored centrally via server-based provision. This recommendation is consistent with the Review of Research on Aspects of Problem Gambling (Abbott, Volberg, Bellringer and Reith, 2004) and with the UK Scoping Study for assessing gaming impacts (May-Chahal, Volberg, Forrest, Bunkle, Paylor, Collins and Wilson, 2008). As part of this feasibility study, it will be important to learn from the experience of other jurisdictions who advise that systems should be reliable and easy-to-use; support a simple yet effective registration process; and that privacy and potentially even anonymity be assured to customers.
- 13.2** Pilot studies across at least two different sites should also be carried out to explore actual impact on player behaviour (eg through player tracking), and to explore attitudes of both players and floor staff to technology which is either new to the UK or currently has low uptake and penetration (eg smart cards with RGF capabilities). Exploratory research should also consider attitudes and behaviour of both players and staff to existing and more common forms of cashless technology such as ticket-based and central loading systems where there is currently little or no research evidence on attitudes and behaviour.
- 13.3** In terms of the 'mandatory versus voluntary' debate, it is our view that if policy makers do proceed, they should do so initially with a voluntary usage option. In the absence of empirical evidence for the potential impact on player experience, commercial appeal and, perhaps most importantly, the potential for harmful and unintended consequences, we currently feel that mandatory usage is not at this early stage the best option. Nevertheless, a mandatory option should remain a possibility with a view to exploring such concerns in future research (see below).

Medium to long-term recommendations

- 13.4** Experimental research involving cashless and card-based technology should be done in ecologically valid settings such as live gambling venues, to simulate realistic conditions and to permit valid interpretation of findings.

Findings from laboratory-based experiments are limited in that they usually do not involve real gambling conditions (eg limited or no opportunities for losing and winning money; artificial gambling environment; gambling behaviour under supervision and evaluation; participants [eg students] often different from the ‘regular punter’).

- 13.5** Livingstone and Woolley (2008) make an interesting recommendation in their recent review of EGMs and associated technologies for addressing concerns regarding privacy and anonymity. They suggest that a third party may be contracted to manage the card-based system to minimise a potential conflict of interests between marketing and consumer protection. However, while in our view this may be easier said than done (ie the primary organisation normally knows its customers and business priorities best) this proposal may prove useful as future research and policy are being considered.
- 13.6** As mentioned previously, although CCRGFs such as activity statements are more popular than CCRGFs such as pre-commitment, player preferences may not necessarily be consistent with effectiveness as a harm minimisation tool. Therefore, a long-term aim for research should be to assess the effectiveness of CCRGFs regardless of popularity among customers (ie run trials which mandate usage of all features). This should help inform the ‘mandatory versus voluntary’ debate. The commercial impact of mandatory use should also be explored.
- 13.7** Given the concern expressed by stakeholders, the potential costs of investment and limited infrastructure currently in place, key decisions relating to CCRGFs may require a review of current legislation on EGMs, particularly in relation to restrictions on numbers of machines, stakes and prizes. Such considerations may form part of such a review particularly if any relaxations were conditional on the implementation and promotion of RGFs and CCRGFs on EGMs. At the time of writing, some policy is currently under review, namely the level of stakes and prizes for Category C and D EGMs and a proposed increase in the number of EGMs from four to eight in bingo operations. However, it may be the case that a broader review is required. Considerations for a more proactive and more stringent policy on cashless and card-based responsible gambling features may be part of a wider overhaul of the EGM industry in the UK which may also consider other aspects of technological developments in EGMs, such as server-based games and central monitoring. While EGM regulations other than those related to cashless and card-based technologies is beyond the remit of this review, we wish to emphasise highlight that wider policy review may be necessary in order to facilitate new and potentially effective changes in responsible gambling regulation and EGM responsible gambling feature specifications.
- 13.8** It is important to note that growth or commercial success in the gambling industry may not necessarily be mutually exclusive with consumer protection. While some may argue that more gambling opportunities will necessarily mean more problems, we should explore whether more gambling opportunities with more consumer protection is necessarily more harmful than less gambling opportunities with less consumer protection. Again for some, the obvious answer may be less gambling with more consumer protection. However, as stated, with the restrictions in cost and the limitations of the current infrastructure, this may not be feasible. Furthermore, while protection of customers should remain the dominant guiding factor in determining gambling policy, the public’s demand for gambling as a form of entertainment must also be considered. Therefore, if through a broader review of machine numbers, stakes and prizes the potential to enhance the level of consumer protection can be identified, this may have positive implications also for the level of choice and product appeal for consumers.
- 13.9** Ultimately, to move forward, more information is required about exactly how EGMs can operate in a safe yet enjoyable and profitable way. As indicated in this report, cashless and card-based technology shows some promise in this regard but much investment will be required in terms of research, funding and co-operation between stakeholders to explore it further. Based on this review, we feel that the development and growth in the EGM industry, particularly in terms of fostering a responsible approach to its provision, relies heavily on a sound evidence base demonstrating an overall net benefit to stakeholders.

