



**Mobile Games Intelligence Forum Response to
UK Government DCMS Call for Evidence:
Loot Boxes in Video Games**

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Mobile Games Intelligence Forum Response to UK Government DCMS Call for Evidence on Loot boxes (November 20th 2020)

Introduction

The Mobile Games Intelligence Forum (MGIF) was established in 2020 to discuss and debate issues facing the sector and its place within the global video games industry. Rather than a representative body or a trade group, MGIF is a participatory forum, sharing mobile games insight and perspectives. Participants in the forum include a range of developers of differing sizes including Rovio, Supercell, King, Roblox, Playrix, Zynga, Wargaming, Miniclip, and Playtika. They have in common a passion for mobile games. As such this paper does not represent the views of any single company, rather it is a sum of knowledge shared between MGI and forum participants.¹

Mobile games have been a positive source of growth during the pandemic. Out of all video game segments, it is mobile gaming that has experienced the biggest increase in global engagement and revenue. As of September 2020, global mobile games revenue was up 9 % year on year with Newzoo predicting a 13.3 % YoY increase in mobile gaming revenue in 2020, generating \$77.2 billion. At a time when creative industries are under threat globally, the mobile games industry is remarkably robust. Across the anxiety and isolation of the pandemic, mobile games have provided much-needed entertainment, enjoyment, social fulfilment and diversion. With an estimated 2.6 billion mobile gamers in 2020, a mobile games industry perspective is timely.

To the best of our ability, we have responded to the ten questions that constitute the call for evidence. Responding as a participatory forum with the diversity of perspectives that involves, has been an opportunity to explore the nuance, context and complexity of issues raised.

For the benefit of this call for evidence, indicative data, confidentially provided by some MGIF forum participants has been aggregated by MGI. Differences in games, coverage and time brackets, precluded a consistent data set. The reality is that it is difficult, sometimes impossible, to compare data sets, when games and their mechanics can vary considerably. Nonetheless, we hope that the indicative data provided will help inform discussion.²

Finally, for ease of reference, we have condensed our feedback into an Executive Summary. We have also provided a Table of Definitions to aid understanding of certain key concepts concerning gaming genres, monetisation and randomness in game design, beyond those definitions already provided (for loot boxes and drop rates).

¹ This paper does NOT represent any one company's position, rather it is a sum of knowledge shared between MGI and forum participants.

² Note: Aggregate data and ranges are based upon data confidentially provided by some MGIF forum participants for the benefit of this inquiry only. It is indicative data ONLY and has NOT been subject to academic verification or peer review.



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Executive Summary

- **A track record of guidance on in-app purchases exists in the UK, based upon existing consumer protection legislation.** In 2012, the OFT (now Competition and Markets Authority CMA) issued a series of principles for developers regarding in-app purchases focused upon transparency, accountability and consent.³ **The principles set a global precedent.** The European Commission (EC) subsequently released a Common Position Paper⁴ on in-app purchases and the marketing of online games and The Australian Consumer Commission explicitly endorsed the OFT principles, on the conclusion of its own investigation into freemium games.⁵ **The principles retain relevance.** In 2020, nearly eight years after the principles were first drafted, a UK government agency, the ICO, explicitly cites OFT guidance on in-app purchases.⁶
- **It is respectfully submitted that building upon this centralised foundation of advice would:** A) address the wider landscape of in-game mechanics and monetisation; B) address loot boxes without hazardous overlap with gambling legislation; C) allow iterative development of guidance in line with a fast-changing industry and technology; D) serve as a pathfinder for the holistic approach advised by both the European Parliament and Federal Trade Commission (FTC).
- **Lending weight to an integrated UK approach is the November 2020 ASA/CAP/BCAP⁷ draft ‘formal’ guidance for consultation, on the application of existing self-regulatory advertising codes to in-app purchases.** Draft guidance encompasses the presentation at point of sale of ‘proprietary and premium currency’, ‘cosmetic items’, ‘functional items’, ‘downloadable content’ and ‘random-item purchases’, of which loot boxes are a subset, amongst other in-game storefront features.⁸ The mantra underpinning the consultation is that ‘Rather than implementing new rules,

³ The OFT’s Principles for online and app-based games. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288360/oft1519.pdf. Published in 2012 and in 2014 by the OFT.

⁴ Common Position of National Authorities Within the CPC. Accessible from: https://ec.europa.eu/info/sites/info/files/common-position_of_national_authorities_within_cpc_2013_en_0.pdf. Published by the European Commission in 2013.

⁵ <https://www.accc.gov.au/media-release/accc-urges-app-industry-to-adopt-new-principles-following-e2%80%98sweep%e2%80%99-of-children%e2%80%99s-game-apps>

⁶ The ICO’s Age Appropriate Design Code. Standard 5: Detrimental use of data. Accessible from: <https://ico.org.uk/for-organisations/guide-to-data-protection/key-data-protection-themes/age-appropriate-design-a-code-of-practice-for-online-services/5-detrimental-use-of-data/>. Published by the ICO in June 2020.

⁷ Committee of Advertising Practice (CAP); Broadcast Committee of Advertising Practice (BCAP); Advertising Standards Authority (ASA)

⁸ Consultation on ads for in-game purchasing. Accessible from: <https://www.asa.org.uk/resource/consultation-on-ads-for-in-game-purchasing.html>. Published by the ASA



we think that the issues in question can be suitably addressed through specific formal guidance on existing rules.’⁹

- **Advances continue to be made by the industry with respect to the self-regulatory landscape, and designers are responsive to player feedback.** Google (including PEGI) and Apple have made changes to increase the transparency of game content and protect consumers online. Changes include the removal of free labels on games which include in-app purchases, the introduction of a label for ‘paid random items’, the disclosure of drop rates, changes to age ratings and the improvement of parental control functionality. These changes demonstrate player feedback drives organic change. Loot boxes are merely one manifestation of output randomness in app-based games¹⁰ and there are multiple instances of developers making changes to improve gameplay balance.¹¹
- MGIF Forum participants have expressed the view that: further steps could be taken to **develop education on parental controls** which are *the* effective mechanism to limit in-app purchases; **research into the efficacy of the existing UK rating ecosystem and how to extend its impact** in areas such as in-app purchases and ratings would be worthwhile; and that **tailored best practice guidance on loot boxes, modelled on the OFT's principles**, could help clarify expectations of developers and address consumer concerns.
- **A minority of countries that have attempted to legislate loot boxes under gambling regulation have been criticised by the European Parliament.** The Policy Department for Economic, Scientific and Quality of Life Policies carried out a detailed study on loot boxes at the request of the Committee on the Internal Market and Consumer Protection. Their report, *Loot boxes in online games and their effect on consumers, in particular young consumers*, published in July 2020, is critical of attempts to impose gambling regulation on loot boxes. First, because it adversely affects the European Single Market for video games, denying consumers of access to titles enjoyed elsewhere in Europe. Second, because it fails to consider loot boxes as merely one of a host of in-game design and monetisation techniques.¹²
- **The Belgium Gaming Commission (BGC) is the only European regulator to have classified loot boxes as gambling due to Belgium’s uniquely broad definition of gambling that does not require monetary prize.** As a result of the BGC’s decision that virtual currency can satisfy the test for ‘wager’ under the Games of Chance Act,¹³ any mobile game with a randomised element and in-app purchases risks classification as gambling at the arbitrary whim of the regulator. The European Parliament has criticised the impact on Belgium’s digital economy, whereby consumers ‘do not have access to the

⁹ Consulting on new guidance on ads for 'loot boxes' and other in-game purchases. Accessible from: <https://www.asa.org.uk/news/consulting-on-new-guidance-on-ads-for-loot-boxes-and-other-in-game-purchases.html> (press release). Published by the ASA, November 2020

¹⁰ For an explanation of output randomness, see: Mark Brown, The Two Types of Random in Game Design. Accessible from: <https://www.youtube.com/watch?v=dwI5b-wRLic&vI=en>. Published January 2020.

¹¹ For example, Diablo 3 has a ‘smart loot system’ whereby you are more likely to find items that match the character class you are playing in order to reduce the likelihood of finding pointless items. Later versions of Xcom publish the chances of whether a bullet will hit.

¹² Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹³ Research Report on Loot Boxes. Accessible from: https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-Engels-publicatie.pdf. Published by the Belgium Gaming Commission in April 2018.



full content of games compared with all other national EU markets where loot boxes were not banned.’¹⁴

- **Australia is a case study in the impracticability of drawing in-game virtual currency into gambling legislation.** Attempts have failed because of the lack of empirical evidence of harm to consumers, paucity of research, enforcement difficulties and the risk posed to the video games sector as a whole.¹⁵ In rejecting the Interactive Gambling Amendment (Virtual Credits) Bill 2013, the Joint Select Committee on Gambling Reform re-iterated the Developers' Association of Australia's (GDAA) warning that the bill would ‘essentially prohibit a large category of games, particularly those that rely on in-app purchases from being accessible in Australia.’¹⁶ On a similar basis, the 2019 government response to investigation of loot boxes by the Senate Standing Committee on Environment and Communications (known as ‘The Loot Box Inquiry’) recommended against legislation.¹⁷
- **Virtually all regulators and associated bodies that have investigated loot boxes conclude that academic research is at an embryonic stage and, in particular, there is a lack of longitudinal evidence.** The European Parliament finds that ‘there is no consensus on a causal link between loot boxes and harmful behaviour.’¹⁸ Similarly, the October 2019 Swedish Consumer Protection Agency's study of loot boxes highlights a lack of causal evidence.¹⁹ Moreover, problem gambling prevalence rates have remained stable²⁰ whilst the online games industry has flourished.²¹ In short, there is an absence of a solid scientific evidence base that loot boxes are a cause of disordered behaviour.
- **Both the European Parliament and US Federal Trade Commission (FTC) have advised a holistic approach to loot boxes in the context of other in-game monetisation and design techniques.** The FTC August 2020 Staff Perspective Paper on loot boxes cautions against government regulation, finding that ‘the video game monetisation system is a complex space that incorporates a wide range of mechanics’ and that ‘many games today, particularly mobile apps, are free to download and rely on in-

¹⁴ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹⁵ Joint Select Committee on Gambling Reform Final Report. http://www.aph.gov.au/~media/wopapub/senate/committee/gamblingreform_ctte/completed_inquires/2010-13/virtual_credits/report/report.ashx. Published June 2013.

¹⁶ Joint Select Committee on Gambling Reform Final Report. http://www.aph.gov.au/~media/wopapub/senate/committee/gamblingreform_ctte/completed_inquires/2010-13/virtual_credits/report/report.ashx. Published June 2013.

¹⁷ Senate Environment and Communications References Committee a report into ‘Gaming micro-transactions for chance-based items’ https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Gamingmicro-transactions/Report

¹⁸ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹⁹ Mapping of consumer protection in the event of lottery or casino-like elements in computer games. Accessible from: <https://www.konsumentverket.se/contentassets/83509d8dffff48559d44de6546ecc362/kartlaggning-av-konsumentskyddet-vid-lotteri--eller-kasinoliknande-inslag-i-datorspel-fi-2019-01630-ko.pdf>. Published by Consumer Works in September 2019

²⁰ Gaming-Gambling Convergence: Research, Regulation, And Reactions. Accessible from: <http://doi.org/10.1089/blr.2019.2323>. Published by Gaming Law Review in March 2019.

²¹ Gaming-Gambling Convergence: Research, Regulation, And Reactions. Accessible from: <http://doi.org/10.1089/blr.2019.2323>. Published by Gaming Law Review in March 2019.



app purchases to pay for their development.’²² The European Parliament has found that loot boxes are merely one aspect of game design, which should be holistically tackled from a ‘wider consumer protection perspective.’²³

- **The singling out of loot boxes does not reflect complex game design ecosystems.** Professor Andrew Przybylski of the Oxford Internet Institute has warned that trying to regulate game mechanics as a form of gambling would be ‘Apocalyptically stupid’ and akin to ‘Trying to crack a nut with this sledgehammer [...] five years from now we’ll see how stupid it is.’²⁴ Indeed, those two facets of loot boxes that are singled out for criticism - RNG and variable reward reinforcement - are commonplace constituents of game design, and, when the additional ingredient of freemium monetisation is considered - i.e. bringing those randomised mechanics to a point of sale - it is clear that a singular focus on loot boxes represents a simplification of the discussion.
- **Paid-for loot boxes are closely intertwined with the wider freemium or ‘free-to-play’ monetisation model,** in which the majority of players play for free. It should not be forgotten that the optional pay to play model was developed in the earlier days of the internet in response to fraudulent software and the fact that consumers do not pay upfront for online content.²⁵ Freemium now predominates mobile gaming and large swathes of the app economy.²⁶
- **Stakeholder roundtables are an opportunity to plug the gap between academics, game designers and consumers.** There are clearly ethical consideration in video game design. However, there is a noticeable chasm of perspective between games designers that strive to create compelling games on competitive app stores and academics, often from a gambling studies background, who seek to call out what they perceive to be negative practices. Roundtables are an opportunity to find common ground and drill down on targeted best practice and education for consumers on loot boxes and a wider gambit of associated issues.

²² FTC Video Game Loot Box Workshop. Accessible from:

https://www.ftc.gov/system/files/documents/reports/staff-perspective-paper-loot-box-workshop/loot_box_workshop_staff_perspective.pdf Published by the FTC, August 2020

²³ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

²⁴ There's a debate raging in video games over whether loot boxes should be classified as gambling. Accessible from: <https://www.businessinsider.com/classifying-video-game-loot-boxes-as-gambling-2020-7?r=US&IR=T>. Published by Business Insider in July 2020.

Published by the BBC, January 2013.

²⁶ Swrve Gaming Monetisation Report 2019. Accessible from:

https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019



Indicative Data

Indicative data from some MGIF participants' mobile games titles, surveyed and aggregated for the benefit of this call for evidence, suggests:

1. The proportion of loot box revenue relative to total in-app purchase revenue ranges from 6-25%.²⁷
2. Less than 3% of all users are purchasing loot boxes.²⁸
3. The proportion of paid-for loot boxes to free loot boxes ranges from less than 2% to less than 8%.²⁹
4. Over the past year, users in the UK who bought loot boxes spent between £5 and £33, averaging approximately £21.³⁰ The figure for total users ranges from less than 1p to £1.³¹
5. The average cost of the most popular loot boxes by total purchases or by total users ranges from £11 to £22.³²
6. The average frequency of purchase for loot boxes is every 20 days versus the average frequency of purchase for all in-app purchases, which ranges from 7-10 days.³³
7. 25% of paid for loot box purchasers, will also purchase another in-game purchase in the same session.³⁴
8. A leading mobile games publisher shared customer service data showing that ~1% of queries are about loot boxes.

Responding to the questions of the call for evidence

3.1 Loot box harms questions

3.1.1 Do loot boxes cause any harm to players and what evidence is there to support this? *Issues to consider include:*

- a. *What are the harms and how are they caused by loot boxes?*
- b. *Whether young people are impacted differently to adults, and if so, how?*
- c. *Whether any harms identified also apply to offline equivalents of chance mechanisms, such as buying packs of trading cards*
- d. *Whether any harms identified may also apply to other types of in-game purchases.*

²⁷ For the majority of mobile games surveyed, the proportion of loot box revenue relative to in-app purchases lies within 5-9%. Data is taken from multiple games featuring loot boxes over quarterly and yearly 2020 periods.

²⁸ Data taken from September & October 2020

²⁹ Based on 12 months of data up until October/ November 2020. Note: As paid-for loot box and free loot box features are only present for certain games, it is not always possible to collect this data.

