



Bruno Soeiro Lança

**The Problem of Loot Boxes and its need for Regulation:
The Portuguese Legal Framework and Future Harmonisation**

Dissertation to obtain a Master's Degree in
Law, in the specialty of Law and
Technology

Supervisor:

Dr. Jorge Morais de Carvalho, Professor of the NOVA School of Law

September 2022

“Don’t worry that you aren’t
giving people what they want.
Give them who you are,
and let that be enough.”

Brandon Sanderson

ANTI-PLAGIARISM STATEMENT

I hereby declare that the work I present is my own work and that all my citations are correctly acknowledged. I am aware that the use of unacknowledged extraneous materials and sources constitutes a serious ethical and disciplinary offence.

Bruno Soeiro Lança



14 September of 2022

ACKNOWLEDGMENTS (AGRADECIMENTOS)

Ao Professor Jorge, por todo o auxílio que me deu durante todo o processo. Um acompanhamento que me permitiu desenvolver este trabalho da melhor forma possível.

Aos meus pais e avó pelo apoio incondicional, seja no conforto que me forneceram durante todos estes anos, bem como amor e dedicação ao meu desenvolvimento, enquanto pessoa e estudante, possibilitando-me adquirir todas as ferramentas para que seja bem-sucedido.

À minha irmã por ter sido uma grande inspiração, mostrando que com perseverança tudo é possível e que desistir nunca é o caminho.

Aos meus sobrinhos Francisco e Afonso, por me terem dado inspiração e por todo o carinho.

Aos meus amigos, por estarem sempre presentes durante todo o meu percurso académico, tendo passado por todas as fases sempre com uma boa mensagem e um abraço, nunca me deixando cair, mesmo em alturas mais difíceis.

Estarei eternamente grato por tudo.

QUOTING AND OTHER CONVENTIONS

- I. In this dissertation, quoting other academic works will be done in footnotes as well as in the References section. When applicable, a hyperlink to the document will be provided.
- II. The quoting style that is used throughout the work is based on OSCOLA (Oxford University Standard for the Citation of Legal Authorities).
- III. Due to the rapid evolution of this theme, this dissertation is updated with materials until 25 of July of 2022.
- IV. The body of this dissertation has 196 099 characters, including spaces and footnotes.

ABSTRACT

The loot boxes are a mechanic adopted in the videogame industry, as a microtransaction, in order to finance the game. It was first used in free to play games, but was quickly adopted in other games with a higher budget, the called Triple A games, where its use has been a success.

However, as proven by research, this mechanic, throughout the time, has been demonstrated to bring serious issues for its users, mainly the ones that are connected with gambling games, such as psychological issues that can impact the users' life.

This dissertation explores this phenomenon, trying to understand the problems that come from loot box usage, as well as its resemblance with gambling games, not only in their identical representation, as well as the mechanisms used, that can lead to such problems.

The analysis is divided into three parts. First, it explores the different responses from different legal orders inside and outside the European Union, such as the ones that ban loot boxes, others that are more permissive, when within some barriers, and lastly ones that have not yet solved the problem in any way. Second, an in-depth analysis of the Portuguese legislation along with the investigation of whether, under the Online Gambling Act and the Gaming Act, loot boxes can be considered gambling or modalities alike gambling when scrutinising their essential physiognomy and physiological elements. We will demonstrate that this mechanic is problematic for individuals, especially minors and problem gamblers and that the Portuguese law is not prepared for this phenomenon.

The last and conclusory part is a proposal for a Portuguese law that attempts to meet some of the solutions such as limit-setting, disclosure of probabilities, currency change, AI targeting to release, parental controls and player control (And self-regulation by the industry, with supervision). Also, it is suggested a harmonisation in the matter of loot boxes within games at an EU level, through guidelines and, later, as a regulation or directive. This approach is believed to be the best way to regulate this reality, since the EU has got a dynamic character in

the online space, which can enhance the Member states' legislation concerning loot boxes, yet, also in preparation for the challenges that can erupt.

Keywords: loot box; virtual items; gambling; addiction; gacha; betting; self-regulation; limit-setting; probability disclosure; blockchain; Artificial Intelligence; parental controls; Gambling Act; Online Gambling Act; European Union; European Consumer Law.

RESUMO

As caixas surpresa (loot boxes) são um mecanismo adotado na indústria dos videojogos, como uma micro transação, para financiar o jogo. Foi inicialmente utilizado em jogos gratuitos, mas foi rapidamente adotado noutros jogos com um orçamento mais elevado, os chamados jogos *Triple A*, onde a sua utilização se tem revelado um sucesso.

No entanto, como foi possível comprovar através da presente investigação, este mecanismo, ao longo do tempo, demonstrou trazer sérios problemas aos seus utilizadores, incluindo questões psicológicas capazes de afetar a vida dos utilizadores, em especial, os que estão ligados aos jogos de fortuna azar.