13.10 We would suggest that are we currently a long way from having such an evidence base, and as indicated above, assessing feasibility and executing robust empirical investigations into the actual impact on player behaviour, are essential first steps in establishing the evidence base required to make informed decisions regarding the role for cashless and card-based technology in gambling in the United Kingdom.

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Appendices

Appendix 1: Stakeholders' submissions

Written stakeholder submissions

Industry stakeholders

Business in Sport and Leisure (BiSL) is an umbrella organisation representing the interests of over 100 private sector organisations in the sport, leisure and tourism industries including gaming.

Association of British Bookmakers (ABB) is the leading trade association representing the high-street ('off-course') bookmakers in Great Britain, representing over 7000 licensed betting shops accounting for 80% of the total.

The Bingo Association (BA) is the trade association representing the proprietors of licensed bingo operations in Great Britain.

Inspired Gaming Group is a leading provider of Open Server Based Gaming technology providing its terminals and systems in ten countries.

Infogaming.com is self-identified as a consulting company

Purcell and Associates is self-identified as a consulting company

Responsible Gaming Networks is a Melbourne-based company aiming to identify and reduce problem gambling through the promotion and adoption of its biometric technology.

There were four anonymous submissions three of which represented manufacturers and one representing operators.

Academic/concern/clinical stakeholders

Eileen Kinghan representing GamCare which is a registered charity and the leading authority on the provision of counselling, advice and practical help in addressing the social impact of gambling in the UK.

Dr. Carolyn Downes is a research fellow in gambling and social responsibility at Manchester Metropolitan University

Professor Peter Collins is the director of the Centre for the Study of Gambling at the University of Salford.

Faith Freestone representing Gordon Moody Association which is the leading authority in residential treatment of problem gamblers which also provides outreach support and an internet counselling service.

Responsibility in Gambling Trust is a charity established to research and limit problem gambling which was set up in response to recommendations of an independent Gambling Review Body commissioned by the Government in 2001.

One anonymous submission representing the concern sector.

Stakeholder meetings

Business in Sport and Leisure (BiSL) as identified above.

Inspired Gaming Group as identified above.

Association of British Bookmakers (ABB) as identified above.

Casino Machine Manufacturers Group (CMMG) is a body representing the interests of casino machine manufacturers operating in the UK whose members account for over 90% of machines supplied in legal gaming jurisdictions worldwide.

Department for Culture, Media and Sport (DCMS) is the UK government department responsible for the development and implementation of government policy on the arts, sports, leisure, media and gambling.

The British Casino Association (BCA) is the leading trade association representing the casino industry in Great Britain working to raise awareness, engage in policy development and develop best practice.

Appendix 2: List of acronyms

CCRGF – Cashless and Card-based Responsible Gambling Features. Responsible gambling features which are provided through or supported by cashless or card-based technology, for example pre-commitment or self-exclusion monitored through the use of a player card.

EDITH – Electronic Debit Interactive Terminal Housing. A terminal which allows consumers to buy tickets for use in TITO/TO machines by inserting their debit cards into the console and choosing how much money to transfer onto the ticket.

EGM – Electronic Gaming Machine

FOBT – Fixed Odds Betting Terminals are EGMs (Category B2) normally found in licensed betting offices which allow players to bet on the outcome of various games and events with Fixed Odds.