³⁰ Based on 12 months of data up until October/ November 2020

³¹ This is in line with the freemium model where the overwhelming majority of players play for free (98.4%, Swrve 2019 report)

³² Based on historic all-time data

³³ Based on 12 months of data up until October 2020 & on historic all-time data & only for the proportion of users that purchased a loot box more than once. Note: A potentially lower frequency of purchase for loot boxes in relation to other in-app purchases may be explained by the fact they are often purchased in packs.

³⁴ Based on historic all-time data



A lack of causal evidence

The majority of regulators and associated bodies that have investigated loot boxes conclude that academic research is at an embryonic stage and, in particular, there is a lack of longitudinal evidence. For example, in the July 2020 landmark report, *Loot boxes in online games and their effect on consumers, in particular young consumers*, the European Parliament surmises:

‘Some research on the behavioural effects of loot boxes exists but more research is needed to provide robust and conclusive findings. Some research has found that problem gambling and paying for loot boxes are related. However, there is no consensus on a causal link between loot boxes and harmful behaviour. Indeed, those who liken loot boxes to ‘mystery boxes’ prevalent in other consumer markets, also argue that they are no more nor less harmful than these other random reward practices.’³⁵

The October 2019 Swedish Consumer Protection Agency’s investigation of loot boxes also highlights a lack of causal evidence between loot boxes and harmful behaviour:

‘In the theoretical articles and few empirical studies that exist, the researchers emphasize the need for further studies in order to be able to say something about the connection between loot boxes and gambling. The Swedish Media Council states that research regarding the borderland between gaming and gambling is still in its infancy ... The Swedish Public Health Agency confirms that the research situation is weak and that more research is needed on the causal relationship.’³⁶

Specialists in the field of gaming and gambling convergence have highlighted the limitations of survey-led studies based upon self-report, and caution against drawing substantive conclusions from associational correlations. In ‘*Gaming-gambling convergence: Research, regulation, and reactions*. *Gaming Law Review*, 2019’, Dr Sally Gainsbury draws out the following flaws in gaming-gambling convergence research:

- Absence of longitudinal research.
- Overlap is not the same as causation.
- Time limited, self-recruited and self-reported samples are non-representative and likely to be ‘wildly inaccurate.’³⁷
- Migration to real money gambling is not supported by prevalence studies which ‘show gambling participation has remained relatively unchanged.’
- Conclusion: ‘More research is unquestionably needed.’³⁸

³⁵ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Page 8. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament, July 2020.

³⁶ Mapping of consumer protection in the event of lottery or casino-like elements in computer games. Page 10. Accessible from: <https://www.konsumentverket.se/contentassets/83509d8dffff48559d44de6546ecc362/kartlaggning-av-konsumentskyddet-vid-lotteri--eller-kasinoliknande-inslag-i-datorspel-fi-2019-01630-ko.pdf>. Published by Consumer Works in September 2019

³⁷ Gaming-gambling convergence: Research, regulation, and reactions. Accessible from: <https://doi.org/10.1089/glr2.2019.2323>. Published by the Gaming Law Review, 2019

³⁸ Gaming-gambling convergence: Research, regulation, and reactions. Accessible from: <https://doi.org/10.1089/glr2.2019.2323>. Published by the Gaming Law Review, 2019



As if to bear out Dr. Gainsbury's warning about the risk of unreliable findings, the Central Queensland University study, *Loot Boxes - Are they grooming youth for gambling?* finds that 22.6 % of surveyed adults were identified as problem gamblers whereas the Australian problem gambling prevalence figure is 0.6 %.³⁹

A piece of the evidential jigsaw that may be overlooked is that loot boxes have not necessarily generated a large number of player complaints in relation to other in-app purchases and in-game issues. For example, the Swedish Consumer Protection Agency observes that:

“From August 1st 2018 to 1 August 2019, the Swedish Consumer Agency has only received a few reports specifically concerning loot boxes. Furthermore, there are occasional reports that children have spent money via purchases inside computer games, but it is unclear what the children have purchased.”⁴⁰

The Norwegian Gaming Authority also cites relatively few complaints specifically about loot boxes in relation to other in-app purchases:

‘Public inquiries to the authorities are not unequivocal as to what they actually perceive as the challenges with loot boxes. Many parents point to challenges in controlling their children's spending in the virtual gaming world, but it is often unclear whether the inquiries concern money spent on loot boxes or other things in the game. Adult gamers have expressed the view that loot boxes destroy the value of computer games as games. There are relatively few who have contacted the authorities and pointed out gambling problems.’⁴¹

Placing loot boxes in context

Academia

Historically, academic commissions have tended to consider loot boxes in isolation. However, there is a trend towards understanding loot boxes as part of a wider video game design ecosystem. For example, a European Research Council funded study, *Are Loot Boxes Gambling?*, places loot boxes within a broader conceptualisation of Random Rewards Mechanisms (RRM's), maintaining that ‘it is important to remember that RRM's are fairly common in games and that they are also not exclusive to loot boxes. To name a few, RRM's are found in other well-known forms of entertainment including both board games and collectible cards.’⁴² The study concludes that ‘there is actually only one implementation of RRM's that is

³⁹ Loot Boxes: Are they grooming youth for gambling? Accessible from: <http://hdl.cqu.edu.au/10018/1331683>. Published by Central Queensland University, June 2020

⁴⁰ Mapping of consumer protection in the event of lottery or casino-like elements in computer games. Accessible from: <https://www.konsumentverket.se/contentassets/83509d8dffff48559d44de6546ecc362/kartlaggning-av-konsumentskyddet-vid-lotteri--eller-kasinoliknande-inslag-i-datorspel-fi-2019-01630-ko.pdf>. Published by Consumer Works in September 2019

⁴¹ [Om gråsonespill fra Forum for spilltrender](https://www.regjeringen.no/no/dokumenter/rapport-om-grasonespill-fra-forum-for-spilltrender/id2618537/). Accessible from: <https://www.regjeringen.no/no/dokumenter/rapport-om-grasonespill-fra-forum-for-spilltrender/id2618537/>. Published by The Norwegian Gaming Authority (Regjeringen), November 2018.

⁴² Are Loot Boxes Gambling? Random Reward Mechanisms in Video Games. Accessible from: <http://dx.doi.org/10.26503/todigra.v4i3.104>. Published by Transactions of the Digital Games Research Association in October 2019.



functionally similar to gambling’, namely, games that allow players to withdraw money or virtual items that can be translated into real world value: ‘In other words, only games where the player can turn fiat money into randomized rewards and then turn those rewards back into fiat currency can be considered gambling.’⁴³

Has there been a tendency towards a narrow gambling centred approach? According to Aaron Drummond and James D. Sauer, the existence of ‘variable ratio reinforcement mechanisms ... similar to those underlying traditional forms of gambling,’ is the principle reason why gambling regulators have turned their attention to loot boxes.⁴⁴ Similarly, in the highly respected Journal of Gambling Studies, Larche et al. find ‘that loot boxes containing rarer items are more valuable, arousing, rewarding and urge-inducing to players, similar to the way slots gamblers treat rare large wins in slots play,’ and concludes: ‘This is especially concerning when coupled with the structural similarities between loot boxes and slot machines, such as the use of a variable ratio reinforcement schedule.’⁴⁵ Yet as other studies have pointed out, randomness is far from unique to loot boxes,⁴⁶ and are part and parcel of designing engaging and enjoyable games.⁴⁷

In *Loot Boxes, Gambling, and Problem Gambling Among Young People: Results from a Cross-Sectional Online Survey*⁴⁸, David Zendle seeks to disprove the confound flaw identified by Sally Gainsbury in historic studies investigating simulated gambling and gaming convergence – namely, that the observed relationship may be explained by a shared ‘gambling interest.’⁴⁹ However, there is no acknowledgement that the ‘gambling interest’ confound may not be as pertinent to the nascent study of loot boxes and player behaviour versus confounds related to video gameplay. Zendle concedes that the ‘study did not include questions about other types of microtransactions used in video games and so there is limited information with which to contextualize the patterns of gaming play among loot box purchasers.’ We respectfully ask why this is the case, when, by contrast, a well-known study which identified the impact of

⁴³ Are Loot Boxes Gambling? Random Reward Mechanisms in Video Games. Accessible from: <http://dx.doi.org/10.26503/todigra.v4i3.104>. Published by Transactions of the Digital Games Research Association in October 2019.

⁴⁴ Video game loot boxes are psychologically akin to gambling. Accessible from DOI: [10.1038/s41562-018-0360-1](https://doi.org/10.1038/s41562-018-0360-1) Published by Nature Human Behaviour, 2018

⁴⁵ Rare Loot Box Rewards Trigger Larger Arousal and Reward Responses, and Greater Urge to Open More Loot Boxes. Accessible from: <https://doi.org/10.1007/s10899-019-09913-5>. Published by the Journal of Gambling Studies 2019.

⁴⁶ Are Loot Boxes Gambling? Random Reward Mechanisms in Video Games. Accessible from: <http://dx.doi.org/10.26503/todigra.v4i3.104>. Published by Transactions of the Digital Games Research Association in October 2019.

⁴⁷ For example see renowned game designer Troy Dunningway’s typology of variable reward reinforcement: <https://www.linkedin.com/pulse/using-psychology-games-depth-perspective-troy-dunningway> - or a basic video game design course which helps students understand the utility of balancing loops: <https://learn.canvas.net/courses/3/pages/level-4-dot-4-feedback-loops>

⁴⁸ Loot Boxes, Gambling, and Problem Gambling Among Young People: Results from a Cross-Sectional Online Survey. Accessible from: <https://www.liebertpub.com/doi/pdf/10.1089/cyber.2020.0299>. Published by Cyberpsychology, behaviour and social networking, October 2020.

⁴⁹ Gaming-gambling convergence: Research, Regulation and Reactions. Accessible from: <https://doi.org/10.1089/glr2.2019.2323>. Published by Gaming Law Review, March 2019



confounding variables on the relationship between internet gambling and problem gambling, factored a diversity of gambling formats and time spent gambling.⁵⁰

Regulator and government body led investigations

Initially, regulator and legislator led inquiries into loot boxes did not consider loot boxes in context.⁵¹

Breaking the mould is the European Parliament's July 2020 report, *Loot boxes in online games and their effect on consumers, in particular young consumers*. This study highlights that 'loot boxes are a specific (albeit prominent) example of ... game design and in-game monetisation methods which can also appear in video games independently of loot boxes'. A broad-minded perspective helps to inform the European Parliament's ultimate recommendation to look at loot boxes from a 'holistic' approach based upon existing European consumer protection law rather than a prohibitive gambling standpoint.⁵²

The US FTC August 2020 staff perspective paper summarises views from the August 2019 workshop on loot boxes and concludes with a commitment to a watching brief. Like the European Parliament's report, the FTC's conclusion acknowledges that 'the video game monetisation system is a complex space that incorporates a wide range of mechanics'- and that 'microtransactions and loot boxes appear across genres of video games, including sports games, role playing games, and action games, and come in many forms. It is recognised that loot boxes as part and parcel of the reality that 'many games today, particularly mobile apps, are free to download and rely on in-app purchases to pay for their development.'⁵³

Factoring a wider randomised game design ecosystem

We respectfully suggest that loot boxes should be understood in terms of a broader video game design ecosystem, in which randomness is essential to in-game diversity, excitement and balance. According to the Bafta award winning indie⁵⁴ game designer, Dan Marshall, random generation has driven the industry forwards from early Atari games characterised by flatness repetition (e.g. the grid in PacMan) or Super Mario Bros:

'Games have been gradually swinging away from concrete, scripted content towards player-orchestrated content ... Random generation is one of those things that can really set games aside

⁵⁰ Is Gambling Involvement a Confounding Variable for the Relationship between Internet Gambling and Gambling Problem Severity?, 71 *Computers in Hum. Behav.* 148–52 (June 1, 2017), <https://doi.org/10.1016/j.chb.2017.02.004>;

⁵¹ For example, see the Belgium Gaming Commissions' Research Report on Loot Boxes. Accessible from: https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-Engels-publicatie.pdf. Published by the Belgium Gaming Commission in April 2018

⁵² Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

⁵³ FTC Video Game Loot Box Workshop. Accessible from: https://www.ftc.gov/system/files/documents/reports/staff-perspective-paper-loot-box-workshop/loot_box_workshop_staff_perspective.pdf Published by the FTC, August 2020

⁵⁴ Indie game: An independent game refers to games typically created by individuals or smaller development teams without the financial support of a large game publisher, in contrast to most 'AAA games' Accessible from: https://en.wikipedia.org/wiki/Indie_game



from movies and books in terms of the content they provide ... As the tech progresses, we're going to see more and more games going down this route ... We're scratching the surface right now, but there's exciting stuff to be done.'

Match 3 casual game, Candy Crush, exemplifies the extensive application of randomness to mobile games design from start to finish. As product development specialist, Jesse Divnich, explains: "No one is actually good at Candy Crush, but some people actually believe they are ... In these non-skill-based games, you can tell me how many hours you've played, how much money you have spent, and I should be able to tell you within a good degree of certainty how far you are in Candy Crush, what level your town hall is in Clash of Clans, how many times you've ascended in Tap Titans. For some, it is a scary thought to know that the most commercially successful games on mobile are really just well-designed rollercoasters. It's not a negative concept, it is simply what works in free-to-play mobile."⁵⁵

Random number generators (RNG)⁵⁶

Random number generators (RNG) are far from unique to loot boxes. They are a crucial part of the gameplay in a plethora of genres, including strategy, first-person shooters, puzzle games and arcade games.⁵⁷ The game design critic, Josh Bycer, describes RNGs as entities where 'probability and chance interact with game design.' Game designers must find a careful balance: 'Too much or too little RNG can ruin the vision for your game. No matter how random or out of control things get, there must be a set foundation for the player to learn from, and a plan to keep the game from going out of control with the generation.'⁵⁸

Output randomness⁵⁹

Loot boxes are considered by designers to be an example of output randomness. Geoff Engelstein, MIT physicist, award-winning digital game and table top game designer (Space Cadets, The Fog of War, Pit Crew, and The Expanse), is credited with coining a distinction between input and output randomness:⁶⁰ 'Mark Brown, editor of the Game Maker's Toolkit, explains that it is not merely a case of 'input randomness equals good and output randomness equals bad,' but rather, they are tools that must be used in careful balance: poorly made input randomness can wreck a game just as carefully tuned output randomness can improve it.'⁶¹

⁵⁵ 'No one is actually good at Candy Crush' – Divnich. Accessible from:

<https://www.gamesindustry.biz/articles/2015-11-11-no-one-is-actually-good-at-candy-crush-divnich>. Published by Games Industry Biz, November 2015

⁵⁶ see Table of Definitions

⁵⁷ RNG in Games. Accessible from: <https://www.theboxhub.com/rng-in-games/>. Published June 2020

⁵⁸ Accelerating Error Detection And Resolution For Developers. Accessible from:

https://www.gamasutra.com/blogs/JoshBycer/20180312/315398/The_Impact_of_RNG_on_Game_Design.php
Published by Gamasutra

⁵⁹ See Table of Definitions

⁶⁰ A Podcast About the 'Why' of Gaming. Accessible from: <https://ludology.libsyn.com/gametek-classic-183-input-output-randomness>. Published by Ludology, December 2018.

⁶¹ For an explanation of output randomness, see: Mark Brown, The Two Types of Random in Game Design. Accessible from: <https://www.youtube.com/watch?v=dwI5b-wRLic&vl=en>. Published January 2020.