Deste modo, esta dissertação explora este fenómeno, tentando compreender os problemas que advêm da utilização de caixas surpresa, bem como se podem assemelhar com os jogos de fortuna e azar, não só pela representação idêntica, mas também através dos mecanismos utilizados, que podem levar a tais problemas.

A análise está dividida em três partes. Primeiro, explora as diferentes respostas de diferentes ordens legais, dentro e fora da União Europeia, tais como as que proíbem as caixas surpresa, outras mais permissivas, quando dentro de algumas barreiras, e por último, as que ainda não resolveram de forma alguma o problema. Em segundo lugar, segue-se uma análise aprofundada da legislação portuguesa juntamente com a investigação que pretende averiguar se, ao abrigo da Lei do Jogo e da Lei do Jogo Online, as caixas surpresa podem ser consideradas como jogos de fortuna e azar ou modalidades afins dos jogos de fortuna ou azar, quando se examina a sua fisionomia e elementos fisiológicos

essenciais. Demonstraremos que este mecanismo é problemático para indivíduos, especialmente menores e jogadores problemáticos, e que a lei portuguesa não se encontra preparada para este fenómeno.

A última e conclusiva parte, elabora uma proposta de lei portuguesa que tenta cumprir algumas das soluções como a fixação de limites, a divulgação de probabilidades, a mudança de moeda, a inteligência artificial para libertar, o controlo parental e o controlo dos jogadores (e a autorregulação pela indústria, com supervisão). Também é sugerida uma harmonização em matéria de caixas surpresa dentro dos jogos a nível da UE, através de diretrizes e, mais tarde, como regulamento ou diretiva. Acredita-se que esta abordagem seja a melhor forma de regular esta realidade, considerando o carácter dinâmico da UE no espaço online, o que pode melhorar a legislação dos Estados Membros relativa às caixas surpresa, no entanto, também em preparação para possíveis eventuais desafios que poderão irromper.

Palavras-chave: caixa surpresa; artigos virtuais; jogo; dependência; gacha; apostas; autorregulação; fixação de limites; divulgação de probabilidades; blockchain; Inteligência Artificial; controlo parental; Lei do Jogo; Lei do Jogo Online; União Europeia; Direito do Consumidor Europeu.

TABLE OF CONTENTS

ANTI-PLAGIARISM STATEMENT.....	III
ACKNOWLEDGMENTS.....	IV
QUOTING AND OTHER CONVENTIONS	V
ABSTRACT	VI
RESUMO.....	VII
TABLE OF CONTENTS.....	IX
I. Introduction.....	1
II. What are Loot boxes?	2
2.1. Virtual Items value	9
2.2 Correlation between loot boxes and gambling features	13
2.2. Problems of loot boxes	17
III. International Analysis of regulations of this mechanic	23
3.1. Asia.....	23
3.2. Europe and the USA.....	25
3.3. Review	28
IV. Contractual Classification.....	30
V. Gambling in the Portuguese Legislation	32
5.1. Physiology of gambling.....	33
5.1.1. The free will to participate in the game.....	34
5.1.2. The bet.....	35
5.1.3 The Randomness	36
5.1.4 The Result.....	37
5.1.5 The Reward.....	37
5.2. Correlation between Gambling and Loot Boxes within Portuguese Law	41
5.3. Inefficiency of the Portuguese Law to regulate Loot boxes.....	47
VI. Solutions Presented.....	50
6.1. Self-Regulation	52
6.2. Ethical mechanisms	57
6.2.1 Limit-setting.....	57
6.2.2 Probability Disclosure.....	59
6.2.3 Other Mechanisms	62
VII. European Legislation on Loot boxes	64
VIII. European Consumer Law	71

IX. Conclusion	75
REFERENCES	78

I. Introduction

The video games industry is one of the biggest markets nowadays, generating billions of dollars every year¹. One of the ways for the video games companies to gather more profit from games, especially on free to play games, was through the loot boxes, and as it was estimated in 2020, the revenue from loot boxes worldwide was approximately 15 billion dollars². The adoption of this mechanic in video games has been receiving some backlash, since, as some authors pointed out, loot boxes have some resemblances to gambling, possibly bringing legal problems.

The loot boxes mechanic, just like the gambling phenomenon raises questions concerning the protection of assets, gambling addiction, protection of the development of the personality of children and young people, the financial interests of the State and social development measures- which the majority of legal scholars consider the legal and criminal good protected by the criminalisation of the illicit exploitation of illegal gambling.

However, there are divergences between countries in whether they should consider loot boxes as gambling or not, since, in some countries, the laws are not prepared to guarantee any protection to the consumer since there is a legal loophole and there has not been any regulation created.

That way, this dissertation will analyse this new phenomenon, trying to understand the problems that come from their usage, as well as their resemblance with gambling games, not only in their identical representation but as well as the mechanisms used on them, that can create such problems. We will explore the different responses from different legal orders inside and outside the European Union, such as the ones that ban loot boxes, others more permissive, when within some barriers, and lastly ones that have not yet solved the problem in any way.