CPGI – Canadian Problem Gambling Index

CRM – Customer Relationship Management

GII – Gambling Issues International

GSA – Gambler Subtle Assist (card)

IGT-International Game Technology

IJMHA – International Journal of Mental Health and Addiction

IPART – Independent Pricing and Regulatory Tribunal of New South Wales is the independent economic regulator for NSW. IPART oversees regulation in the electricity, gas, water and transport industries and undertakes other tasks referred to it by the NSW Government. In the context of this report, IPART undertook a review of gambling harm minimisation measures in 2004.

LBO – Licensed Betting Office

MP21 – MindPlay 21, a player tracking system for blackjack which utilises RFID, magnetic card and face recognition technology.

NGSC – Nova Scotia Gaming Corporation

PGFNZ – Problem Gambling Foundation of New Zealand

RFID – Radio Frequency Identification is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags.

RGD – Responsible Gaming Device is a system which is fitted onto or housed within an EGM which integrates responsible gaming features.

RGF – Responsible Gaming Feature is a characteristic which can be incorporated or added onto a gambling device or medium which aims to minimise problem gambling, enhance player control and generally promote responsible behaviour by both players and operators. An RGD may contain a variety of RGFs.

STEP - Self Transaction Exclusion Program is run by Global Cash Access. STEP allows gamblers to exclude themselves from accessing their money through the devices, or to set a daily limit for withdrawal. Limits may also be set on a system-wide basis by casino operators or regulators.

TAM – Technology Acceptance Model is a theory proposed by Davis (1989) and applied to the current context by Nisbet (2005a, 2005b, 2006) which suggests that an individual's beliefs about the usefulness of a technology and its 'ease of use' are the primary factors affecting attitude toward and therefore intention to use such technology.

TITO – Ticket In/Ticket Out is technology which allows EGMs to be credited and to pay out currency in the form of tickets which can then be redeemed for cash.

TO – Ticket Out is technology which allows EGMS which operate upon insertion of cash or remote loading to pay out currency in the form of tickets which can then be redeemed for cash.

TODD – Ticket Out Debit Device is a machine modification which allows funds to be transferred from a debit card directly to the EGM, and for currency to subsequently be paid out in the form of tickets which can then be redeemed for cash.

USB – Universal Serial Bus is a standard type of interface used to communicate with any computer.

VLT – Video Lottery Terminal

Appendix 3: Industry stakeholder survey

A. About this review

Aim: This data collection initiative aims to collect views from industry stakeholders on aspects of cashless technologies in gambling and social responsibility.

In February 2008, The University of Salford and The Gambling Lab Limited were contracted by the Gambling Commission to provide a comprehensive literature review on the impact of cashless technologies, with a particular focus on the areas of problem gambling behaviour and social responsibility. For this particular investigation, the cashless technologies that will be considered are the use of remote loading technologies (eg cash payment over the counter where credit is loaded by staff to the gaming machine), card-based technologies (eg swipe cards and smart cards) and ticket-based (eg ticket-in-ticket-out and ticket-out) technologies. It is expected that we shall provide a report which will identify current and emerging cashless technologies, evaluate existing research literature and other grey literature on this topic, consider variations across jurisdictions and also identify and describe ongoing or planned research.

The overall aim of the project is to provide the Gambling Commission and its stakeholders with a solid evidence base by which to better understand the arguments for and against the introduction of cashless technologies. The research team will also seek information from key researchers, industry stakeholders and other jurisdictions in order to inform the final report.

The information you provide will be used to inform our review and/or (with your permission) be included in the final report. This initial 'submission of information' is general and exploratory in nature. We would be happy to receive additional information supplementary to this survey (please send to j.parke@salford.ac.uk) where you feel this would further inform this review.

Participation in this survey is voluntary and all questions in the survey are voluntary with the exception of giving consent for participation and indicating your preferences for anonymity. Your time and consideration are very much appreciated.

B. Consent, confidentiality and anonymity

1. I hereby give consent for this information to be used in the Review of Cashless Technologies in Responsible Gambling. If you choose not to give consent please exit this information tool now. Thank you.

2. The following information can be used in the following context:

- as general information to guide us in our review but not to be included in the final report or
- released publicly as general information to guide us in our review which can also be included in the final report or released publicly.