Random reward reinforcement⁶²

The European Parliament's paper on loot boxes has noted the use of 'intermittent and unpredictable reinforcement (i.e. reward) schedules, also known as variable ratio schedule of reinforcement' in online games.⁶³ An awareness of these, helps inform the paper's conclusion that gambling regulation is a disproportionate solution to a deeper and more nuanced issue. Common examples of reward reinforcement are variable-ratio schedules⁶⁴, variable-interval schedules⁶⁵ and balancing loops.⁶⁶ Throughout, the application of randomness contributes to the stability and longevity of gameplay.⁶⁷

An especially famous example are blue shells in Mario Kart. A homing missile - the blue shell - targets the player in first place, giving an opportunity for players caught behind to catch up. The player in the front does not know when it is going to be launched. It is a historic cause of frustration amongst gamers, variously referred to as 'ultimate race leveller,' or the 'the random element with harsh consequences' and 'the cruel tax of gaming, the welfare queen of kart racing.' For the academic and video games designer, Ian Bogost, it is the 'most profoundly existentialist element of the Mario canon', bringing real world 'chaos, unfairness, injustice.' into the game.⁶⁸ In an interview with Eurogamer, Nintendo developer Kosuke Yabuki, emphasises the centrality of Blue Shells, and hence balancing loops, to the game.⁶⁹

An opportunity to bridge the gulf of perspective between academics and game designers

This call for evidence may elucidate an unfortunate gulf of perspective between on the one hand, academics, and on the other, game design syllabuses and designers. Gambling study specialists have tended to characterize techniques that prolong gaming and motivate players as 'predatory'.⁷⁰ Yet games developers may view those exact same techniques as vital to creating compelling games on competitive app stores. A case in point is the 'near-miss effect' (not specific to loot boxes) - whereby almost winning motivates continued playing and monetisation in freemium games. For a leading mobile game title, Larche et al. claim that 'near-misses appear to have similar psychological and physiological impacts ... as slot-machine near-misses have on

⁶² See Table of Definitions

⁶³ This typology is based upon Troy Dunaway, 'Using Psychology in Games: An in depth perspective' (September 23rd, 2015) - <https://www.linkedin.com/pulse/using-psychology-games-depth-perspective-troy-dunniway/> & John Hopson 'Behavioural Game Design' (September 2001)

⁶⁴ See Table of Definitions

⁶⁵ See Table of Definitions

⁶⁶ See Table of Definitions

⁶⁷ A great example are balancing loops in Mario Kart – see for example, <https://www.eurogamer.net/articles/2017-07-21-arms-yabuki-mario-kart-nintendo-interview-birdoplease> & https://www.gamasutra.com/view/feature/218696/the_blue_shell_and_its_discontents.php

⁶⁸ The Blue Shell and its Discontents. Accessible from:

https://www.gamasutra.com/view/feature/218696/the_blue_shell_and_its_discontents.php. Published by Gamasutra, May 2013

⁶⁹ Arms at length: The big Nintendo interview. Accessible from: <https://www.eurogamer.net/articles/2017-07-21-arms-yabuki-mario-kart-nintendo-interview-birdoplease>. Published by Eurogamer, July 2017

⁷⁰ For example, see 'Predatory monetization schemes in video games (e.g. 'loot boxes') and internet gaming disorder; Accessible from <https://doi.org/10.1111/add.14286>. Published by Addiction, November 2018



gamblers.’⁷¹ By contrast, Englestein explains how ‘loss aversion’ is an invaluable component of table-top and video games because they ‘generate a negative emotion (regret) along with a positive emotion (motivation).’⁷²

Finding ways for these two perspectives - the academic & the game designer - to dialogue cooperatively, may present a roadmap to increasing transparency for consumers and in this regard, we welcome the opportunity for stakeholder roundtables.

3.2 In-game purchase market questions

3.2.2 How many and what kind of video games contain loot boxes? *Information that would be useful to receive includes:*

- a. *How often paid and free loot boxes appear in popular and bestselling games.*
- b. *Whether loot boxes are more likely to be found on certain platforms and devices/within specific genres of game/within games using certain payment models (free to play, subscription etc) and if so, which platforms or device/genres/payment models?*

Loot boxes and freemium

Freemium monetisation

Loot boxes are both a manifestation of randomised in-game design and the wider freemium or ‘free-to-play’ monetisation model. Freemium means that access and play is free, with certain additional and special features available for a fee. There is no requirement to pay to play and the vast majority (98.4%) never make an in-game purchase.⁷³

It is worth considering the history of the commercialisation of online content. The optional pay-to-play model, freemium, was developed in the earlier days of the internet response to fraudulent software and the fact that consumers do not pay upfront for online content. (For example, see ‘*Video games embrace China's freemium model to beat piracy*’ (BBC News, January 4th 2013).⁷⁴ Roll out of freemium to developing market economies is on-going.⁷⁵ In the UK, freemium was,

⁷¹ The Candy Crush Sweet Tooth: How ‘Near-Misses’ In Candy Crush Increase Frustration, And The Urge To Continue Gameplay. Accessible from DOI: 10.1007/s10899-016-9633-7. Published by the Journal of Gambling Studies, 2017.

⁷² Geoff Engelstein, Achievement Relocked: Loss Aversion and Game Design (Playful Thinking) (2020)

⁷³ Swrve Gaming Monetisation Report 2019. Accessible from:

https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019

⁷⁴ Video games embrace China's freemium model to beat piracy. Accessible from:

<https://www.bbc.co.uk/news/technology-20899165> Published by the BBC, January 2013.

⁷⁵ For example, see ‘*Spotify wants to change the piracy-mindset in India with its Freemium Model*’ (First Post, February 28th 2019) Also see remarks made at the 2019 ConneCTechAsia Summit: ‘Freemium models that require less commitment from consumers are slowly becoming the dominant business models for streaming services in Asia.’ Accessible from <https://www.spglobal.com/marketintelligence/en/news-insights/blog/consumer-engagement-remains-challenging-for-ott-players-in-asia>



at first, critiqued by the OFT as a possible form of drip pricing.⁷⁶ However, it is now regarded as an industry norm for mobile games and many other app-based industries (e.g. Spotify). In 2018, SuperData found that freemium games accounted for 80 % of the global mobile gaming market.⁷⁷ A 2017 survey conducted by App Annie illustrates that, whilst freemium is widely used by non-gaming apps, it predominates mobile gaming:

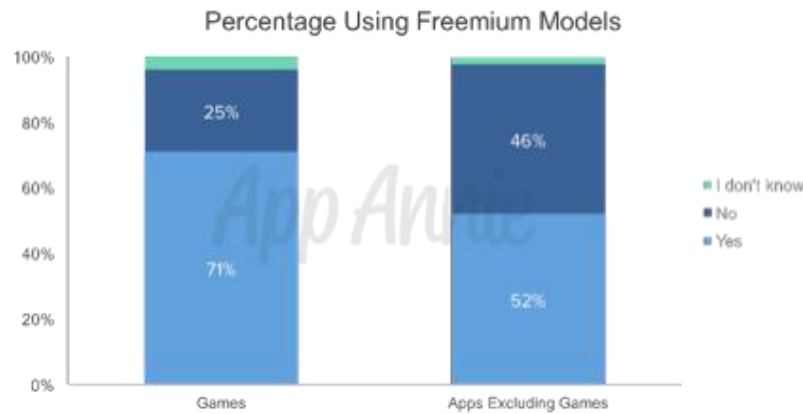


Figure 1 – Percentage using Freemium Models. Source: App Annie Economy Survey Part 2, 2017

The majority of players spend no money whatsoever on freemium mobile games. Swrve’s respected 2019 Monetisation Report, based on tens of millions of users, shows that from July-September 2019, 1.6 % pay for in-app purchases globally on mobile, down from the 1.9% in 2016.⁷⁸ Whilst the majority play for free, in-app purchases are a vital revenue stream for developers, whose existence enabled a generation of £907 million in combined direct and indirect tax revenues, a contribution to the rise of the UK GDP to £2.2 billion and an expansion of nearly 2,000 UK employees in just two years.⁷⁹

Freemium mobile games rely upon a hybrid of in-game advertising and in-game purchases to achieve revenue.⁸⁰ New data from the pandemic suggests that in-app purchases played a predominant role in the robust growth figures. According to mobile analytics platform, AppsFlyer, the share of games using a hybrid model dropped 8 % between Q2 2019 and Q2

⁷⁶ Children’s Online Games report and consultation, page 5. Accessible from <https://assets.publishing.service.gov.uk/media/53330c4de5274a5660000005/oft1506.pdf>. Published by the OFT, 2013.

⁷⁷ Freemium Isn’t Free! Free Mobile Games Generated a Whopping \$61 Billion in 2018. Accessible from: <https://www.ccn.com/freemium-isnt-free-free-mobile-games-generated-a-whopping-61-billion-in-2018/> Published by CCN, 2018

⁷⁸ Swrve Gaming Monetisation Report 2019. Accessible from: https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019

⁷⁹ TIGA Research Reveals UK Video Games Industry Has Been Expanding At Fastest Rate Ever Recorded. Accessible from: <https://tiga.org/news/tiga-research-reveals-uk-video-games-industry-has-been-expanding-at-fastest-rate-ever-recorded>. Published by TIGA, October 2020

⁸⁰ 33% Of Mobile Revenue Now Delivered By Video Ads; Rewarded Video Is Most Effective. Accessible from: <https://www.forbes.com/sites/johnkoetsier/2017/07/31/33-of-mobile-revenue-now-delivered-by-video-ads-rewarded-video-is-most-effective/#2b5a976b6957> Published by Forbes, 2017



2020. For casual and mid-core, as opposed to hardcore games, the shift has been more pronounced: the share of advertising fell 30 % YoY.⁸¹

Some industry analysts say subscription models are showing signs of a comeback in the commercialisation of online content.⁸² Platforms have launched services - for example, Apple Arcade⁸³ and Google Play⁸⁴ Pass – which do not feature in-app purchases. However, the scale-up of subscription-led gaming is comparatively minute compared to other apps: 5 % of apps worldwide use subscriptions services versus 2 % of gaming apps.⁸⁵ In short it is reasonable to expect that freemium will continue to predominate mobile gaming for the foreseeable future.

The prevalence of loot boxes

To our knowledge there has only been study that considers the prevalence of loot boxes in mobile games. It is based on a list of the top 100 grossing iPhone games of the UK Apple App Store and the top 100 Android games on the Google App Store, drawn up in 2019. Findings include that:

- 58 of 100 top-grossing Android games contained loot boxes (58%)
- 59 of the 100 top-grossing iPhone games contained loot boxes (59%)⁸⁶

However, it does not consider the prevalence of loot boxes in relation to other in-game features, which is likely to vary from title to title.

Loot boxes and genres

According to the App Annie senior insights market manager, Lexi Sydow, loot boxes are primarily found in core games.⁸⁷ However there are no hard and fast rules; loot boxes might be found across multiple genres - shooting, sports or role-play games - and multiple platforms and distribution channels - namely consoles (e.g. Xbox, Play Station), PC and mobile games.⁸⁸

⁸¹ App Developers See Revenues from In-App Purchases Outpace Advertising Revenues. Accessible from: <https://www.emarketer.com/content/app-developers-see-revenues-in-app-purchases-outpace-advertising-revenues>. Published by eMarketer, September 2020

⁸² Can Mobile Gaming Subscription Services Break Freemium Stranglehold. Accessible from: <https://www.washingtonpost.com/video-games/2019/10/23/can-mobile-gaming-subscription-services-break-freemium-stranglehold/> Published by Washington Post, 2019

⁸³ For information on Apple Arcade: <https://www.apple.com/uk/apple-arcade/>

⁸⁴ <https://www.macworld.com/article/3385024/apple-arcade-faq-games-price-compatibility.html>

For information on Google Play Pass: https://play.google.com/intl/en_uk/about/play-pass/

⁸⁵ Share of subscription Mobile App Installs Worldwide by App Category. Accessible from: <https://www.emarketer.com/chart/239004/share-of-subscription-mobile-app-installs-worldwide-by-app-category-q2-2020-of-total-app-installs-tracked-by-appsflyer> Published by eMarketer, 2020.

⁸⁶ The prevalence of loot boxes in mobile and desktop games. Accessible from: doi: 10.1111/add.14973. Published by Addiction, September 2020.

⁸⁷ PGC Helsinki Digital: Loot boxes are still the ‘number one monetisation method used in core games’ globally on mobile. Accessible from: <https://www.pocketgamer.biz/news/74489/pgc-helsinki-digital-loot-boxes-are-still-the-number-one-monetisation-method-used-in-core-games-globally-on-mobile/>. Published by Pocket Gamer, September 2020

⁸⁸ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.



Moreover, as set out below, loot boxes, as with other in-game treasure, loot, or reward systems can vary significantly in terms of cost and frequency.

Paid for versus free loot boxes

Indicative data from some MGIF participants' mobile games titles⁸⁹ suggests that the proportion of paid-for loot boxes to free loot boxes ranges from less than 2% to less than 8%.⁹⁰

3.2.3 How are loot boxes used in games? *Information that would be useful to receive includes:*

- a. *How loot boxes are deployed in games e.g. through time specific offers, part of games involving the performance of repetitive tasks known as 'grind', a combination of paid and free loot boxes, whether items provided are cosmetic or substantial items to enhance gameplay.*
- b. *The way loot boxes work alongside other in-game purchases in video games e.g. can items normally be purchased directly, can they be gained for free?* ^[1]_[SEP]

Pathways of access to loot boxes

Pathways of access to loot boxes are identical to other in-game virtual item packages such as crates, cases, chests, bundles, and packs and include:

- Gameplay (e.g., achieving certain goals or reaching certain stages or level in the game);
- Time periods;
- Watching advertisements; and
- Payment through real-world money or in-game currency (which needs to be earned through gameplay).

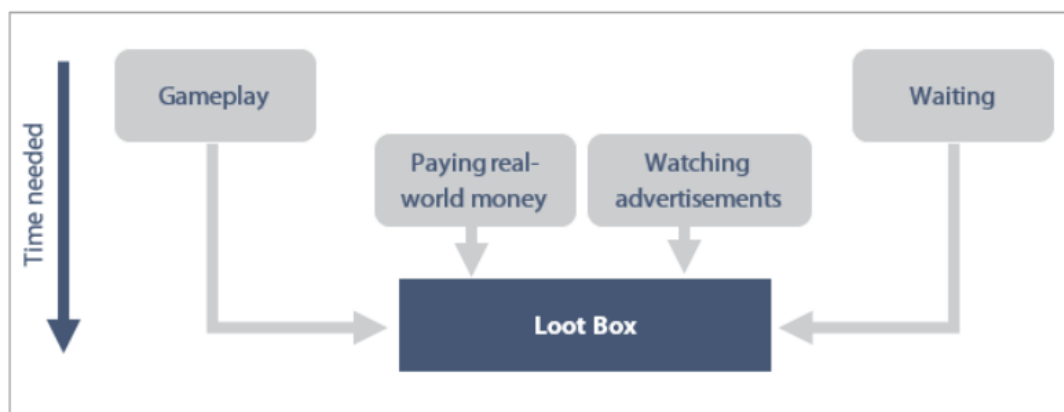


Figure 2 – Pathways of access to loot boxes. Source: *Loot boxes in online games and their effect on consumers, in particular young consumers (European Parliament, July 2020⁹¹)*

⁸⁹ Note: Aggregate data and ranges are based upon data confidentially provided by some MGIF forum participants for the benefit of this inquiry only. It is indicative data ONLY and has NOT been subject to academic verification or peer review.

⁹⁰ From 12 months of data up until October/November 2020. Note: As paid-for loot box and free loot box features are only present for certain games, it is not always possible to collect this data.



Items obtained through loot boxes covers the full diversity of in-game virtual items. These range from cosmetic items for game customisation to items pertinent to gameplay such as tools, weapons, levels and maps. This is in keeping with other in-game treasure, loot and reward systems.

Whether games with paid for loot boxes and other in-game purchases are ‘free to play’

As stated in the response to 3.2.2, the majority of players spend no money whatsoever on freemium mobile games (98.4 %).⁹² Finding players willing to pay to play is therefore a difficult and delicate task.