¹ Teodora Dobrilova, 'How Much Is the Gaming Industry Worth in 2020? [+22 Powerful Stats]' (2020) <<https://techjury.net/blog/gaming-industry-worth/#gref>> accessed 2 December 2021.

² Jack Birmingham, 'Revenue from Online Gaming Loot Boxes Will Exceed \$US20 Billion by 2025: Study' (*WHICH-50*, 2021) <<https://which-50.com/revenue-from-online-gaming-loot-boxes-will-exceed-us20-billion-by-2025-study/>> accessed 13 December 2021.

After that, we will examine loot boxes' contractual classification under the Portuguese legislation, and investigate whether, under the Online Gambling Act and the Gaming Act, loot boxes can be considered gambling or modalities alike gambling when scrutinising their essential physiognomy and physiological elements. We will demonstrate that they are problematic for individuals, especially minors and problem gamblers.

We will conclude with a proposal for a Portuguese law that attempts to meet/pursue some of the Asian countries' solutions, nonetheless, with particularities and even suggest harmonisation in the matter of loot boxes within games at an EU level, as the best way to regulate this reality, since the EU has got a dynamic character in the online space, which can enhance the Member states' legislation in this matter, yet also in preparation for the challenges that can erupt from the loot boxes.

II. What are Loot boxes?

Loot boxes are one kind of microtransaction, a business model used by developers to fund their projects, without charging a lot of money from players³. Microtransactions may have started in China and North Korea, considering those countries' consumers did not have the economical means to buy video games, or even computers or consoles, resorting to "*internet cafés*"⁴ to be able to play. That way, video games developers and publishers decided to try a new model of games, called free to play, where players can play freely, but in order to buy virtual items and virtual currency, need to make those microtransactions, that is, transactions with a small economical value that, on the one hand, allow the

³ Mike Colagrossi, 'How Microtransactions Impact the Economics of Gaming' (*Investopedia*, 24 March 2020) <<https://www.investopedia.com/articles/investing/022216/how-microtransactions-are-evolving-economics-gaming.asp>> accessed 10 December 2020.

⁴ Internet cafés are usual in Asian countries, where consumers can have access to computers, consoles and a good internet connection. It is just like a normal coffee shop but with access to video games. - Eric Jou, 'A Look Inside the Smoky World of Chinese Internet Cafes' (*KOTAKU*, 2012) <<https://kotaku.com/a-look-inside-the-smoky-world-of-chinese-internet-cafes-5934131>> accessed 10 June 2022.

company to keep delivering the service and, on the other hand, permit players from all economic backgrounds to play⁵.

There are mainly four types of microtransactions⁶, starting by the in-game currencies which are a virtual currency that players can use to redeem many in-game items⁷. Then, there are the Random Chance Purchases, that include the loot boxes, which provide a random item that can be gathered from opening a box or a pack, depending on the visual demonstration that the developer chooses, having the potential of rewarding the player with a rare item that can be worth far more than the box. Then, there are the in-game item, that normally are better items than the one that the player can get from just playing the game, in a way to incentivize the purchase to become more competitive or have a more unique character or weapons. Lastly, there are the expiration purchases, that lock the player out of the game, needing to pay a sum in order to be able to play again. The player can wait or pay to instantly be able to play the game⁸.

An analogy is frequently made between loot boxes and baseball cards, trading card games or even Kinder Eggs, which is easily understandable, because loot boxes, as some researchers argue, were developed after “*Gachapon*”⁹, a popular toy vending machine that was imported into video games in 2004¹⁰. The “*Gacha*” rapidly spread throughout Asia since, due to the poor salaries of the region, video

⁵ Mike Williams, ‘The Harsh History Of Gaming Microtransactions: From Horse Armor to Loot Boxes’ (11 October 2017) <<https://www.usgamer.net/articles/the-history-of-gaming-microtransactions-from-horse-armor-to-loot-boxes>> accessed 12 April 2022.

⁶ They can include story extensions, levels, maps, currency, weapons, armours and others - Sebastian Schwidessen and Philipp Karius, ‘Watch Your Loot Boxes! – Recent Developments and Legal Assessment in Selected Key Jurisdictions from a Gambling Law Perspective’ (2018) 1 Interactive Entertainment Law Review 17 <<https://www.elgaronline.com/view/journals/ielr/1-1/ielr.2018.01.02.xml>>.

⁷ This can be used to hide the real value of what items the player has purchased inside the game. This can be aggravated when noted that many games have more than one type of virtual in-game currency as noted in War Thunder or Destiny 2 - Prateek Agarwal, ‘Microtransactions In Video Games - Intelligent Economist’ (*Intelligent Economist*, 2 February 2022) <<https://www.intelligenteconomist.com/microtransactions/>> accessed 10 April 2022; Jenna, ‘In-Game Currency Explained: Part 1’ (*KIDAS*, 13 December 2021) <<https://www.kidas.net/post/in-game-currency-explained>> accessed 13 April 2022.