3. In terms of anonymity, we would prefer:

- our input to remain anonymous in terms of organisation (in which case it will be referred to generally as type of stakeholder, eg Industry Trade Association).
- our input to be accredited to our organisation (in which case it will ALSO be referred to generally as type of stakeholder, eg Association of British Bookmakers, Industry Trade Association).

C. About you/your organisation

1. To which of the following stakeholder classifications do you or your organisation belong:

- Industry Stakeholders (Trade Associations)
- Industry Stakeholders (Operators)
- Industry Stakeholders (Manufacturers)
- Concern Sector (eg GamCare)
- Academic
- Regulator
- Other (please specify)

2. What is the name of your business or organisation (optional)

D. Cashless technology in gambling

Any information regarding types of cashless technology (especially in the context of social responsibility) from industry stakeholders would be helpful in initially identifying forms of cashless device in gambling and will help put the review in an appropriate context.

1. What are the key types of cashless technology currently available for gambling activities in the UK? Any information you could give relating to the following would be extremely helpful:

- Manufacturers
- Brand Names
- The form of gambling to which it applies
- Any other potentially useful information

2. Which forms of cashless technologies apply to your business or organisation?

E. Views on cashless technology in responsible gambling

Given that forms of cashless technology differ to some extent, views are requested on three key types of cashless technology in gambling: remote loading technologies (eg cash payment over the counter where credit is loaded by staff to the gaming machine), card-based technologies (eg swipe cards and smart cards) and ticket-based (eg ticket-in-ticket-out and ticket-out) technologies (where appropriate).

1. What do you consider to be the key advantages of using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) for consumers, operators, manufacturers and/or regulators?

2. What do you consider to be the key advantages of using card-based technologies (eg swipe cards and smart cards) for consumers, operators, manufacturers and/or regulators?

3. What do you consider to be the key advantages of using ticket-based (eg ticket-in- ticket-out and ticket-out) technologies for consumers, operators, manufacturers and/or regulators?

4. What do you consider to be the key disadvantages of using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) for consumers, operators, manufacturers and/or regulators?

5. What do you consider to be the key disadvantages of using card-based technologies (eg swipe cards and smart cards) for consumers, operators, manufacturers and/or regulators?

6. What do you consider to be the key disadvantages of using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies for consumers, operators, manufacturers and/or regulators?

7. To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) in gambling can prevent the development of problem gambling.

Strongly Disagree

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

8. To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can prevent the development of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

9. To what extent do you agree with the following statement? Using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies in gambling can prevent the development of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

10. To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

11. To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

12. To what extent do you agree with the following statement? Using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

13. If responsible gambling features (eg accounting features, spending limits etc) are made available through cashless technologies (any form), should usage among customers be made mandatory or voluntary?

- Mandatory
- Voluntary
- Undecided
- Additional Comments

14. Finally, if you were to speculate what kind of cashless technologies in gambling might be introduced in the next ten years?

Thank You

Thank you for your time. Now all you have to do is click "DONE" below.

Your participation in this review provides an invaluable contribution towards understanding cashless technologies in responsible gambling. If you have any comments or questions regarding this survey please forward your communications to j.parke@salford.ac.uk

Appendix 4: Academic/clinician/concern sector survey

A. About this review

Aim: This data collection initiative aims to collect views from academic/clinician/concern sector stakeholders on aspects of cashless technologies in gambling and social responsibility.

In February 2008, The University of Salford and The Gambling Lab Limited were contracted by the Gambling Commission to provide a comprehensive literature review on the impact of cashless technologies, with a particular focus on the areas of problem gambling behaviour and social responsibility. For this particular investigation, the cashless technologies that will be considered are the use of remote loading technologies (eg cash payment over the counter where credit is loaded by staff to the gaming machine), card-based technologies (eg swipe cards and smart cards) and ticket-based (eg ticket-in-ticket-out and ticket-out) technologies. It is expected that we shall provide a report which will identify current and emerging cashless technologies, evaluate existing research literature and other grey literature on this topic, consider variations across jurisdictions and also identify and describe ongoing or planned research.

The overall aim of the project is to provide the Gambling Commission and its stakeholders with a solid evidence base by which to better understand the arguments for and against the introduction of cashless technologies. The research team will also seek information from key researchers, industry stakeholders and other jurisdictions in order to inform the final report.