Pay walled gameplay is anathema to freemium mobile games. A commonly used monetisation technique in freemium games are ‘pinch points,’ where a user runs out of something of value (e.g. running out of lives or coins). At these pinch points - which are in no way exclusive to paid-for loot boxes - a player will have the opportunity to make an in-app purchase in order to continue progressing. In crafting pinch points, it is imperative not to alienate the majority of players who do not make in-app purchases. Users must hit pinch points at an appropriate frequency and recover at the right rate so that first, they will not finish too fast, and second find the game sufficiently interesting and not unduly frustrating to keep playing. As app engagement SDK PollJoy explains, ‘getting this combination right is one of the most difficult aspects of balancing.’⁹³

It is therefore essential that gamers can continue through skill or grinding instead. Examples of pinch points include:

- Match 3: Candy Crush – running out of lives
- PVP: Clash of Clans – running out of troops
- Strategy: Farmville – running out of production capability

⁹¹ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

⁹² Swrve Gaming Monetisation Report 2019. Accessible from: https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019

⁹³ 8 tips to balance free-to-play games. Accessible from: <https://polljoy.com/blog/balance-free-play-mobile-game-8-tips>. Published by PollJoy



Figure 3 - Running out water in Farmville is an example of a pinch point
Source: Farmville

Moreover, existing UK consumer protection law guidance specifically advises that it should not be possible to complete 'free to play games'⁹⁴ without recourse to an in-app purchase. Principle 1 of the Office of Fair Trading (OFT) Principles for Online and App Based Games⁹⁵ advises:

'The consumer can access discrete parts of the game that stand alone without the need to make purchases and can make an informed choice as to whether to pay to access additional content, the price of which has been made clear before the consumer begins to play or agrees to purchase the game.'

The UK Advertising Authority (ASA) had adjudicated on the issue of whether games are legitimately 'free to play' on a number of occasions. On July 2nd 2014, the ASA ruled that the games developer, EA, misled customers in its description of the game, Dungeon Keeper, which EA described as being 'free'. The ASA subsequently published extensive guidance on using the 'free-to-play' label in freemium apps and games. In summary, the advice says that the EA ruling does not ban using the word 'free' in free-to-play games. However, ads should reflect the experience of the non-paying user.⁹⁶

3.2.4 How do loot boxes contribute to the market for in-game purchases? *Information that would be useful to receive includes:*

- The percentage of in-game purchase revenue from UK customers that comes from loot boxes in the UK.*
- The percentage of revenue from UK customers that comes from all in-game purchases.*
- The value of loot boxes to different business models e.g. free to play.*

⁹⁴ Freemium games are sometimes described as 'free-to-play' - the term was widely used when the pricing model was in its infancy.

⁹⁵ The OFT's Principles for online and app-based games. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288360/oft1519.pdf Published in 2012 and in 2014 by the OFT.

⁹⁶ ASA Adjudication on Electronic Arts Ltd. Available from: <https://www.asa.org.uk/rulings/electronic-arts-ltd-a14-258907.html#.VQhN08ZJ2TV>. Published by the ASA, 2014



- d. *The average spend and frequency of loot box purchase per customer in the UK.*
e. *The average price of loot boxes available in the UK and the average price of the most popular loot boxes in the UK including:*

- *Loot boxes with the highest number of total purchases*
- *Loot boxes purchased by the highest number of individual players*

Paid for loot boxes as proportion of all in-game purchases

Indicative data from some MGIF participants' mobile games titles suggests that the proportion of loot box revenue relative to total in-app purchase revenue ranges from 6-25%.⁹⁷

The average spend and frequency of loot box purchase

Indicative data from some MGIF participants' mobile games titles, suggests:

- Over the past year, users in the UK who bought loot boxes spent between £5 and £33, averaging approximately £21.⁹⁸ The figure for total users ranges from less than 1p to £1.⁹⁹
- The average frequency of purchase for loot boxes is every 20 days versus the average frequency of purchase for all in-app purchases, which ranges from 7-10 days.¹⁰⁰

Note: A lower frequency of purchase for loot boxes in relation to other in-app purchases may be explained by the fact they are often purchased in packs. This may also explain a potentially marginally higher price than in-app purchases in general.

The average cost of loot boxes

Indicative data from some MGIF participants' mobile games titles suggests:

- The average cost of the most popular loot boxes by total purchases or by total users ranges from £11 to £22.¹⁰¹

3.2.5 How do loot boxes work in conjunction with the wider in-game purchases market?
Information that would be useful to receive includes:

- a. *Whether people buying loot boxes in the UK spend more than the average for players who purchase any type of in-game purchase in the UK.*

⁹⁷ For the majority of mobile games surveyed, the proportion of loot box revenue relative to in-app purchases lies within 5-9%. Data is taken from multiple games featuring loot boxes over quarterly and yearly 2020 periods.

⁹⁸ Based on 12 months of data up until October/ November 2020

⁹⁹ This is in line with the freemium model where the overwhelming majority of players play for free (98.4%, Swrve 2019 report)

¹⁰⁰ Based on 12 months of data up until October 2020 & on historic all-time data & only for the proportion of users that purchased a loot box more than once. Note: A potentially lower frequency of purchase for loot boxes in relation to other in-app purchases may be explained by the fact they are often purchased in packs.

¹⁰¹ Based on historic all-time data



- b. *The percentage of players in the UK buying a loot box who will also make another type of in-game purchase in the same session.*

Whether people buying loot boxes spend more than the average for players who purchase any type of in-game purchase

The average spend/ cost figures and analysis provided at 3.2.4 are repeated.

The percentage of players buying a loot box who will also make another type of in-game purchase in the same session.

Indicative data from some MGIF participants' mobile games titles, suggests that in the region of 25% of paid for loot box purchasers, will also purchase another in-game purchase in the same session.¹⁰²

Note: Aggregate data and ranges are based upon data confidentially provided by some MGIF forum participants for the benefit of this inquiry only. It is indicative data ONLY and has NOT been subject to academic verification of peer review.

Consumer spending and sector comparisons

As the above figures suggest, loot boxes are not significantly divergent from other in-app purchases. Global data from Swrve for July - September 2018, show an average monthly spend on mobile in-app purchases of \$23.05 (down from \$24.66 in 2016) and an average in-purchase price of \$19.47.¹⁰³

Cost of paid for loot boxes and other in-game treasure, loot, or reward systems can range significantly: the European Parliament has found that prices of paid-for loot boxes can range from a few euros to a few hundred euros or even more for in-game currency which can be used to open loot boxes¹⁰⁴ (and make other in-app purchases). This is in keeping with the freemium mode - Swrve finds that high value purchases over \$50.99 account for 8% of total purchases.¹⁰⁵ In November 2017, the UK Gambling Commission surmised the cost of cosmetic virtual items such as skins (commonly found in core games and not specific to loot boxes): 'Prices are subject

¹⁰² Based on historic all-time data

¹⁰³ Swrve Gaming Monetisation Report 2019. Accessible from: https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019 – out of paying users

¹⁰⁴ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹⁰⁵ Swrve Gaming Monetisation Report 2019. Accessible from: https://cdn2.hubspot.net/hubfs/5516657/Monetization%20Report_final.pdf. Published by Swrve, 2019



to constant fluctuation and typically range from under £10 to £300, but with particularly rare items being valued at over £1,000.’¹⁰⁶

Noting the indicative data presented above, it is worth considering how this compares with consumer spending in other sectors such as food and drink, cosmetics and gyms. It should also be born in mind, that of out the total users that play these games, only a small fraction of these are buying loot boxes and an even smaller fraction of those are buying multiple times.

A further factor to consider is that players purchase loot boxes frequently than other in-app purchases – supporting anecdotal information we have received from forum participants that loot boxes are generally sold in packs that by definition may have a higher average cost than individual virtual items.

3.2.6 To what extent are items received in loot boxes tradable? *Information that would be useful to receive includes:*

- a. *How often items from loot boxes are tradable for other in-game items, including those which might have been purchased with real money?*
- b. *How often items from loot boxes are bought or sold for real money, including which games and platforms this may be easier and more prevalent on?*
- c. *What actions have been taken by industry to prevent the trading of items outside of games and how successful have these been?*

Distinguishing between secondary markets, skins and loot boxes

Concerns over secondary markets pre-date media interest in loot boxes and centre upon the Valve Steam Marketplace and virtual aesthetic enhancement items known as ‘skins.’ Across 2016-18, the Valve Steam Marketplace attracted scrutiny in multiple jurisdictions for the existence of third-party platforms that facilitated cash-out in virtual items. The interlinked issue of skins betting, whereby players bet on the outcome of an event (usually a professional e-sports match), generated criticism from gambling regulators globally¹⁰⁷ and led to an inquiry by the UK Gambling Commission (UKGC) in 2017.¹⁰⁸ In their concluding, the UKGC was clear that:

‘In our view, the ability to convert in-game items into cash, or to trade them (for other items of value), means they attain a real-world value and become articles of money or money’s worth. Where facilities for gambling are offered using such items, a licence is required in exactly the

¹⁰⁶ Virtual currencies, eSports and social casino gaming – position paper. Accessible from: <http://www.gamblingcommission.gov.uk/PDF/Virtual-currencies-eSports-and-social-casino-gaming.pdf> Published by the Gambling Commission, March 2017

¹⁰⁷ For example, see: Faced With Criminal Charges, Valve Denies Facilitating Illegal Counter-Strike Gambling. Accessible from: <https://www.kotaku.com.au/2016/10/faced-with-criminal-charges-valve-denies-facilitating-illegal-counter-strike-gambling/> Published by Kotaku, October 2016

¹⁰⁸ Virtual currencies, eSports and social casino gaming – position paper. Accessible from: <http://www.gamblingcommission.gov.uk/PDF/Virtual-currencies-eSports-and-social-casino-gaming.pdf> Published by the Gambling Commission, March 2017



same manner as would be expected in circumstances where somebody uses or receives casino chips as a method of payment for gambling, which can later be exchanged for cash.’¹⁰⁹

Skins betting was a primary driver of the Game Regulators European Forum (GREF) investigation of the blurring lines between gaming and gambling.¹¹⁰ When Valve began to force third party platforms to end their operations, the need for an investigation reduced.¹¹¹ The European Parliament describes the matter as ‘tackled and largely resolved by regulators and the industry’ and through dialogue with GREF, concluded that ‘most publishers do in practice assume their responsibility by actively enforcing these terms and taking actions against illegal marketplaces.’¹¹²

It should be factored that skins are characteristic of e-sports rather than casual mobile games.¹¹³ Mobile games platforms do not offer the embedded virtual item transferability that is specific to the Steam Marketplace.¹¹⁴ As the European Parliament explains, the virtual item trading issue is associated with a minority of loot boxes found in e-sports titles.¹¹⁵ Mobile games developers do not facilitate or permit the trading of virtual items via platforms or third-party websites.

3.3 Current Protections Questions

3.3.7 Please provide any evidence relating to the use and impact of restrictions/protections introduced directly into video games or on video games platforms and devices. *Information that would be useful to receive includes:*

- a. *Where video games companies have introduced restrictions/protections in relation to loot boxes, why were these introduced, what measures were used and what impact have they had on sales and the behaviour of players?*
- b. *Where video games companies have not introduced restrictions/protections in relation to loot boxes, why were they deemed unnecessary?*

¹⁰⁹ Digital and Virtual Currencies, Accessible from: <https://www.gamblingcommission.gov.uk/for-gambling-businesses/Compliance/General-compliance/AML/How-to-comply/Digital-and-virtual-currencies.aspx> Published by the Gambling Commission.

¹¹⁰ The declaration was initially signed by 15 of the 39 members of GREF. By 2019, four more members had joined for a total of 19 signatories: these are the gambling authorities from Austria, Cyprus, Czechia, Denmark, Finland, France, Gibraltar, Ireland, Isle of Man, Jersey, Latvia, Malta, the Netherlands, Norway, Poland, Portugal, Spain, the State of Washington (US), the United Kingdom. ^[SEP]

¹¹¹ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Page 34-45. Accessible from:

[https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹¹² Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹¹³ Newzoo calls the casual gaming player, not the ‘conventional player’ but the ‘time filler’. Accessible from: <https://newzoo.com/insights/infographics/newzoos-gamer-segmentation-the-time-filler-explained/>

¹¹⁴ The Steam marketplace has a unique facility for ‘embedded’ transferability: skins may be bought sold or bought via the Valve-owned, and in-game embedded Steam Marketplace, to other users who have added cash to their Steam Marketplace accounts. The funds of the sale amount are added to the user’s Steam wallet, the main distribution platform for PC games or more skins. It is not possible to withdraw money from a Steam account.

¹¹⁵ In its typology of loot boxes, the European Parliament categorises these as ‘EE’ – see The European Parliament, [Loot boxes in online games and their effect on consumers, in particular young consumers](#) (July 2020) p35



Iterative change

The role of player feedback as a driver of organic change in iterative versions of game titles should not be understated. Simply put, games must constantly adapt to improve player experience and retention. Output randomness in app-based games, of which loot boxes are a manifestation, is one of the most cited causes of frustration in gaming.¹¹⁶ In order to achieve well-balanced gameplay, game designers must carefully curate randomness – since if frustration exceeds enjoyment, then player retention will suffer. For example, in response to player feedback RPG game Diablo has a ‘smart loot system’ whereby you are more likely to find items that match the character class you are playing in order to reduce the likelihood of finding pointless virtual items.¹¹⁷ Modern versions of Tetris - instead of picking a block at random for every drop - generate a random sequence of seven blocks, delivered in that order, before making a new sequence, thus ensuring a diverse selection of blocks and a maximum of 12 ‘garbage’ blocks between two line pieces (four blocks in a straight line).¹¹⁸

Labelling

Google (including PEGI) and Apple have made multiple changes in the labelling of games to increase the transparency of game content and protect consumers online. Examples of changes include the removal of ‘free’ labels on games which include in-app purchases, higher age ratings on games containing simulated gambling, the requirement to disclose the odds of receiving a random item upon purchase and a new text box descriptor for games which include paid random items. Recent changes to in-app purchase labels by Google (including PEGI) & Apple as they pertain to the UK are listed below:

Google & PEGI

- July 2014: Following joint action by the European Commission and Member States in the interest of better protection for consumers in online games, Google removed ‘free’ labels for games with in-app purchases.¹¹⁹
- August 30th 2018: PEGI announced a new content descriptor icon on rating licenses for physical releases of video games, informing users prior to purchase about the possibility of in-app purchases (Figure 4).¹²⁰

¹¹⁶ For an explanation of output randomness and how player feedback drives its curtailment, see: Mark Brown, The Two Types of Random in Game Design. Accessible from: <https://www.youtube.com/watch?v=dwI5b-wRLic&vI=en>. Published January 2020.

¹¹⁷ Smart Loot. Accessible from: https://www.diablowiki.net/Smart_Loot

¹¹⁸ This example is cited in Mark Brown, The Two Types of Random in Game Design. Accessible from: <https://www.youtube.com/watch?v=dwI5b-wRLic&vI=en>. Published January 2020.

¹¹⁹ In-app purchases: Joint action by the European Commission and Member States is leading to better protection for consumers in online games. Accessible from: https://ec.europa.eu/commission/presscorner/detail/en/IP_14_847#footnote-1 Published by the European Commission, July 2014.

¹²⁰ PEGI announces new content descriptor: in-game purchases. Accessible from: <https://pegi.info/news/new-in-game-purchases-descriptor> Published by PEGI, August 2018



Figure 4 - PEGI announces new content descriptor: in-game purchases.¹²¹

- May 29th 2019: Google requires that ‘Apps offering mechanisms to receive randomised virtual items from a purchase (i.e. ‘loot boxes’) must clearly disclose the odds of receiving those items in advance of purchase’ (Figure 5).