⁸ Gabe Duverge, ‘Insert More Coins: The Psychology Behind Microtransactions’ (*Touro University Worldwide*, 25 February 2016) <<https://www.tuw.edu/psychology/psychology-behind-microtransactions/>> accessed 10 April 2022.

⁹ “Gacha” is the sound of the hand cracking and the “pon” is the reward dropping.

¹⁰ James Close and Joanne Lloyd, ‘Lifting the Lid on Loot-Boxes - Chance-Based Purchases in Video Games and the Convergence of Gaming and Gambling’ (2021) <https://www.begambleaware.org/sites/default/files/2021-03/Gaming_and_Gambling_Report_Final.pdf>.

games were highly pirated. So, the titles could be given away for free, and still, make significant revenue¹¹.

On western countries, since the beginning of the 20th century, we have seen the rise of the collectable cards from sealed packs by companies such as Panini. They started as collectable cards only, but in the 90's they begun to be used for cards games such as Magic the Gathering or even collectible miniature figures such as the ones from Dungeons & Dragons (games that are still played to the date by many people)¹². Loot boxes seem to have, approximately appeared in 2010, in the western countries, in free to play games, such as Team Fortress 2, that have managed to keep a high number of active players to date¹³. In the following years, many games continued the use of the mechanic, where it was being constantly changed and enhanced, as the mechanic grown within the community until becoming a popular feature by 2016¹⁴. The adoption of this freemium model on free to play games, managed to be a success¹⁵.

Loot boxes have been arising more on the free to play games to keep the video game free for anyone to play and generate some type of profit as we have already mentioned, as it also allows the player to freely try all free to play games until he finds the one, he wants to commit and if he desires, pay. However, they were also imported into paid games, mostly on the so-called AAA games (Triple A games), big games from big studios with high profits. They advocate that it helps

¹¹ Jared Newman, 'How Loot Boxes Led to Never-Ending Games (And Always-Paying Players) ' (*Variety*, 14 November 2017) <<https://variety.com/2017/gaming/opinion/loot-box-evolution-1203048057/>> accessed 22 May 2022.

¹² Steven Wright, 'The First Games with Loot Boxes ' (*PC Gamer*, December 2017); Williams (n 5); Marco Koeder, Ema Tanaka and Hitoshi Mitomo, "'Lootboxes" in Digital Games - A Gamble with Consumers in Need of Regulation? An Evaluation Based on Learnings from Japan', *22nd Biennial Conference of the International Telecommunications Society: 'Beyond the boundaries: Challenges for business, policy and society'* (International Telecommunications Society (ITS) 2018).

¹³ Marco Koeder, Ema Tanaka and Hitoshi Mitomo, *'Lootboxes' in Digital Games - A Gamble with Consumers in Need of Regulation? An Evaluation Based on Learnings from Japan* (2018).

¹⁴ Koeder, Tanaka and Mitomo (n 12).

¹⁵ Steven T. Wright and Steven Wright, 'The Evolution of Loot Boxes' (*PC Gamer*, 8 December 2017) <<https://www.pcgamer.com/the-evolution-of-loot-boxes/>> accessed 19 April 2022.

to balance the rising costs of development and allows players to support a game that they like^{16 17}.

Loot boxes are a success in terms of monetization for companies, since for example *Overwatch*, made 1 billion only through in-game purchases¹⁸, and another example, the Ultimate Team mode, of *FIFA*, made 650 million on one year¹⁹(every year there is a new *FIFA* game, contrarily to *Overwatch*). This example shows two triple A games that sold extremely well, being loot boxes an extra profit.

However, we still must understand what loot boxes are in order to understand the mechanic. Simplifying, loot boxes are a mechanic that can be found in video games, in the form of a box, pack, crate, chest²⁰, and others, often obtained through progress in the game²¹, through purchase using in game currency that can be earned in-game, bought with real-world money (some video games distinguish the type of currency, having in one hand the currency that the player can earn and in another hand the currency that the player can buy with real

¹⁶ The development costs have raised tremendously, with an average cost per developer of 10 000 dollars per month, where more clearly can be seen in triple A games which have big budgets that can be comparable with Hollywood movies. These values come from the complexity of coding and software's, licensing fees, anti-piracy services and marketing costs due to the existence of increased number of games, or even servers' maintenance and upkeep. - Jason Schreiner, 'Why Video Games Cost So Much To Make' (*KOTAKU*, 17 September 2018) <<https://kotaku.com/why-video-games-cost-so-much-to-make-1818508211>> accessed 4 May 2022; Peter Honer, 'Limiting the Loot Box: Overview and Difficulties of a Common EU Response' (2021) 4 *Interactive Entertainment Law Review* 63 <<https://www.elgaronline.com/view/journals/ielr/4-1/ielr.2021.01.04.xml>>; Tom Loftus, 'Top Video Games May Soon Cost More' (*NBC News*, June 2017) <<https://www.nbcnews.com/id/wbna3078404>> accessed 4 May 2022.