The information you provide will be used to inform our review and/or (with your permission) be included in the final report. This initial 'submission of information' is general and exploratory in nature. We would be happy to receive additional information supplementary to this survey (please send to j.parke@salford.ac.uk) where you feel this would further inform this review.

Participation in this survey is voluntary and all questions in the survey are voluntary with the exception of giving consent for participation and indicating your preferences for anonymity. Your time and consideration are very much appreciated.

B. Consent, confidentiality and anonymity

1. I hereby give consent for this information to be used in the Review of Cashless Technologies in Responsible Gambling. If you choose not to give consent please exit this information tool now. Thank you.

2. The following information can be used in the following context:

- as general information to guide us in our review but not to be included in the final report or
- released publicly as general information to guide us in our review which can also be included in the final report or released publicly.

3. In terms of anonymity, we would prefer:

- our input to remain anonymous in terms of organisation (in which case it will be referred to generally as type of stakeholder eg Industry Trade Association).
- our input to be accredited to our organisation (in which case it will ALSO be referred to generally as type of stakeholder, eg Association of British Bookmakers, Industry Trade Association).

C. About You/Your Organisation

1. What is your name? (optional)

2. What is the name of your organisation (optional)

3. What is your role in the gambling and problem gambling field? (optional)

D. Views on Cashless Technology in Responsible Gambling

Given that forms of cashless technology differ to some extent, views are requested on three key types of cashless technology in gambling: remote loading technologies (eg cash payment over the counter where credit is loaded by staff to the gaming machine), card-based technologies (eg swipe cards and smart cards) and ticket-based (eg ticket-in-ticket-out and ticket-out) technologies (where appropriate).

1. What do you consider to be the key advantages of using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) for consumers, operators, manufacturers and/or regulators?

2. What do you consider to be the key advantages of using card-based technologies (eg swipe cards and smart cards) for consumers, operators, manufacturers and/or regulators?

3. What do you consider to be the key advantages of using ticket-based (eg ticket-in- ticket-out and ticket-out) technologies for consumers, operators, manufacturers and/or regulators?

4. What do you consider to be the key disadvantages of using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) for consumers, operators, manufacturers and/or regulators?

5. What do you consider to be the key disadvantages of using card-based technologies (eg swipe cards and smart cards) for consumers, operators, manufacturers and/or regulators?

6. What do you consider to be the key disadvantages of using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies for consumers, operators, manufacturers and/or regulators?

7. To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) in gambling can prevent the development of problem gambling.

Strongly Disagree

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

8. To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can prevent the development of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

9. To what extent do you agree with the following statement? Using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies in gambling can prevent the development of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

10. To what extent do you agree with the following statement? Using remote loading (eg cash payment over the counter where credit is loaded by staff to the gaming machine) in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

11. To what extent do you agree with the following statement? Using card-based technologies (eg swipe cards and smart cards) in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

12. To what extent do you agree with the following statement? Using ticket-based (eg ticket-in-ticket-out and ticket-out) technologies in gambling can reduce the current level of problem gambling.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Additional Comment

13. If responsible gambling features (eg accounting features, spending limits etc) are made available through cashless technologies (any form), should usage among customers be made mandatory or voluntary?

- Mandatory
- Voluntary
- Undecided
- Additional Comments

14. Finally, if you were to speculate what kind of cashless technologies in gambling might be introduced in the next ten years?

Thank You

Thank you for your time. Now all you have to do is click "DONE" below.

Your participation in this review provides an invaluable contribution towards understanding cashless technologies in responsible gambling. If you have any comments or questions regarding this survey please forward your communications to j.parke@salford.ac.uk.