Play Console Help items i

Payments

Apps that employ in-store or in-app purchases must comply with the following guidelines:

In-store purchases: Developers charging for apps and downloads from Google Play must use Google Play's payment system.

In-app purchases:

- Developers offering products within a game downloaded on Google Play or providing access to game content must use [Google Play In-app Billing](#) as the method of payment.
- Developers offering products within another category of app downloaded on Google Play must use [Google Play In-app Billing](#) as the method of payment, except for the following cases:
 - Payment is solely for physical products
 - Payment is for digital content that may be consumed outside of the app itself (e.g. songs that can be played on other music players).
- In-app virtual currencies must only be used within the app or game title for which they were purchased.
- Developers must not mislead users about the apps they are selling nor about any in-app services, goods, content, or functionality offered for purchase. If your product description on Google Play refers to in-app features that may require a specific or additional charge, your description must clearly notify users that payment is required to access those features.
- **Apps offering mechanisms to receive randomized virtual items from a purchase (i.e. "loot boxes") must clearly disclose the odds of receiving those items in advance of purchase.**

Figure 5 – New terms from Google found in Google Play Help page¹²²

¹²¹ PEGI announces new content descriptor: in-game purchases. Accessible from: <https://pegi.info/news/new-in-game-purchases-descriptor> Published by PEGI, August 2018

¹²² Google Console Help: Payments. Accessible from: <https://support.google.com/googleplay/android-developer/answer/9858738?hl=en-GB>



- April 13th 2020: PEGI announced a new label to inform users prior to purchase about the existence of paid random items – ‘Notice to Inform About Presence of Paid Random Items’¹²³ (Figure 6)



Figure 6 - PEGI new caption informing users of games including Paid Random Items¹²⁴

- August 2020: After a six month transitional period, games with ‘simulated gambling content’ will be rated 18+.¹²⁵

Apple

- December 2017: Apple requires that ‘Apps offering ‘loot boxes’ or other mechanisms that provide randomized virtual items for purchase must disclose the odds of receiving each type of item to customers prior to purchase.’ (Example in Figure 7)¹²⁶

¹²³ PEGI Introduces Notice To Inform About Presence of Paid Random Items. Accessible from: <https://pegi.info/news/pegi-introduces-feature-notice> Published by PEGI, April 2020

¹²⁴ PEGI Introduces Notice To Inform About Presence of Paid Random Items. Accessible from: <https://pegi.info/news/pegi-introduces-feature-notice> Published by PEGI, April 2020

¹²⁵ Government response to the Digital, Culture, Media & Sport Select Committee Report on Immersive and Addictive Technologies. Accessible from: <https://www.gov.uk/government/publications/government-response-to-the-digital-culture-media-sport-select-committee-report-on-immersive-and-addictive-technologies/government-response-to-the-digital-culture-media-sport-select-committee-report-on-immersive-and-addictive-technologies>. Published by the DCMS, June 2020

¹²⁶ Apple adds new rules for loot boxes, requires disclosure of probabilities. Accessible from <https://www.polygon.com/2017/12/21/16805392/loot-box-odds-rules-apple-app-store> Published by Polygon, December 2017

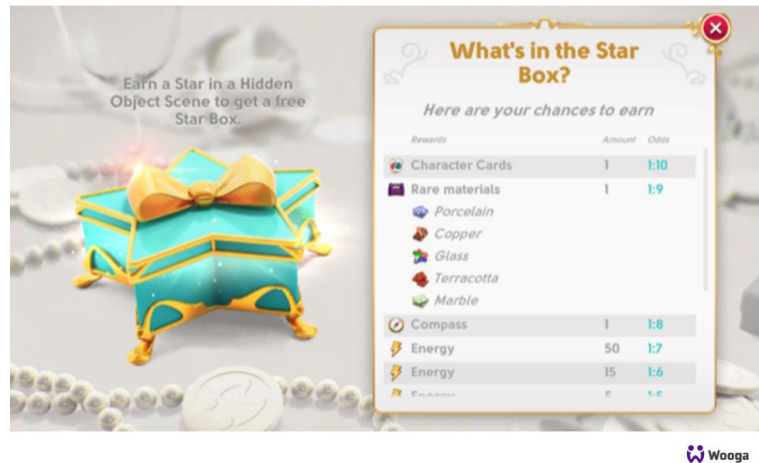


Figure 7 - Drop rates visible for loot box purchases. Source: June's Journey, Wooga

- August 19th 2019: Apple applied a 17+ rating for all simulated gambling content (Figure 8)



Upcoming Changes for 17+ Age Ratings and App Availability

August 19, 2019

In an effort to open up additional opportunities for developers, we've worked with the government of the Republic of Korea on making more apps available on the App Store in the Republic of Korea. And to ensure that our global age rating system continues to help make the App Store safe for kids, **apps that feature Frequent/Intense Simulated Gambling will be rated 17+ in all countries and regions starting August 20, 2019.**

Figure 8 - Upcoming Changes for 17+ Age Ratings and App Availability¹²⁷

Commitments to publish drop rates by leading developers & consoles

On August 2019, the Federal Trade Commission (FTC), held a workshop: *'Inside the Game: Unlocking the Consumer Issues Surrounding Loot Boxes.'*¹²⁸

As a result of the workshop, several console platforms - Nintendo, Sony, and Microsoft - alongside a host of high-profile developers committed to publishing their drop rates by the end of 2020¹²⁹ joining other high profile publishers, that have already committed to publishing their drop rates, including Activision Blizzard, Entertainment, Bethesda, Bungie, Electronic Arts, Epic, Konami, Microsoft, Nexon, Nintendo, Sony Interactive Entertainment, Square Enix, Take-

¹²⁷ Apple Announcement of Changes to 17+ age ratings. Accessible from: <https://developer.apple.com/news/?id=08192019a> Published August, 2019

¹²⁸ Inside the Game: Unlocking the Consumer Issues Surrounding Loot Boxes. Accessible from: <https://www.ftc.gov/news-events/events-calendar/inside-game-unlocking-consumer-issues-surrounding-loot-boxes> Published August, 2019

¹²⁹ Nintendo, Microsoft, and Sony commit to disclose drop rates for loot boxes. Accessible from: <https://www.theverge.com/2019/8/7/20758626/nintendo-microsoft-sony-loot-box-drop-rate-disclosure-video-games> Published by The Verge, August 2019.



Two Interactive, THQ Nordic, Ubisoft, Warner Bros. Interactive Entertainment, and Wizards of the Coast.¹³⁰

Ratings and parental controls

The Apple and Google App Stores – the global platforms across which the bulk of mobile games are played - use two distinct rating systems to classify games. These work in close concert with parental controls.

Google

Google assigns its age ratings according to the PEGI (Pan European Game Information) rating system. PEGI is a participant in IARC (International Age Rating Coalition),¹³¹ a global initiative which simplifies the process by which developers obtain age ratings from different regions around the world by reducing it to a single set of questions about their products' content and interactive elements.

The following are core elements from the IARC questionnaire process:

- ‘To receive a rating for each of your apps and games, you fill in a rating questionnaire on the Play Console about the nature of your apps’ content and receive a content rating from multiple rating authorities. The ratings assigned to your app displayed on Google Play are determined by your questionnaire responses.’¹³²
- Because rating standards can have differences by territory, each rating authority uses its own logic when rating apps.’¹³³
- ‘Administrators from IARC rating boards work together to check a robust cross-section of all classifications. A variety of tactics, including keyword search, top download checks, publisher and consumer requests, and others, are applied to ensure that age ratings are correctly applied. In case of an error, the incorrect age rating can be changed very quickly.’¹³⁴
- ‘Rating authorities participating in IARC may change your app's rating after a review. If your app rating is overridden by a rating authority and you want to update your responses, you’ll need to complete the questionnaire again.’¹³⁵ Misleading responses and subsequent misrepresentation of an app’s content may result in the removal or suspension of the app. App updates and submissions can also be rejected for misrepresenting your app's content.¹³⁶

¹³⁰ Video Game Industry Commitments to Further Inform Consumer Purchases. Accessible from:

<https://www.theesa.com/perspectives/video-game-industry-commitments-to-further-inform-consumer-purchases/>

Published by The Entertainment Software Association,

¹³¹ PEGI – how we rate games. Accessible from: <https://pegi.info/how-we-rate-games>

¹³² Google Play Console Help: Content ratings for Apps and Games. Accessible from:

<https://support.google.com/googleplay/android-developer/answer/188189?hl=en-GB>

¹³³ ‘Contents Ratings for Apps and Games on Google Play’ Accessible from:

<https://support.google.com/googleplay/android-developer/answer/188189?hl=en-GB>

¹³⁴ PEGI – how we rate games. Accessible from: <https://pegi.info/how-we-rate-games>

¹³⁵ Google Play Console Help: Content ratings for Apps and Games. Accessible from:

<https://support.google.com/googleplay/android-developer/answer/188189?hl=en-GB>






¹³⁶ Google Play Console Help: Content ratings for Apps and Games. Accessible from:

<https://support.google.com/googleplay/android-developer/answer/188189?hl=en-GB>



- Games that are not appropriately rated can also be reported by players

The PEGI rating categories are given below:

PEGI rating categories ¹³⁷	
	PEGI 3: The content of games with a PEGI 3 rating is considered suitable for all age groups. The game should not contain any sounds or pictures that are likely to frighten young children. A very mild form of violence (in a comical context or a childlike setting) is acceptable. No bad language should be heard.
	PEGI 7: Game content with scenes or sounds that can possibly frightening to younger children should fall in this category. Very mild forms of violence (implied, non-detailed, or non-realistic violence) are acceptable for a game with a PEGI 7 rating.
	PEGI 12: Video games that show violence of a slightly more graphic nature towards fantasy characters or non-realistic violence towards human-like characters would fall in this age category. Sexual innuendo or sexual posturing can be present, while any bad language in this category must be mild. Gambling as it is normally carried out in real life in casinos or gambling halls can also be present (e.g. card games that in real life would be played for money).
	PEGI 16: This rating is applied once the depiction of violence (or sexual activity) reaches a stage that looks the same as would be expected in real life. The use of bad language in games with a PEGI 16 rating can be more extreme, while games of chance, and the use of tobacco, alcohol or illegal drugs can also be present.
	PEGI 18: The adult classification is applied when the level of violence reaches a stage where it becomes a depiction of gross violence, apparently motiveless killing, or violence towards defenceless characters. The glamorisation of the use of illegal drugs and explicit sexual activity should also fall into this age category.

Apple App Store Ratings

Apple uses a walled garden rating system for its App Store. App developers must fill in a questionnaire on App Store Connect and are advised:

- ‘Answer the age rating questions in App Store Connect honestly so that your app aligns properly with parental controls. If your app is mis-rated, customers might be surprised by what they get, or it could trigger an inquiry from government regulators. If your app includes media that requires the display of content ratings or warnings (e.g. films, music,

¹³⁷ PEGI: What do the labels mean? Accessible from: <https://pegi.info/what-do-the-labels-mean>



games, etc.), you are responsible for complying with local requirements in each territory where your app is available.¹³⁸

- Games that are not appropriately rated can be reported by players.
- If a developer should attempt to cheat the system (for example, by trying to trick the review process ... or manipulate ratings), Apple reserves the right to remove the app from the store and expel the developer from the Developer Program.¹³⁹

The Apple App Store rating categories are given below:

Apple App Store Rating Categories¹⁴⁰
<ul style="list-style-type: none">• 4+: Apps in this category contain no objectionable material
<ul style="list-style-type: none">• 9+: Apps in this category may contain instances of the following content that may not be suitable for children under the age of 9:<ul style="list-style-type: none">• Infrequent or mild cartoon or fantasy violence• Infrequent or mild profanity or crude humour• Infrequent or mild mature, suggestive or fear themed
<ul style="list-style-type: none">• 12+: Apps in this category may contain instances of the following content that may not be suitable for children under the age of 12:<ul style="list-style-type: none">• Infrequent or mild medical or treatment-focused content• Infrequent or mild references to alcohol, tobacco, or drug use• Infrequent or mild simulated gambling• Infrequent or mild sexual content or nudity• Frequent or intense profanity or crude humour• Frequent or intense horror or fear themed content• Frequent or intense cartoon or fantasy violence• Infrequent or mild occurrences of realistic violence
<ul style="list-style-type: none">• 17+: Apps in this category may contain instances of the following content that may not be suitable for children under the age of 17:<ul style="list-style-type: none">• Unrestricted web access, such as with an embedded browser• Gambling or contests• Frequent or intense simulated gambling• Frequent or intense mature or suggestive content• Frequent or intense medical or treatment-focused content• Frequent or intense references to alcohol, tobacco, or drug use• Frequent or intense sexual content or nudity• Frequent or intense realistic violence

¹³⁸ App Store Review Guidelines. Accessible from: <https://developer.apple.com/app-store/review/guidelines/>

¹³⁹ App Store Review Guidelines - Introduction Accessible from: <https://developer.apple.com/app-store/review/guidelines/>

¹⁴⁰ App Store Connect Help: App Ratings Accessible from: <https://developer.apple.com/app-store/review/guidelines/>



Parental controls

Parental controls enable the restriction of in-app purchases, including loot boxes.

The fact that parental controls are one of the fifteen principles that constitute the ICO's Age Appropriate Design Code is testament to their legitimacy as *the* online game safety tool. The Code defines parental controls as follows:

'Parental controls are tools which allow parents or guardians to place limits on a child's online activity and thereby mitigate the risks that the child might be exposed to. They include things such as setting time limits or bedtimes, restricting internet access to pre-approved sites only, and restricting in-app purchases. They can also be used to monitor a child's online activity or to track their physical location.'¹⁴¹

For mobile games, Google and Apple have developed extensive built-in device parental controls that allow parents to ensure that their children access appropriately rated content, can control children's screen time and block or restrict in-app purchases. Platforms continue to make headway in functionality. Below we highlight some recent developments from Google and Apple:

- March 2017: In addition to built-in parental controls, Google introduced Family Link, an app for parents that lets them establish a child's first Google account, from which they can utilise a series of parental controls from their device to manage and track screen time, implement daily limits and device 'bedtimes,' and control what apps kids can use.¹⁴²
- June 2018: iOS 12 has new features that allow parents to control their child's access via limiting screen time, setting app time limits, preventing in-app purchases, blocking off chunks of 'downtime' and tracking daily app use habits.¹⁴³
- September 2018: Family Link has expanded its features to teens and has an added functionality which allows parents to lock their kids' devices via voice command.¹⁴⁴
- September 2019: iOS 13 has three important parental controls improvements - picture privacy, Screen Time, and an Apple Watch filter.¹⁴⁵

Third party apps

In addition to platform parental controls, there are a number of apps available which can provide a full-featured, third-party parental control service with features including constant device

¹⁴¹ See Principle 11 of the Age Appropriate Design Code. Accessible from:

<https://ico.org.uk/for-organisations/guide-to-data-protection/key-data-protection-themes/age-appropriate-design-a-code-of-practice-for-online-services/11-parental-controls/>

Note: The Code came into force on September 2nd 2020

¹⁴² Introducing Family Link App: Helping Families to Navigate Technology Together. Accessible from:

<https://blog.google/topics/families/introducing-family-link-app-helping-families-navigate-technology-together/>
Published 2017

¹⁴³ Here's What You Can Do With Apple's New iOS 12 Parental Controls. Accessible from:

<https://offspring.lifehacker.com/heres-what-you-can-do-with-apples-new-ios-12-parental-c-1829214019>

¹⁴⁴ Google Assist Family Link Parental Controls. Accessible from:

<https://www.theverge.com/2018/9/18/17855746/google-assistant-family-link-parental-controls>

¹⁴⁵ iOS 13 Parental Controls Explained. Accessible from: <https://protectyouneyes.com/ios-13-parental-controls-explained/>



monitoring, restriction of access to certain sites and apps, location tracking, usage management and visibility into how kids are using their device. Leading examples include Qustodio,¹⁴⁶ Net Nanny¹⁴⁷ and Norton Family.¹⁴⁸

Take-up of parental controls

Studies on the uptake of parental controls are limited. The UK content regulator Ofcom has published the following figures across its annual *Children and parents: media use and attitudes report*.