¹⁷ Carl C Jones, 'The Fox in the Henhouse: The Failure of the Video Game Industry's Self-Regulation with Regard to Loot Boxes' (2020) 24 *Chapman Law Review* <<https://digitalcommons.chapman.edu/chapman-law-review/vol24/iss1/4/>>.

¹⁸ Dustin Bailey, 'Loot Boxes Lead *Overwatch* to \$1 Billion of In-Game Revenue' (*PCGamesN*, 24 July 2019) <<https://www.pcgamesn.com/overwatch/revenue>> accessed 4 May 2022.

¹⁹ Matthew Handrahan, 'EA's Ultimate Team Earning around \$650 Million a Year' (*GamesIndustry.biz*, 2 March 2016) <<https://www.gamesindustry.biz/articles/2016-03-02-eas-ultimate-team-earning-around-usd650-million-a-year>> accessed 4 May 2022.

²⁰ The visual representation of the opening of a loot box varies between games, depending of the box representation, it is not necessary to literally open a box container, since it can be represented in other forms. Giving examples, we can find the tear opening of a card pack (e.g., in the games *Rainbow Six Siege* or *FIFA* franchise), spinning a prize wheel (e.g., in the games *NBA 2K* franchise or *CS: GO*) (...). There are many other examples, that can visually differentiate themselves but always sharing the same characteristics such as the eligibility condition (win it or buy it), have a random procedure that attributes the item and provide that item as a reward. - Leon Y Xiao and others, 'Loot Boxes: Gambling-Like Mechanics in Video Games', *Encyclopedia of Computer Graphics and Games* (Springer International Publishing 2022) <https://link.springer.com/10.1007/978-3-319-08234-9_459-1>.

²¹ For example, with the completion of a mission, in-game task or other in-game achievements.

money), or through the watching of embedded commercials²². When the player opens a loot box, there is an algorithm in the game's software that will choose randomly, what item will be given to the player. The items that the consumer can find inside these boxes can vary widely among the different games that possess this mechanic. However, most of them are items that can impact the game experience, giving vantages, or in another way, items that can only give the player cosmetic changes in the appearance of the character or the items that the character possesses (these items are known as *skins*)²³. Some items are more desirable than others, because of the enhancement they produce, or the sense of individuality that can give to the player, and as the item that is retrieved from the loot box is randomized, only the developer knows which item the user will receive based on the probability that they coded on the mechanism²⁴.

Many researchers have tried to create definitions that try to fit in all possible loot boxes, such as "any game-related purchase with a chance-based outcome"²⁵. This definition leaves out loot boxes that are given away for free or are earned through gameplay, given that the authors believe that those are only one attraction for the consumer to eventually purchase^{26 27}. Other authors present bigger definitions such as "Loot boxes are features in video games which are usually accessed through gameplay, or which may optionally be paid for with real-world money. They are 'mystery boxes' which contain randomized items, so players do not know what they will get before opening"²⁸. We believe that, although this definition fits better, it is also, in part, questionable: we understand

²² Xiao and others (n 20).

²³ Alexander Sandqvist, 'Correlations and Similarities between Loot Boxes and Gambling Correlations and Similarities between Loot Boxes and Gambling' (Malmö University, Faculty of Technology and Society 2021).

²⁴ Lauren Foye, 'In-Game Gambling ~ The Next Cash Cow for Publishers' (2018) <<https://www.juniperresearch.com/document-library/white-papers/in-game-gambling-the-next-cash-cow>>; Koeder, Tanaka and Mitomo (n 13).

²⁵ Close and Lloyd (n 10). P.8.

²⁶ It also leaves out loot boxes that show what the reward is, before the purchase, such as the once-a-day loot box open of FIFA franchise, since FIFA 21.

²⁷ Close and Lloyd (n 10).

²⁸ Dr Annette Cerulli-Harms and others, 'Loot Boxes in Online Games and Their Effect on Consumers, in Particular Young Consumers' (2020) <[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)> accessed 11 March 2022.

that loot boxes, in most games are a paid product and, only optionally, can the player be rewarded with loot boxes through gameplay.

There are differences in the implementation of the mechanic. In some cases, if a player buys a loot box, this loot box can be sold on the market²⁹ or traded with another player that could not get it or preferred not to try his luck on that mechanic. However, not all games have these markets. On that case, the player might need to buy indefinite loot boxes until the desired item is acquired (if it ever is). These markets indicate that the item possesses real value, since in some of those markets, the player needs to pay directly with real currency instead of the game's currency^{30 31}.

To explain better these implementations, authors defined four categories of loot boxes: the ones that cost real-world money and the reward has real-world value (Embedded-Embedded); the ones that cost real-world money but do not have real-world value (Embedded-Isolated); the ones that do not cost real-world money but the reward has real-world value (Isolated-Embedded) and the ones that do not cost real-world money and do not have real-world value (Isolated-Isolated)^{32 33}.