Appendix 5: Stakeholder submission information

A. Card-Based Submission Information

Table A1: Perceived advantages of card-based systems among stakeholders

| Advantages | Industry Stakeholders | | | | | | | | Academic/Concern Sector | | | | | | | |
|--|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|-------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Bingo Association | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Responsibility in Gambling Trust | Anonymous (Concern sector) |
| Player tracking for marketing purposes | * | | * | | * | * | * | | | | | * | | | | * |
| Player tracking for auditing purposes | * | * | | | | * | * | | | | | | | | | |
| Player tracking for monitoring problem gambling | | | * | * | | * | * | | | | * | * | * | * | * | * |
| Can facilitate money spend limits | | * | | * | | * | * | | | | * | | | * | * | * |
| Can facilitate time limits | | | | | | * | * | | | | | | | * | * | |
| Can facilitate account monitoring/transparency | | | * | * | | * | * | | | | * | | | | * | |
| Can facilitate self-exclusion | * | | | | | | | | | | | | | * | | |
| Easy to use/convenient | | | * | | | * | | * | | | * | * | | | | |
| Security – no cash in machines can reduce crime (theft, burglary, criminal damage) and enhance customer safety | | | * | | | | * | | * | | | | * | | | |
| Lower staff costs/overheads/repair costs | | | * | | | | * | | * | * | * | | | | | |
| Improved flexibility for developing, changing or updating games | | | * | | | | | | | | | | | | | |
| Money laundering protection | | | | | | * | | | | | | | | | | |
| Enrolment and monitoring can be anonymous | | | | | | | * | | | | | | | | | |
| Better value for customer/more enjoyable games | | | | | | | | | | | | | * | | | |
| Age verification/restricting underage play | | | | | | | | | | | | | | * | | |

Table A2: Perceived disadvantages of card-based systems among stakeholders

| Disadvantages | Industry Stakeholders | | | | | | | | Academic/Concern Sector | | | | | |
|--|-----------------------|---------------------------|-----------------------------------|-------------------|-----------------------------|---------------------------|---------------------------|-----------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------------|
| | Infogaming.com | Inspired Gaming Group Plc | Association of British Bookmakers | Bingo Association | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Operators) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Responsibility in Gambling Trust |
| Privacy issues – lose the anonymity of cash payment | | | * | | | | | * | * | | | | | |
| Potential for card use to become too demanding and too wide-spread across all consumer activities | * | | | | | | | * | | | | | | |
| Misuse of card (theft, fraud, lost cards) | | | | | | * | | | | | | | | |
| Initial investment in product development and hardware | | * | * | * | | | | | | | | | | |
| Ongoing investment in product development and hardware | | | | * | | | | | | | | | | |
| Unwanted promotional activity | | | | | | | | * | | * | | | | |
| Potential for card-sharing | | | | | * | | | | | | | | | |
| If card system is managed according to operator rather than industry wide, players could reach limits on one operators cards and then move to another operator | | | * | | | | | | | | | | | |
| Removes the need for interaction with staff/reality checks | | | | | | | | | * | | * | | | |
| Removes reality of spend using non-cash alternatives and 'non-direct' payment | | | | | | | | | | | * | * | | |
| Increased convenience may be problematic | | | | | | | | | | | | * | | |
| Removing barriers to play (ie no need to find cash) | | | | | | | | | | | | * | | |
| Can permit rapid transfer of funds with no breaks in play | | | | | | | | | | | | | | * |

B. Ticket-Based Submission Information

Table B1: Perceived advantages of ticket-based systems among stakeholders

| Advantages | Industry Stakeholders | | | | | | | | Academic/Concern Sector | | | | | |
|---|-----------------------|------------------------|---------------------------|-------------------------------|-----------------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Responsibility in Gambling Trust |
| Lower staff costs/overheads/repair costs | * | | * | | | * | * | * | | * | * | | | |
| Easy to use/convenient | | * | * | | | | | * | | | | * | | |
| Affords more anonymity to the player to maintain privacy | | | | | | * | | | | | | | | |
| Security – no cash in machines can reduce crime (theft, burglary, criminal damage, fraud) and enhance customer safety | | | * | * | * | | * | | | | | * | | |
| Can facilitate account monitoring and transparency to help prevent problem gambling | | | * | * | | | | | | | | | * | |
| Customers prefer to cash which can be dirty and problematic (eg machines may not accept some notes) | | | | | | | * | | | | | | | |
| Players can take breaks without being inconvenienced | | | | | | | | * | | | | | | |
| Forces players to leave machine and interact with staff which may reduce problem gambling | | | | | * | | | | * | | | | | |
| Better value for customer | | | | | | | | | | | | * | | |
| May discourage those underage from gambling | | | | | | | | | | | | | * | |
| Helps enforce pre-agreed limits between customer and operator | | | | | | | | | | | | | * | |