2018:

- 77% of parents of 3-4s and 83% of parents of 5-15s who have home broadband and whose child goes online are aware of one or more of these six technical tools: Network-level content filters, parental control software content filters, parental controls built into device, PINs/ passwords required for websites, safe searches enabled on search engines, YouTube restricted mode

2019:

- As in 2018, six in ten parents who have home broadband and whose child goes online are aware of home network-level content filters. Almost half of these actually use them (36%) – parents of 8-11s are more likely to do so (41%) than 5-7s or 12-15s (33% and 34% respectively). The same proportions are aware of, and use, parental control software.¹⁴⁹

Further research

In February 2017, the European Commission DG Communications Networks, Content & Technology released a study which benchmarked 25 parental controls used on PCs, mobile devices and games consoles.¹⁵⁰ Findings include that:

- Awareness-building and knowledge dissemination are the most important initiatives to create an educated environment and enable informed decisions from parents.
- A comprehensive guide would be useful to 'educate' parents on how to integrate the use of parental control tools with parenting and how to inform and explain to children how to use these tools properly.
- Whilst the study supports Parental Controls as a major method to protect minors, it calls

¹⁴⁶ Best Parental Controls. Accessible from: <https://www.techradar.com/uk/best-parental-control>

¹⁴⁷ Best Parental Control Apps Review. Accessible from: <https://www.tomsguide.com/uk/us/best-parental-control-apps.review-2258.html>

¹⁴⁸ Norton Family Premier Review. Accessible from: <https://www.tomsguide.com/uk/us/norton-family-premier-android.review-3340.html>

¹⁴⁹ Children Media Use Attitudes report - Online gaming is on the increase, as are parental concerns. Accessible https://www.ofcom.org.uk/data/assets/pdf_file/0023/190616/children-media-use-attitudes-2019-report.pdf Published 2019.

¹⁵⁰ Benchmarking of parental control tools for the online protection of children. Accessible from: <https://sipbench.eu/transfer/FullStudyonparentalcontroltoolsfortheonlineprotectionofchildren.pdf> Published by the European Commission, 2p17



for development and further iterations of the tested tools in order to improve functionality, coverage and overall effectiveness.

A call for better education

- In 2017, Tech Crunch observed that: ‘A lack of guidance is one of the gaping holes with many parental control systems today. That’s unfortunate given that all the app stores have app ratings.’¹⁵¹ Whilst there are studies to suggest that awareness of parental controls is rising¹⁵², there is an on-going need for education efforts to make sure parents are aware of the extensive suite of parental controls that are built- into devices as well as third-party protection tools.

3.3.8 Please provide any evidence relating to the use and impact of video games information labels such as the Pan European Game Information rating system (PEGI) in-game purchases and paid random item labels (see Box 3 below). *Information that would be useful to receive includes:*

a. *Impacts on behaviour when purchasing games / in game content.*

Entertainment Software Ratings Board (ESRB) ratings study

Globally, we are aware of a single peer-reviewed study that comprehensively looks at the efficacy of ratings: *Parental Restrictive Mediation and Children's Violent Video Game Play: The Effectiveness of the Entertainment Software Rating Board (ESRB) Rating System*¹⁵³. This study investigates the extent to which ratings set by the Entertainment Software Ratings Board (ESRB) in North America¹⁵⁴ mediate and limit the impact of violent video games on children’s

¹⁵¹ Google Introduces Family Link – Its own parental control software for Android. Accessible from:

<https://techcrunch.com/2017/03/15/google-introduces-family-link-its-own-parental-control-software-for-android/>

¹⁵² Children Media Use Attitudes report - Online gaming is on the increase, as are parental concerns. Accessible

https://www.ofcom.org.uk/_data/assets/pdf_file/0023/190616/children-media-use-attitudes-2019-report.pdf

Published 2019.

¹⁵³ Parental Restrictive Mediation and Children's Violent Video Game Play: The Effectiveness of the Entertainment Software Rating Board (ESRB) Rating System. Accessible from DOI: [10.1509/jppm.15.071](https://doi.org/10.1509/jppm.15.071). Published by the Journal of Public Policy and Marketing, 2016

¹⁵⁴ The Entertainment Software Ratings Board ‘ESRB’ informs ratings for Google Play in North America; The Pan European Game Information ‘PEGI’ informs ratings for Google Play in Europe



behaviour. (For a helpful summary, see ‘*Video game ratings work, if you use them.*’ by ScienceDaily).¹⁵⁵ Details from the study are set out below:

To test ERSB ratings' effectiveness, researchers collected data through an online survey of families with children 8 to 12 years old. Parents reported their use of the ESRB rating scale, the hours their child spent playing video games every week and their child's bad behaviours at school. Children were asked about play levels and their perception of rules related to video game play. The final sample included 220 families. The average age of the respondents was 42.7 and 9.7 years for the parents and children, respectively. An exploratory factor analysis (EFA) was conducted, and construct reliabilities were calculated.

Results suggest that:

- Children of parents who employ restrictive mediation efforts tend to play less violent video games and the effect of these efforts is enhanced when parents use the ESRB system.
- This moderated effect also extends to reduce children's engagement in negative behaviours in school.

In its concluding remarks, the paper finds that:

‘Specifically, and as was conjectured in our model, household rules about video game play lead to decreased video game play and that negative relation is strengthened by perceptions of ESRB use by parents. Consequently, it appears that this self-regulatory intervention by the video game industry is having beneficial effects at least in terms of aiding parents' own attempts at decreasing violent video game play by their children.’¹⁵⁶

A call for further research

We respectfully suggest that research into the efficacy of the existing UK rating ecosystem and how to further extend its impact in areas such as in-app purchases, ratings and appropriate content concerns represents a constructive avenue for further research.

3.3.9 Please provide any evidence relating to the use, impact and understanding of consumer rights legislation. Information that would be useful to receive includes:

- a. How do company policies align with existing consumer rights legislation and what options are available to players if they are not satisfied with their purchase of a loot box?*

¹⁵⁵ ‘Video game ratings work, if you use them.’ Accessible from: <https://ico.org.uk/for-organisations/guide-to-data-protection/key-data-protection-themes/age-appropriate-design-a-code-of-practice-for-online-services/11-parental-controls/>

<https://www.sciencedaily.com/releases/2017/01/170125145805.htm#:~:text=Russell%20Lacznia%2C%20a%20pr ofessor%20of,rules%20for%20video%20game%20play> Published by ScienceDaily January 2017

¹⁵⁶ Parental Restrictive Mediation and Children's Violent Video Game Play: The Effectiveness of the Entertainment Software Rating Board (ESRB) Rating System. Accessible from DOI: [10.1509/jppm.15.071](https://doi.org/10.1509/jppm.15.071). Published by the Journal of Public Policy and Marketing, 2016



- b. *What rights do players have when purchasing loot boxes and how is this information made available?* <sup>[L]
[SEP]</sup>
- c. *Are you aware of any action having been taken in relation to loot boxes on consumer rights grounds in the UK and/or internationally, and if so, what were the reasons for and outcome of this action?* <sup>[L]
[SEP]</sup>

Leading the way - the OFT principles for in-app purchases

The UK is leader on regulatory guidance for in-app purchase, based upon existing consumer protection law.

During April 2013, the Office of Fair Trading (OFT) (now the Competition and Markets Authority - CMA) launched an investigation following media coverage of parents running up substantial costs from in-game purchases made by their children. The investigation focused on transparency of in-app purchases in games played by minors, and whether ‘app-based’ games are ‘misleading, commercially aggressive or otherwise unfair in light of existing consumer protection laws.’

On September 26 2013, the OFT published its final report which proposed a set of eight draft principles clarifying the obligations of social games developers and platforms under existing consumer protection laws.¹⁵⁷ The eight principles focus upon transparency, accountability and consent in in-app purchases. Broadly summarised they are as follows:

- Principles 1-3 cover the provision of information to the consumer before they start a game.
- Principles 4 and 5 cover the importance of clarity for in-game commercial information. Games should clearly distinguish between paid and unpaid content, and avoid falsely indicating that payment is integral to gameplay when it is not.
- Principles 6 and 7 cover potentially aggressive in-game commercial practices. Developers should not encourage children to part with money through exploiting their inexperience and credulity, or by making direct exhortations to purchase.
- Principle 8 concerns the prevention of unauthorised payments.

To assist implementation, each principle is annotated with examples of compliance that are ‘more likely or likely to comply’ and ‘less likely or likely to comply.’

The principles are derived from UK Consumer Protection law – in particular, the Unfair Trading Regulations 2008, the Unfair Terms in Consumer Contracts Regulations 1999, the Electronic Commerce (EC Directive) Regulations 2002 and the Consumer Contracts (Information, Cancellation and Additional Charges) Regulations 2013 and, in some cases, the Payment Services Regulations 2009.¹⁵⁸

¹⁵⁷ Children’s Online Games report and consultation. Accessible from <https://assets.publishing.service.gov.uk/media/53330c4de5274a566000005/oft1506.pdf>. Published by the OFT, 2013.

¹⁵⁸ OFT’s Principles for online and app-based games. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288360/oft1519.pdf. Published by the OFT, 2014



On January 31 2014, after a period of consultation, the OFT published its final principles with certain amendments including

- Modifications of the test for whether a game can be said to appeal to children
- Greater acknowledgement of shared liability between platforms and game operators
- The removal of the label of ‘drip pricing’ to describe freemium games

In other respects, the principles remained essentially the same, covering provision of information to consumers before they start the game, clarity of in-game commercial information, in-game commercial practices and the prevention of unauthorised payments.¹⁵⁹ In June 2015, the renamed Competition and Markets Authority announced that it had concluded its work monitoring the children’s online and app-based games market, referring three games to the Advertising Standards Association (ASA) for further investigation.¹⁶⁰

The OFT principles: setting a global precedent

Towards the end of 2013, the Australian Competition and Consumer Commission (ACCC) began an investigation into online apps and games. On December 9th, following a ‘sweep’ of over 340 freemium games, the ACCC explicitly endorsed the UK OFT principles:

‘The ACCC supports the objectives of proposed principles for the online and app-based game industry. The draft principles, released by the United Kingdom Office of Fair Trading (UK OFT) on 26 September 2013, are designed to protect children playing app-based games on smartphones and tablets.’¹⁶¹

The OFT principles may have also helped trigger the Consumer Protection Cooperation (CPC) Network of EU consumer enforcement authorities review of the concerns surrounding practices of in-app purchases and the marketing of online games. In December 2013, a common CPC position was communicated to the industry based on existing EC law, in particular, The Unfair Commercial Practices Directive (Directive 2005/29/EC (UCPD) and the Consumer Rights Directive (Directive 2011/83/EC). Guidance focused on password requirements for platform payment purchase windows and the use of the term ‘free’ by developers in games, which have in-app purchases.¹⁶²

The continued utility of the principles

¹⁵⁹OFT’s Principles for online and app-based games. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288360/oft1519.pdf. Published by the OFT, 2014

¹⁶⁰ Children’s online games summary. Available from: <https://www.gov.uk/cma-cases/children-s-online-games> Published by the CMA, 2015

¹⁶¹ ACCC urges app industry to adopt new principles following ‘sweep’ of children’s game apps. Accessible from: <https://www.accc.gov.au/media-release/accc-urges-app-industry-to-adopt-new-principles-following-%e2%80%98sweep%e2%80%99-of-children%e2%80%99s-game-apps> Published by the ACCC, December 2013

¹⁶² Common position of national authorities within the CPC. Available from: https://ec.europa.eu/info/sites/info/files/common-position_of_national_authorities_within_cpc_2013_en_0.pdf. Published by the CPC, 2013



It is respectfully submitted that building upon the centralised foundation of OFT advice would: A) address the wider landscape of in-game mechanics and monetisation; B) address loot boxes without hazardous overlap with gambling legislation; C) allow iterative development of guidance in line with a fast-changing industry and technology; D) serve as a pathfinder for the holistic approach advised by both the European Parliament and Federal Trade Commission (FTC).

It is with good reason that in 2020, nearly eight years after the principles were first drafted, a UK government agency, the ICO, explicitly cites OFT guidance on in-app purchases concerning in-game mechanics such as reward loops.¹⁶³ Whilst there is no explicit guidance on loot boxes in the OFT principles, a series of self-regulatory steps taken by industry in respect to loot boxes are in keeping with the spirit of its guidance. There is also extensive overlap with principles governing in-app purchases generally. Below are examples of how the OFT guidance continues to impact company policy and player protection:

Transparency of cost

Principle 1 provides that ‘information about the costs associated with a game should be provided clearly, accurately and prominently up-front, before the consumer begins to play, download or sign up to it or agrees to make a purchase.’ Principle 2 further provides that: ‘All material information about a game should be provided clearly, accurately and prominently up-front, before the consumer begins to play, download or sign up to it or agrees to make a purchase.’

Application: Since 2014, Google Play has required developers to display a range of in-app purchases on the storefront.¹⁶⁴ The Apple App Store displays a description as to whether an app contains in-app purchases by the app’s price or ‘Get’ button.¹⁶⁵ PEGI has applied in-app purchase and randomised in-app purchase labels. Moreover, games developers provide detailed information regarding in-app costs on the game’s page in the app stores (Example in Figure 9). This information is visible to users prior to downloading the game and includes subscription details, in-app purchase management details and examples of in-app purchases:

“Farmville¹⁶⁶ offers subscriptions for in game currency. The subscription is billed monthly and automatically renews unless cancelled 24 hours before the end of current period.”

“8 Ball Pool¹⁶⁷ offers weekly and monthly subscriptions at USD \$7,99 and USD \$19,99 respectively ... Payment will be charged to iTunes Account at confirmation of purchase ... Subscription automatically renews unless auto-renew is turned off”

¹⁶³ The ICO’s Age Appropriate Design Code. Standard 5: Detrimental use of data. Accessible from: <https://ico.org.uk/for-organisations/guide-to-data-protection/key-data-protection-themes/age-appropriate-design-a-code-of-practice-for-online-services/5-detrimental-use-of-data/>. Published by the ICO in June 2020.

¹⁶⁴ Google Play now shows in-app purchase pricing in listings, developer addresses too. Accessible from: <https://www.androidauthority.com/google-play-latest-changes-532124/>. Published by Android Authority, September 2014.