There are games, such as destiny 2 and Overwatch, in which the player cannot make money from a loot box without selling his account and, on another hand, there are loot boxes in other games, such as for example CS: GO and Player

²⁹ As examples of these marketplaces, we have the Steam Marketplace, which is more of a universal marketplace, outside of the game, for games that are part of the PC platform, and on another way, there are the game markets like most massive multiplayer roleplaying games, for example World of Warcraft, where it presents itself as an auction house.

³⁰ The items that loot boxes contain seem to have a real market value since there are other consumers willing to spend actual real-world cash to purchase such items. Those items, when sold can grant in-game money to the player (e.g., FIFA) or real-world money (e.g., CS: GO), while normally being taxed by the developers.

³¹ Shelby Cariaga, 'Getting Away with Gambling : How Loot Boxes Sidestep American Gambling Laws' (2021) 15 Law Review <https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1299&context=lu_law_review>.

³² It is highly difficult for states to deny that the first category (Embedded-Embedded) constitutes gambling, but a small minority, which we will review later (e.g., Belgium) also consider the second category (Embedded-Isolated) to constitute gambling.

³³ Rune Kristian Lundedal Nielsen and Paweł Grabarczyk, 'Are Loot Boxes Gambling? Random Reward Mechanisms in Video Games' (2019) 4 Transactions of the Digital Games Research Association <<http://todigra.org/index.php/todigra/article/view/104>>; Leon Y Xiao, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (2022) 20 International Journal of Mental Health and Addiction 437.

Unknown's Battlegrounds, that are not bound to a player's account and can be sold on the marketplace for in-game money or traded with other players for other items or real-world money (they can be cashed-out). In these last illustrations, the money can be bounded to a platform, or a game. The two games in the example are integrated with the steam marketplace and the items sold there can be used to buy different games or in-game items from other games. On other games, if they are not bounded to the account, the items can sometimes be sold in external marketplaces, not hosted by the game's developers, which for example, is the case with Rocket League and FIFA, that players can sell the items gained from loot boxes in those external markets, for real-world money³⁴. Many of these items can be sold for hundreds and thousands of dollars³⁵.

The main genres of video games that have loot boxes are sports games, roleplaying games and action games (including shooter, fighting and platform games)³⁶. Then, in terms of platforms, microtransactions and specifically loot boxes are found, not only in computers and consoles, but also within mobile games that have lower barriers due to the considerable amount of people that have smartphones nowadays, which makes this market broader, having potential to reach lower age groups such as children^{37 38 39}.

³⁴ David Zendle and others, 'Paying for Loot Boxes Is Linked to Problem Gambling, Regardless of Specific Features like Cash-out and Pay-to-Win' (2020) 102 *Computers in Human Behavior* 181 <<https://linkinghub.elsevier.com/retrieve/pii/S0747563219302468>>.

³⁵ For example, the Souvenir Dragon Lore AWP is the most expensive skin with a price of approximately 56,000 euro. - Steven Rodina, 'These Are the Most Expensive Skins You'll Find in All of CSGO' (*Win.gg*, 2 January 2020) <<https://win.gg/news/these-are-the-most-expensive-skins-youll-find-in-all-of-csgo/>> accessed 14 April 2022.

³⁶ Ingi Hilmar Sigurðsson, 'Loot Boxes in Video Games Should Loot Boxes Be Considered a Form of Gambling and Therefore Be Subject to Gambling Laws?' (University of Bifröst 2021).

³⁷ Studies from 2015 show that most children owned a mobile phone by the age of seven and although this study is from 2015, it showed that this number was going to grow, and according to another study from 2020 that found that in 11 countries (where Portugal is included), over "80% of children aged 9-16" use smartphones to surf the internet at least once a day, presenting a big difference when compared to computers. This shows a big increase from what was the reality from years ago. There is a big rise on the "internet of things and the internet of Toys" according to the studies. - Jacqueline Howard, 'When Kids Get First Cell Phone around the World - CNN' (*CNN health*, 11 December 2017) <<https://edition.cnn.com/2017/12/11/health/cell-phones-for-kids-parenting-without-borders-explainer-intl/index.html>> accessed 13 April 2022; David Smahel and others, 'EU Kids Online 2020 Survey Results from 19 Countries' (2020) <<https://doi.org/10.21953/lse.47fdeqj01of0>> accessed 13 April 2022.

³⁸ Mobile games are now leading the industry, representing 45% of the gaming industry, with exponential prediction of growth in the coming years - Damjan, 'Mobile Killed the PC Star: Mobile Gaming Statistics for 2022' (*KOMMANDO TECH*, 29 March 2022) <<https://kommandotech.com/statistics/mobile-gaming-statistics/>> accessed 13 April 2022.

³⁹ Hilmar Sigurðsson (n 36).