Table B2: Perceived disadvantages of ticket-based systems among stakeholders

| Disadvantages | Industry Stakeholders | | | | | Academic/Concern Sector | | | | |
|---|-----------------------|------------------------|---------------------------|-----------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Responsible Gaming Networks | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Responsibility in Gambling Trust |
| Date expiration may prove an issue – customers would lose money after expiration | * | | | | | | | | | |
| Staff may be untrained or limited un number for ticket maintenance | * | | | | | | | | | |
| Anonymity | | * | | | | | | | | |
| Limited protection against money laundering | | * | | | | | | | | |
| Equipment failures | | | | | * | | | | | |
| Less durable | | | | | * | | | | | |
| Initial investment in product development and hardware | | | * | | | | | | | |
| Removes reality of spend using non-cash alternatives and 'non-direct' payment | | | | * | | | * | | * | |
| Less need for interaction with staff | | | | | | * | | | | |
| Players cannot be tracked (implications for auditing, responsible gambling and marketing) | | | | | | | * | | | |
| Increased convenience may be problematic | | | | | | | | | * | |
| Removing barriers to play (ie no need to find cash) | | | | | | | | | * | |
| Can permit rapid transfer of funds with no breaks in play | | | | | | | | | | * |

C. Remote Loading Submission Information

Table C1: Perceived advantages of remote loading among stakeholders

| Advantages | Industry Stakeholders | | | | | Academic/Concern Sector | | | |
|--|------------------------|---------------------------|-------------------------------|-----------------------------------|---------------------------|--|--------------------------------------|---|-------------------------|
| | Purcell and Associates | Inspired Gaming Group Plc | Business in Sport and Leisure | Association of British Bookmakers | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare |
| Easy to use/convenient | | | | | | * | * | | |
| Security – no cash in machines can reduce crime (theft, burglary, criminal damage) and enhance customer safety | * | * | * | * | | | | * | |
| Lower staff costs/overheads/repair costs | * | * | | | * | | | | |
| Better value for customer/more enjoyable games | | | * | | | | | * | |
| Forces players to leave machine and interact with staff which may reduce problem gambling | | * | | * | | * | | | |
| Money laundering protection | * | | | | | | | | |
| Improved player control | | | * | | | | | | |
| Gives reality checks regarding spending | | | * | | | * | | | * |
| May discourage those underage from gambling | | | | | | | | | * |
| Helps enforce pre-agreed limits between customer and operator | | | | | | | | | * |

Table C2: Perceived disadvantages of remote loading among stakeholders

| Disadvantages | Industry Stakeholders | | | | | | | Academic/Concern Sector | | | | | | | |
|--|-----------------------|------------------------|---------------------------|-----------------------------------|-----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--|--------------------------------------|---|-------------------------|----------------------------------|----------------------------|
| | Infogaming.com | Purcell and Associates | Inspired Gaming Group Plc | Association of British Bookmakers | Responsible Gaming Networks | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Anonymous (Manufacturers) | Carolyn Downes, Manchester Metropolitan University | Peter Collins, University of Salford | Faith Freestone, Gordon Moody Association | Eileen Kinghan, GamCare | Responsibility in Gambling Trust | Anonymous (Concern Sector) |
| Privacy issues | * | | | * | | * | | | | | | | | | |
| Waiting time | | | | | | * | | | | | | | | | |
| Operators will be trusted to 'hold credit' but are not liable to financial services rules for acting as a 'bank' | | * | | | | | | | | | | | | | |
| Initial investment in product development and hardware | | | * | | | | | | | | * | | | | |
| Inconvenient | | | | | | | | * | | | | | | | |
| Removes reality of spend using non-cash alternatives and 'non-direct payment' | | | | | * | | | | | | | * | * | * | |
| Lack of confidence from the customer regarding transactions since there is no record of the transaction (eg card, ticket or receipt) | | | | | | | | * | | | | | | | |
| Inconvenience when moving from machine to machine because of need for staff involvement | | | | | | | | * | | | | | | | |
| Staff costs | | | | | | | | | | * | | | | | |