¹⁶⁵ Buy additional app features with in-app purchases and subscriptions. Accessible from: <https://support.apple.com/en-gb/HT202023>. Published by Apple

¹⁶⁶ Zynga – an MGIF forum participant

¹⁶⁷ Miniclip - an MGIF forum participant

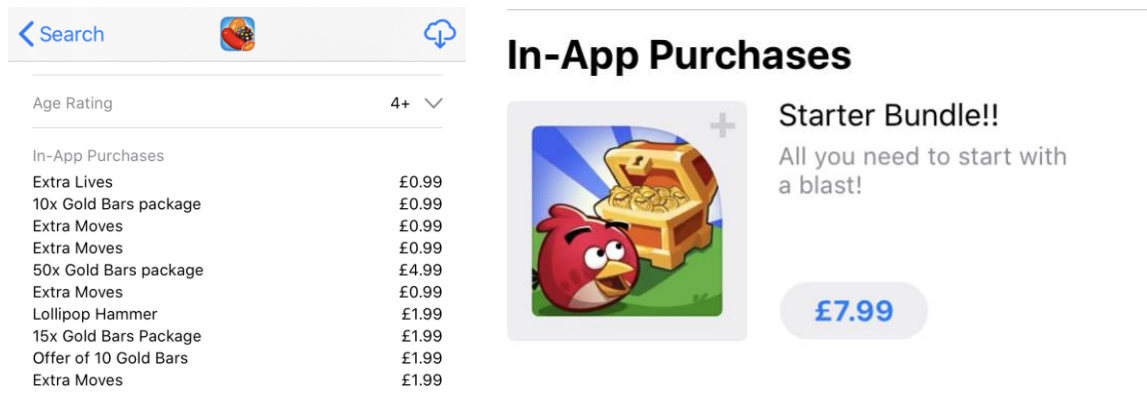


Figure 9 - In-app purchase examples shown in the Apple App Store of Candy Crush by King (left) and Angry Birds 2 by Rovio (right). This is visible to users prior to download

Purchases are not required to complete games

As a template for compliance, principle 1 further advises that ‘the consumer can access discrete parts of the game that stand alone without the need to make purchases and can make an informed choice as to whether to pay to access additional content, the price of which has been made clear before the consumer begins to play or agrees to purchase the game.’ Principle 5 states that ‘a game should not mislead consumers by giving the false impression that payments are required or are an integral part of the way the game is played if that is not the case’ - and as a template for compliance suggests that ‘both paid-for and non-paid-for options are presented clearly and given equal prominence to consumers.’¹⁶⁸

Application: As stated in the response to 3.2.3, a framework of guidance exists to ensure that mobile games on UK app stores can be completed without recourse to in-app purchases, including paid for loot boxes.

Refunds

Principle 2 states, that ‘where a contract is made between the consumer and the trader for the supply of the game (for example through membership), it is made clear to the consumer before he/she contracts how the contract can be cancelled and whether and how any refund would be due.’

Application: Mobile games developers operate refund policies for all types of in-app purchases and provide clear details of how such refunds can be obtained on their support pages.

¹⁶⁸ OFT’s Principles for online and app-based games. Accessible from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/288360/oft1519.pdf. Published by the OFT, 2014



Contact us

Choose your language
English ✓

Email (make sure it's correct)
mail@example.com

Full name

Choose a game
_____ ✓

Choose a topic
Unsuccessful purchase
Accidental purchase
Purchased items not received
Payment queries ✓

Figure 10 - Taken from King's support page as an example of a mobile game refund policy

It should be recalled that in 2011, the FTC launched an investigation of Apple, Google and Amazon focused on unauthorised spending by minors on in-app purchases. As a result of subsequent FTC settlements, platforms operate improved refund policies¹⁶⁹ - both Apple¹⁷⁰ and Google¹⁷¹ provide easy-to-use avenues for claiming refunds.

A principle for randomised in-app purchases

As stated in response to question 7, platform guidance now requires that mobile games developers disclose drop rates. **However, the disclosure of drop rates is not specifically tackled by an OFT principle. We respectfully suggest that a principle on loot box best practice could help clarify expectations and address consumer concerns.**

ASA/CAP/BCAP consultation on ads for in-game purchasing¹⁷²

As of November 5th 2020, ASA/CAP/BCAP¹⁷³ have released draft 'formal' guidance for consultation, to express how existing advertising codes should apply to in-app purchases. Draft guidance encompasses the presentation at the point of sale of 'proprietary and premium currency,' 'cosmetic items,' 'functional items', 'downloadable content' and 'random-item purchases', of which loot boxes are a subset, amongst other in-game features.

¹⁶⁹ For example, see <https://www.washingtonpost.com/news/the-switch/wp/2014/09/04/google-agrees-to-pay-19-million-in-ftc-in-app-kids-lawsuit/>

¹⁷⁰ For Apple help on refunds: <https://support.apple.com/en-us/HT204084>

¹⁷¹ For Google Play help on refunds.: <https://support.apple.com/en-us/HT204084>

¹⁷² Consulting on new guidance on ads for 'loot boxes' and other in-game purchases. Accessible from: <https://www.asa.org.uk/news/consulting-on-new-guidance-on-ads-for-loot-boxes-and-other-in-game-purchases.html>
Published by the ASA, November 2020

¹⁷³ Committee of Advertising Practice (CAP); Broadcast Committee of Advertising Practice (BCAP); Advertising Standards Authority (ASA)



Whilst the consultation states that several policy considerations surrounding in-app purchases 'relate to the product themselves' and are, therefore 'out of scope', we respectfully suggest there is overlap with the on-going call for evidence and the 2014 OFT principles on in-app purchases, - especially since the consultation explicitly extends to 'in-game storefronts.'¹⁷⁴ The mantra of the consultation is that 'Rather than implementing new rules, we think that the issues in question can be suitably addressed through specific formal guidance on existing rules.'¹⁷⁵

Draft principles have yet to be refined by dialogue with stakeholders, **however, they may afford points of direction for a further iteration of the OFT principles including specific guidance on loot boxes.** The consultation runs until January 28th 2021 - 'CAP and BCAP would particularly welcome responses from stakeholders with an interest or expertise in games, apps, and digital purchasing.'¹⁷⁶

3.3.10. Please provide any evidence of the effectiveness of mandatory and voluntary measures relating to the use and purchase of loot boxes in other jurisdictions.

Decisions and statements by European regulators and associated government bodies on loot boxes

As the below timeline illustrates, the overwhelming majority of regulators and associated government bodies that have considered loot boxes have not called for the imposition of additional regulation. Fundamentally, this is because jurisdictions have recognised that loot boxes offer no opportunity to win money, or anything of value:

- The UK Gambling Commission's (UKGC) long held position has been that games without real monetary prize do not constitute gambling. In November 2017, the regulator stated:

'A key factor in deciding if that line has been crossed is whether in-game items acquired 'via a game of chance' can be considered money or money's worth. In practical terms this means that where in-game items obtained via loot boxes are confined for use within the game and cannot be cashed out it is unlikely to be caught as a licensable gambling activity. In those cases our legal powers would not allow us to step in.'¹⁷⁷

- On November 29 2017, the Danish Gambling Authority made an official statement that loot boxes are not covered by the country's gambling legislation:

¹⁷⁴ Consultation on ads for in-game purchasing. Accessible from: <https://www.asa.org.uk/resource/consultation-on-ads-for-in-game-purchasing.html> Published by the ASA

¹⁷⁵ Consulting on new guidance on ads for 'loot boxes' and other in-game purchases. Accessible from: <https://www.asa.org.uk/news/consulting-on-new-guidance-on-ads-for-loot-boxes-and-other-in-game-purchases.html> Published by the ASA, November 2020

¹⁷⁶ Guidance on advertising in-game purchases. Accessible from: <https://www.asa.org.uk/uploads/assets/8039d7d7-cac3-4603-8c752e16c27aaa84/In-game-Purchasing-Consultation.pdf>. Published by the ASA, November 2020.

¹⁷⁷ Loot Boxes within Video Games. Accessible from: <http://www.gamblingcommission.gov.uk/news-action-and-statistics/News/loot-boxes-within-video-games>. Published by the Gambling Commission, November



‘The winnings obtained in a loot box in Star Wars Battlefront 2 cannot be converted into financial means, as the fictional items in the loot box can not be sold or otherwise converted into money. Therefore, loot boxes in their present form in Star Wars Battlefront 2 are not covered by the gaming act.’¹⁷⁸

- During the same month, French gambling regulator, ARJEL, released its activity report for the year 2017-2018. Whilst raising concerns, ARJEL emphasised the importance of the real-world prize requirement. According to ARJEL, loot boxes could only qualify as gambling if the generated item has a real-world monetary value:

‘If, given the French definition of gambling, not all ‘loot boxes’ can be qualified as a gambling game, the same does not apply when the prize is monetizable. The legality of this type of game is questionable when the lot is likely to be sold outside the game platform and the publisher allows the use of lots acquired elsewhere than in the environment of its platform. In this case, ARJEL intervenes: a certain number of investigations are in progress.’¹⁷⁹

- On October 27 2018, the Minister of State in the Department of Justice for Ireland, David Stanton, said that the European declaration on blurring lines between gaming and gambling reflected shared concern rather than legislative intent. Games which offer in-game purchases are a commercial or e-commerce activity rather than gambling:

‘However, it should be understood, that if a game offers in-game purchases - be they loot boxes, skins, etc. - which are promoted to gamers as increasing their chances of success, such purchases are essentially a commercial or e-commerce activity.’¹⁸⁰

- On February 26 2019, the Polish Ministry of Finance stated that loot boxes do not satisfy the country’s definition of gambling:

‘An analysis of the provisions of the Act of 19 November 2009 on gambling (i.e. Journal of Laws of 2018, item 165 as amended) shows that games using loot boxes in their formula do not fulfil the prerequisites of any of gambling games, which are indicated in the closed of the Act (Article 2 (1)).’¹⁸¹

- On September 30 2019, the Swedish Consumer Agency published a research report into social games and loot boxes. The report surmises that such games are caught by the Swedish Gaming Act only if the ‘consumer wins money or a profit that has value in money outside the computer game:’

¹⁷⁸ Statement on loot boxes. Accessible from: <https://www.spillemyndigheden.dk/en/news/statement-about-loot-boxes-loot-crates>. Published November 2017

¹⁷⁹ Activity Report. Accessible from: <http://www.arjel.fr/IMG/pdf/rapport-activite-2017.pdf>. Published by ARJEL, 2018

¹⁸⁰ Statement by Minister of State Stanton on the steps he has taken relating to loot boxes, online video games and their relationship with gambling behaviour. Accessible from: [https://merrionstreet.ie/en/News-Room/Releases/Statement by Minister of State Stanton on the steps he has taken relating to loot boxes online video games and their relationship with gambling behaviour.html](https://merrionstreet.ie/en/News-Room/Releases/Statement%20by%20Minister%20of%20State%20Stanton%20on%20the%20steps%20he%20has%20taken%20relating%20to%20loot%20boxes%20online%20video%20games%20and%20their%20relationship%20with%20gambling%20behaviour.html). Published September 2018

¹⁸¹ Good news for the gaming industry. Loot boxes cannot be considered a hazard. Accessible from: <https://biznes.gazetaprawna.pl/artykuly/1399853.dobra-wiadomosc-dla-branzы-gier-loot-boksow-nie-mozna-tractowac-jak-hazard.html?r=299> Published by Gazeta Prawna, 2017



‘The Gaming Inspectorate believes that loot boxes and other lottery or casino-like elements of computer games may in certain cases be covered by the Gaming Act. One of the prerequisites is that the consumer wins money or a profit that has a value in money outside the computer game.’¹⁸²

- On July 3 2020, the European Parliament released a report - ‘*Loot boxes in online games and their effect on consumers, in particular young consumers*,’ conducted by the Policy Department for Economic, Scientific and Quality of Life.¹⁸³ It explains that loot boxes do not satisfy the three-step legal test for gambling - consideration, chance and prize - applied in most European jurisdictions: ‘Loot boxes are not legally considered gambling in most EU Member States.’
- The European Parliament further conducted a survey which found that absence of a real-world prize is the principle reason why loot boxes are not classified as gambling in the overwhelming majority of countries and that, in these jurisdictions, loot boxes fall under the rubric of consumer protection and contracts law:

‘The survey conducted for this study among national authorities has confirmed that the monetary value of the prize is indeed part of the gambling definitions of most countries and is the decisive factor why loot boxes are not legally considered gambling.’

- The paper is critical of the minority of Member States that have applied gambling legislation, namely Belgium and the Netherlands (albeit only where virtual items can be traded). First, because it adversely affects the European Single Market for video games, denying consumers in the Netherlands and Belgium access to titles enjoyed elsewhere in Europe. Second, because it fails to consider loot boxes as merely one of a host^[SEP] of in-game design and monetisation techniques: ^[SEP]

‘For example, consumers in Belgium and the Netherlands currently do not have access to the same game versions as consumers in other Member States, and video game publishers cannot offer the same game across the whole Single Market.’

‘Moreover, loot boxes are a specific (albeit prominent) example of ... game design and in-game monetisation methods which can also appear in video games independently of loot boxes.’

- In its concluding recommendation, the paper calls for ‘holistic’ consumer protection, as opposed to a gambling regulation led approach:

‘It is therefore recommended to broaden the perspective beyond gambling aspects and approach the issue of loot boxes and other... game designs from a wider consumer protection angle.’

¹⁸² Mapping of consumer protection in the event of lottery or casino-like elements in computer games. Accessible from: <https://www.konsumentverket.se/contentassets/83509d8dffff48559d44de6546ecc362/kartlaggning-av-konsumentskyddet-vid-lotteri--eller-kasinoliknande-inslag-i-datorspel-fi-2019-01630-ko.pdf>. Published by Consumer Works in September 2019

¹⁸³ Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.



- On September 29 2020, Norway's gambling regulator Lotteritilsynet responded to the Norwegian Ministry of Culture's Consultation on consolidating its gambling laws - comment was invited on loot boxes. Lotteritilsynet's response finds that gambling legislation is inappropriate for loot boxes:

'The Norwegian Lotteries Authority sees that games in the grey zone between computer games and gambling can create problems related to spending money. This especially applies to computer games that have loot boxes. There is also lead research that points to a connection between the problem of gambling and loot boxes. The Norwegian Lotteries Authority believes that it is important that problems related to computer games and loot boxes are addressed, but through another set of rules that is better adapted to this area than the Gambling Act ... We also believe that winnings from loot boxes, as we know them today, should not be covered by the definition of winnings in the new Gambling Act.'¹⁸⁴

A critique of the Belgium Gaming Commissions' stance on loot boxes

In April 2018, the Belgian Gaming Commission (BGC) found that loot boxes constitute gambling under current legislation, and recommended criminal prosecution against any companies that continued to operate the mechanic in their games.¹⁸⁵ The classification of loot boxes as gambling is rooted in Belgium's uniquely broad definition of gambling, which does not require a monetary prize. Article 2:1 of the Gaming Act 1999 defines 'games of chance' as any game by which a stake of any kind is committed, the consequence of which is either loss of stake by at least one of the players or a gain of any kind in favour of at least one of the players, or organisers of the game and in which chance is a factor, albeit ancillary, for the conduct of the game, determination of the winner or fixing of the gain.'¹⁸⁶

The legal test is therefore:

- A game
- A stake of any kind
- A loss or a gain
- Chance playing a role, however minimal in the outcome of the game.
- A 'wager' which is defined as a specific subcategory of games of chance: 'a game of chance in which each player wagers an amount that generates a gain or loss that does not depend on an act of the player, but depends on the realisation of an uncertain event happening without the intervention of the player'

In recognition of a uniquely broad definition of games of chance, that does not require real world monetary prize, the Belgian legislature explicitly excludes certain games including the practice

¹⁸⁴Consultation response from the Lotteries and Foundations Authority. Accessible from: <https://www.regjeringen.no/no/dokumenter/horing-av-ny-lov-om-pengespill/id2721389/?uid=52d464f0-f713-4af9-9f88-b0cf0ae1c00d>

¹⁸⁵Research Report Loot boxes, Accessible from: https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-final-publicatie.pdf Published by the Gaming Commission, April 2018

¹⁸⁶ Act of 7 May 1999 on games of chance, betting, gaming establishments and the protection of players. Accessible from: https://www.gamingcommission.be/opencms/opencms/jhksweb_en/law/law/index.html Published by the Gaming Commission



of sports.¹⁸⁷ However, these exceptions pre-date and do not clarify the legal status of app-based online games.¹⁸⁸

The BGC's *Research Report Loot Boxes* explains that a loose definition of a 'wager' facilitates the classification of loot boxes as gambling:

'Winning is not even a decisive criterion in the Belgian Gaming and Betting Act. The mere loss of a wager can suffice and can also be of any type. If a player pays a certain amount for the purchase of a loot box, then the player's loss will consist of the value of the wager minus the value of the obtained item. Therefore, even though developers and distributors maintain that the obtained items in loot boxes have no value, the amount of the wager will constitute an integral loss for the player and an integral win for the distributors and game developers.'