To play a game, consumers have to agree with the EULAs contracts of the games (also known as End User License Agreement or Terms and Conditions) created by the developers, where it states the rights and duties within the game. This acceptance enables the player to forfeit some traditional rights from the real-world, such as property, currency or goods, having only a license of use within what the developers have defined⁴⁰.

Some games, noticing the possibility of external trading of items, outside of the game, have included in the EULAS provisions that ban players that buy or sell on secondary third-party marketplaces, in order to protect microtransactions from gambling laws but regardless of the risk, the high demand and high value, have not stopped people from doing it⁴¹ ⁴². These secondary markets allow players to list goods and get offers from other players, just like on Ebay.com⁴³. Some argued that those third-party markets are cash out options, but the gambling regulations do not work since those are illegitimate marketplaces that are prohibit by the game EULAs.

2.1. Virtual Items value

Contrarily to physical goods, that have value due to their scarcity or utility, virtual items are difficult to understand since they do not have a real scarcity, which is what defines that an item is more valuable than other, however, they can have

⁴⁰ Edward Castronova, 'The Right to Play' (2004) 49 NYLS Law Review <https://digitalcommons.nyls.edu/cgi/viewcontent.cgi?article=1313&context=nyls_law_review>.

⁴¹ On EA Games EULAs we find that under the rules of conduct section, "sell, buy, trade or otherwise transfer or offer to transfer your EA Account, any personal access to EA Services, or any EA Content associated with your EA Account, including EA Virtual Currency and other Entitlements, either within an EA Service or on a third-party website, or in connection with any out-of-game transaction, unless expressly authorized by EA", can lead to warnings, suspensions or permanent bans. EA's on FIFA's game section of their website expressively imply that distributing or buying coins can lead to those consequences - 'ELECTRONIC ARTS USER AGREEMENT' (*Electronic Arts*) <<http://tos.ea.com/legalapp/WEBTERMS/US/en/PC#section6>> accessed 15 June 2022; 'FIFA 22 - EA SPORTS FIFA Rules to Know and Follow' (*Electronic Arts*, 11 October 2021) <<https://help.ea.com/en/help/fifa/fifa-rules/>> accessed 15 June 2022.

⁴² Sheldon Evans, 'Pandora's Loot Box' [2020] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3733910>>.

⁴³ *ibid.*

virtual scarcity, defined by the developers with no real cost to produce, becoming a way to create more content, retain users and earn real-world revenue⁴⁴.

Nonetheless, “value” regarding virtual items, goes past the classic legal “money’s worth” definition. Items won through loot boxes can hold considerable social or psychological value. Authors use a real-world analogy that demonstrates that the contents of loot boxes are comparable to the latest pair of shoes, or a t-shirt from a big brand. However, nowadays, many youngsters consider these digital assets more important than the conventional real-world status symbols. Many times, these assets represent a more refined attraction when compared to a mere cash prize. And the assets maintain its “money’s worth”, even if the winner decides to keep it in its inventory, rather than sell it⁴⁵.

An example of a virtual item with value, is cryptocurrency. Bitcoin is a digital cryptocurrency, with no physical existence, nevertheless, its singular value is around 40,000 euros. Here, the capability to trade those currencies revealed to be the main characteristic that differentiates having or not real-world pecuniary value, and of course, the existence of a demand⁴⁶, because its scarcity is also virtually created.

That way, we encounter a new phenomenon, which is *perceived value*. The perceived value is what makes a consumer make an economic choice, where the trade-offs between costs and benefits⁴⁷ can be weighted, tied with how the item makes the consumer feel, the social status annexed to it, or the practical uses that may be achieved from it, not depending on whether the item is from real life or a virtual world^{48 49}, being rarely tied to a pecuniary gain⁵⁰.

⁴⁴ *ibid.*

⁴⁵ Close and Lloyd (n 10).

⁴⁶ Hilmar Sigurðsson (n 36).

⁴⁷ Valarie A Zeithaml, ‘Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence’ (1988) 52 *Journal of Marketing* 2 <<https://www.jstor.org/stable/1251446?origin=crossref>>.

⁴⁸ Having a rare item in a virtual world can rise the status of someone on a group of friends, or having for example a matching skin, can make you part of your friends’ group.

⁴⁹ Dr Richard A Bartle, ‘Virtual Worldliness: What the Imaginary Asks of the Real’ (2005) 49 *NYLS Law Review* <https://digitalcommons.nyls.edu/cgi/viewcontent.cgi?article=1306&context=nyls_law_review>.

⁵⁰ Evans (n 42).

Items with scarcity are often perceived as having a bigger monetary or social value, just like gold and diamonds in real life. Whether the player wants to feel unique or acquire an advantage in the gameplay, they all assess perceived values differently due to preferences⁵¹. While some consumers would prefer to have a physical golden necklace, other consumers would prefer to have an in-game knife, with the same cost, representing different values, depending on the preferences.