The BGC further explains that a 'win' under the Gaming Act, can be something as mundane as progressing to a new level:

'The type and scope of the win is also irrelevant for the requirement of the transaction. Something that is described as a 'bonus', 'gift' or 'reward' by the parties can also be qualified as a 'win'. The win therefore does not necessarily need to be of the monetary kind. The impossibility for a player to convert the game currency back into money does not rule out application of the Gaming and Betting Act.'¹⁸⁹

In identifying whether virtual currency might constitute a 'wager', the BGC makes distinction between the 'gameplay currency' obtained from the regular course of the game and 'paid ... in-game currency' that constitutes a 'layer on top of the game.' The latter, the BGC considers can constitute a 'wager' because 'an asset value is brought into the game that serves as a participation fee/compensation fee for the loot box.'

However, we respectfully submit that this is a flawed distinction since nearly all freemium casual games have in-game 'premium' currency, for example Coins or Tokens, that can be bought or earned through game play. Moreover, the distinction fails to account for a symbiotic relationship in virtual currencies, whereby one stand of virtual currency derives meaning from its relationship to the other.¹⁹⁰ The reality is that virtual currencies are extremely complex. As Professor Frans Mäyrä, Dr Jaakko Stenros and Dr Annakaisa Kultima explain, social and casual games of all kinds have become veritable mini-economies based around virtual currency:

¹⁸⁷ Exclusions also encompass games in which the only stake offered to the player or wager is to continue the game free of charge up to a maximum of five times; card games or board or parlour games played outside class I and III gaming establishments; games operated in attraction or trade or other fairs and analogous occasions; games organised occasionally, and at most four times a year, by an association having a social or charitable purpose or by a non-profit association for the benefit of a social and philanthropic project, requiring only a very limited stake

¹⁸⁸ This explanation of the law in Belgium is based upon Gaming Law, Jurisdictional Comparison (2014)

¹⁸⁹ Research Report Loot boxes, Accessible from:

https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-final-publicatie.pdf Published by the Gaming Commission, April 2018

¹⁹⁰ For example, see Troy Dunniway's conceptualization of virtual currencies as a 'secondary re-enforcer':

<https://www.linkedin.com/pulse/using-psychology-games-depth-perspective-troy-dunniway>

Also See Table of Definitions



‘Although seemingly simple, contemporary social and casual games have been developed to include sometimes rather complex systems of digital virtual currencies and time investment into in-game resource harvesting, and other kinds that many games require may also be seen to function as certain kinds of currency systems.’¹⁹¹

The BGC also singles out loot boxes for their use of RNG without recognising its standardized use across video game design:

‘it is clear that the game manufacturers and platforms use many techniques for luring and encouraging players to play online and purchase loot boxes in an unrestricted manner. These techniques vary from social behavior monitoring, to a lack of data protection policy with possibly large-scale manipulation of the player through behavior-related random number generators (RNG).’

It is respectfully submitted that Belgium’s classification of loot boxes as gambling rests upon flawed legal reasoning, limited knowledge of the sector and a uniquely broad definition of gambling. As a consequence, any mobile game with a randomised element risks classification as gambling at the arbitrary whim of the regulator. The European Parliament has criticised the impact on Belgium’s digital economy, whereby consumers ‘do not have access to the full content of games compared with all other national EU markets where loot boxes were not banned.’¹⁹²

A consideration of the Netherland’s Gaming Commission’s stance on loot boxes

The Netherlands has been described as one of the minority of regulators that *has* considered loot boxes to be a form of illegal gambling. This is an incomplete analysis.

In 2017, the Netherlands Gaming Commission (KSA) launched a consultation on the gambling assessment framework and concluded with a classic definition of prize as having real ‘economic value.’¹⁹³

In April 2018, the KSA concluded the consultation, asserting a traditional definition of prize (as real-world economic value): ‘A prize is a game outcome that represents or can represent economic value.’¹⁹⁴ Contemporaneously, the KSA released a paper on loot boxes, finding that only four of the ten loot boxes that were studied constituted gambling. In these, virtual prizes could be traded on secondary markets.¹⁹⁵

¹⁹¹ ‘From Social Play to Social Games and Back: The Emergence and Development of Social Network Games’, in *New Perspectives on the Social Aspects of Digital Gaming: Multiplayer 2*. Published by Taylor and Francis Group, 2017

¹⁹² Loot boxes in Online Games and their effect on consumers, particularly young consumers. Accessible from: [https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU\(2020\)652727_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf). Published by the European Parliament in July 2020.

¹⁹³ https://www.mygamecounsel.com/wp-content/uploads/sites/187/2018/04/guide_on_assessing_games_of_chance.pdf

¹⁹⁴ https://kansspelautoriteit.nl/publish/library/6/guide_on_assessing_games_of_chance.pdf

¹⁹⁵ Study into loot boxes a treasure or a burden? Accessible from: https://www.kansspelautoriteit.nl/publish/library/6/study_into_loot_boxes_-_a_treasure_or_a_burden_-_eng.pdf. Published by the Gaming Authority, April 2018



On July 9 2020, the KSA released a ‘vision,’ setting out core directives for monitoring gambling games in the public interest. The vision:

- Reiterates that whether loot boxes amount to gambling ‘varies from case to case’ and the ‘crucial test is whether the virtual prizes can be traded.’
- Acknowledges a lack of causal evidence and a need for more research on loot boxes.
- States that video games with ‘gambling elements’ are ‘too diverse to be regulated solely by the Games of Chance Act.’ The coordinated approach favoured by GREF is supported.

The vision contains best practice suggestions for using loot boxes in games - a clear indication that the regulator does not consider loot boxes to be, a priori, gambling:

- *Drop rate transparency:* ‘mentioning ... the potential content of loot boxes and whether it affects game performance, and the opportunities with which coveted items occur.’
- *Virtual items should be exclusive to loot boxes:* ‘The accessibility of items to be won via loot boxes should also be available by other means (via direct buy within the game). This reduces the pressure to continue to buy loot boxes, and with it the addiction risk.’¹⁹⁶

Australia - a case study in the impracticability of drawing virtual currency into gambling legislation

2012 Review into Interactive Gambling Act 2001

Australia has specifically considered the question of altering the definition of money’s worth to encompass virtual rewards in the 2012 review of the country’s gambling act.¹⁹⁷ The Department of Communications, Broadband and the Digital Economy (DCBDE) ultimately found that games played with virtual currency do not fall under the definition of gambling under the Interactive Gambling Act (IGA), as virtual currency is not redeemable for real money or anything else of value.¹⁹⁸ The DCBDE emphasised that terms and conditions make clear that virtual currency cannot be redeemed for real money, goods, or other items of monetary value.¹⁹⁹ The DCBDE also highlighted the risk of inadvertently capturing a large swathe of the online games sector.²⁰⁰

The Joint Select Committee on Gambling Reform report on the Interactive Gambling Amendment (Virtual Credits) Bill 2013²⁰¹

¹⁹⁶ KSA presents market vision. Accessible from:

<https://kansspelautoriteit.nl/nieuws/nieuwsberichten/2020/juli/ksa-presenteert/>. Published by the KSA, July 2020

¹⁹⁷ Final Report – Review of Interactive Gambling Act 2001, pages 139-145. Accessible from:

<https://www.communications.gov.au/publications/final-report-review-interactive-gambling-act-2001>

¹⁹⁸ Final Report – Review of Interactive Gambling Act 2001, page 141. Accessible from:

<https://www.communications.gov.au/publications/final-report-review-interactive-gambling-act-2001>

¹⁹⁹ At p. 141

²⁰⁰ At p. 141

²⁰¹ *Interactive Gambling Amendment (Virtual Credits) Bill 2013*. Accessible from:

https://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=s919.

Published by the Parliament of Australia



Particularly relevant to consideration is The Interactive Gambling Amendment (Virtual Credits) Bill 2013, which aimed to broaden the definition of items of value under the IGA to include ‘virtual credits, virtual coins, virtual tokens, virtual objects or any similar thing that is purchased within, or as part of, or in relation to, the game.’ The bill was referred to the Joint Select Committee on Gambling Reform (JSCOGR). The JSCOGR subsequently recommended against the bill, citing a lack of empirical evidence of harm to consumers, paucity of research, enforcement difficulties and the risk posed to the video games sector as a whole.²⁰² JSCOGR repeated the warning of the Australian Game Developers' Association of Australia (GDAA) that the bill would ‘essentially prohibit a large category of games, particularly those that rely on in-app purchases from being accessible in Australia.’²⁰³ Ultimately, JSOGR supported addressing concerns through the provision of better information to parents, targeted research and enlisting the cooperation of the relevant stakeholders.²⁰⁴

Senate Environment and Communications References Committee ‘Gaming micro-transactions for chance-based items’ – also known as the ‘Loot Box Inquiry’

On June 28 2018, a motion was presented by Senator Jordon Steele-John of the Australian Greens party, pertaining to the ‘use of loot boxes in video games, whether they constitute gambling, and whether they are appropriate for younger audiences.’ The Senate referred the matter to the Environment and Communications References Committee. In November 2018, after a consultation period, the Committee released a report, ‘*Gaming micro-transactions for chance-based items.*’²⁰⁵ On March 6 2019 the Australian government issued its response which:

- Noted committee recommendations for a comprehensive review and further research into loot boxes in video games and considered that a formal departmental review of loot boxes in video games was not warranted at the time.
- Acknowledged that while research is in its infancy, steps are being made to consider impacts on children,
- Flagged that parents and carers are aware of strategies to encourage safe gaming behaviours among children and young people.
- Recognised that the video game industry also has a significant role to play in protecting consumers. Game developers and online gaming storefronts provide a range of consumer protection tools, such as parental controls, purchase restrictions and spending limits.
- Noted that many games developers are already responding to the debate around loot boxes:

²⁰² Parliamentary Joint Select Committee on Gambling Reform. Accessible from:

http://www.aph.gov.au/~media/wopapub/senate/committee/gamblingreform_ctte/completed_inquires/2010-13/virtual_credits/report/report.ashx Published by the Parliament of Australia, June 2013

²⁰³ Parliamentary Joint Select Committee on Gambling Reform. Accessible from:

http://www.aph.gov.au/~media/wopapub/senate/committee/gamblingreform_ctte/completed_inquires/2010-13/virtual_credits/report/report.ashx Published by the Parliament of Australia, June 2013

²⁰⁴ Parliamentary Joint Select Committee on Gambling Reform **At 6.45** Accessible from:

http://www.aph.gov.au/~media/wopapub/senate/committee/gamblingreform_ctte/completed_inquires/2010-13/virtual_credits/report/report.ashx Published by the Parliament of Australia, June 2013

²⁰⁵ Senate Environment and Communications References Committee a report into ‘Gaming micro-transactions for chance-based items’ Accessible from:

https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Gamingmicro-transactions/Report



‘The Australian Government recognises that the video game industry also has a significant role to play in protecting consumers. Game developers and online gaming storefronts provide a range of consumer protection tools, such as parental controls, purchase restrictions and spending limits. The Australian Government notes that many games developers are responding to the debate around loot boxes, taking steps to remove loot boxes from games or choosing to release new games without loot boxes.’²⁰⁶

²⁰⁶ Government response on the Senate Environment and Communications References Committee a report into ‘Gaming micro-transactions for chance-based items’. Accessible from:



List of Definitions

Balancing loops	As a balancing rather than extending relationship, this is the opposite of a reinforcement loop. When something happens in the game (such as one player gaining an advantage over the others), a negative feedback loop makes it harder for that same thing to happen again. For example, if one player gets in the lead, a negative feedback loop makes it easier for the opponents to catch up (and harder for a winning player to extend their lead).
Casual games	Casual games are quick to learn, easy to play, often have a social element and are typically played on hand held devices in short time bursts. They have traditionally driven the mobile games market and according to App Annie's State of Mobile 2020 Report, constituted 49% of game downloads globally, with puzzle and arcade as the most popular genres. Newzoo describes the typical casual gamer as a 'time filler.'
Core Games	A core game might be defined as a game that requires some practice to play better and a control scheme that isn't too simple or basic. In other words, the games demand a lot of attention and focus.
Fixed-ratio schedule	Players are rewarded at fixed and predictable intervals for certain actions: for every action X the player does, he will receive Y. For example, a reward after killing five enemies.
Freemium	The freemium or 'free-to-play' monetisation model means that access and play is free, with certain additional and special features available for a fee. This optional pay to model was developed in the earlier days of the internet response to fraudulent software and the fact that consumers do not pay up



front for online content. Freemium games rely on advertising revenue as well as in-app purchases to achieve revenue. Since most gamers do not pay to play hyper-casual games, advertising is the primary source of revenue.

Hyper-casual games

Hyper-casual games are distinct to casual games in the sense that they do not aspire to long-term player retention, are played in ultra-short time bursts, and monetise primarily through advertisements. The average play session is just two and a half minutes. Games are characterised by crude graphics and super-simple gameplay. According to Johannes Heinze of the mobile marketing platform, AppLovin, simple gameplay is the essence of hyper-casual games. However, it is a misnomer to presume that hyper-casual game mechanics lack sophistication as arriving at the ideal formula is both complex and hard to achieve.

Input randomness or ‘pre luck’

The random event that happens before a player takes a decision. For example, drawing a hand of cards or rolling a dice before taking a turn.

Interval Schedules

A reward occurs on a fixed schedule of time, say, every three minutes. This is commonly found in first person shooters - for example a power-up that appears every X amount of time.

Output randomness or ‘post luck’

The player makes a decision, and a random event happens that impacts the decision. For example, hit chances in the shooter game Xcom, where it is down to chance whether the bullet will hit the alien or not knowing what your adversary will do before pressing ‘end turn.’ Accessing a loot box, and subsequently discovering what is in the box falls within the category of output randomness.



Positive reinforcement loops

Crudely put, this is the application of the rich get richer. On the one hand, something good happens that causes the same thing to happen again, which causes it to happen yet again, getting stronger in each iteration. On the other hand, something negative can happen, which causes something negative to happen again, getting weaker in each iteration. Positive loops might have multiple pathways. For example, in Age of Empires, an aggressive player might find a positive continuum of reward in better battle performance whereas, an explorative player, might find a positive continuum of reward in better treasure discovery.

Random number generator

An in-game algorithm that produces random numbers. Since pure randomness eludes computer science, video games RNG's use an algorithm that performs mathematical operations on a seed (starting) value to come up with a random number. These determine random events, such as the chance at landing a critical hit or picking up a rare item.

Random reward reinforcement

In behavioural science, reward reinforcement is broadly defined as a consequence that strengthens a future behaviour in a particular setting. Video game designers may use multiple methods of reinforcement to motivate players. Randomness is considered an essential element of reward reinforcement in order to achieve longevity and stability in gameplay.

Secondary reinforcement & virtual currencies

A secondary reinforcer involves a reward that players are not obliged to obtain but, nonetheless, help players achieve their goals in the game. Secondary or 'conditioned' reinforcers derive meaning from their relationship to primary reinforcers. Virtual currencies are sometimes described example of a conditioned reinforcer because they can



be exchanged for virtual items which are necessary e.g. food.

Variable interval schedules

The time period at which rewards are allocated is random. Players are not rewarded because they are more active. Instead, the reward will appear when it is the right moment on a variable basis that is unknown to the player.

Variable ratio schedules

There is a random rate of reward for certain actions - sometimes when the desired action is performed, it is rewarded, sometimes it is not. The reward comes frequently enough that the user makes a connection between the performance of the action and receiving the reward but not so frequently that the player is overconfident that the reward will be given. The precise frequency of reward is unknown to the player.