Players purchase loot boxes to obtain items to create a collection, increase their power in game, becoming more competitive, reduce the difficulty of a game, or even acquire extra revenue from the trade of those items with other players⁵².

However, it is noted that video games items are not propriety of the consumer of that software, as we have previously stated. In the video games that are acquired by a purchase, or simply downloaded if it is freely distributed, the consumer does not acquire the propriety of the software in terms of private law and rights in rem. The contract between the consumer and the publisher and developer is merely a contract in which the consumer acquires a license of use of a particular copy of that software, that means that the user of that software is linked to a clause on the use of it (the EULAs)⁵³. All of this means that the intellectual propriety of the video game software belongs to the software supplier (developers and publishers without getting into the particularities of who supplies)⁵⁴. The EULAs or Terms and Conditions allow the video game producer to interfere in the sphere of the player and their in-game inventories, having for example the possibility to ban players that have a behaviour that is considered against those terms, or even the possibility to shut down the game servers blocking people from accessing the

⁵¹ *ibid.*

⁵² Leon Y Xiao, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (2022) 20 *International Journal of Mental Health and Addiction* 437 <<https://link.springer.com/10.1007/s11469-020-00372-3>>.

⁵³ There are obviously imperative rules to this type of general contractual terms ruled in Portugal by the decree law n^o 446/85, of 25 of October (mainly in its articles 15, 17, 20, 21 and 22)

⁵⁴ The EA Games EULAs express that they provide a service that is "licensed" to the user and "not sold". "EA grants (...) a personal, limited, non-transferable, revocable and non-exclusive license to use the EA Services to which" the user "have access for your non-commercial use, subject to" the "compliance with" the "Agreement. 'ELECTRONIC ARTS USER AGREEMENT' (n 41).

online features of the game or access to the digital items that are part of that economy.

It is within the conception of loot boxes that the developer chooses which items he will add to the game, or if those items impact gameplay (most of the times give vantages to the players that get them), then needs to choose between an closed system, where the items are locked on the account of the player and cannot be traded, being impossible to get value from those items, and an open system where the players can freely trade, sell or give away the items to other players, through the game, allowing the items to get economic value⁵⁵. Choosing an open system of trading within the game, allows items to acquire economical value, due to the fact that those items are valued by the players given their rarity, rising the demand. Although trading virtual items with real money is against the terms and conditions of most games, that does not stop third party websites from functioning as a trading platform outside of the game, as we have previously mentioned.

This can be seen in the position paper “Virtual currencies, eSports and social casino gaming” from the United Kingdom Gambling Commission, from 2017, stipulates that if items can be converted into money, even through third-party websites, they have economical value, and so, those websites are within the Gambling Act of 2005, which was used in 2017 when the gambling commission went against FutGalaxy, a website that consisted in the trading of money for in-game money of FIFA. The court understood that the website violated the gambling Act 2005⁵⁶.

In the video games open virtual economies, there are free flows of buy, sell and exchange of virtual currency and goods for real-world money. Players can buy virtual goods but can also sell whether on primary or secondary marketplaces⁵⁷

⁵⁵ Martim Ferreira dos Santos Farinha, “Loot-Boxes” e “Skin Gambling” – Novos Jogos de Fortuna e Azar Online Análise Do Panorama Internacional, Da Legislação Portuguesa e a Necessidade de Futura Harmonização’ (2019) 1 ELSA Portugal Law Review.

⁵⁶ UK Gambling Commission, ‘Two Men Convicted after Offering Illegal Gambling Parasitic upon Popular FIFA Computer Game - Gambling Commission’ (*Gambling Commission*, 7 February 2017) <<https://www.gamblingcommission.gov.uk/news/article/two-men-convicted-after-offering-illegal-gambling-parasitic-upon-popular>> accessed 9 May 2022.

⁵⁷ Mark D Griffiths, ‘Is the Buying of Loot Boxes in Video Games a Form of Gambling or Gaming?’ (2018) 22 *Gaming Law Review* 52 <<http://www.liebertpub.com/doi/10.1089/glr2.2018.2216>>.

⁵⁸. The item's value can get to a steady price that all players recognise within the community.

2.2 Correlation between loot boxes and gambling features

Gambling games have an inherent psychologic stand since, most of the time, gambling is associated with an addiction disorder close to the addiction of drugs. Gambling disorder is something conceptualised as a behavioural addiction in the DSM-5⁵⁹. Some loot boxes are created with resemblances in design with slot machines, blackjack, roulettes or wheels of fortune⁶⁰. There is evidence that familiarising with social casinos increases the likelihood of commencing with gambling⁶¹, since most gambling games harness psychological features, which can modulate the perturbed decision-making and most likely create a gambling disorder⁶².

Looking at those features, starting with the near-misses, they occur across most of the gambling situations when the reward is almost achieved but falls just short (like in roulette if it selects the symbol near the jackpot, or in a slot machine if it gives two jackpot symbols lined up with the need of a third one to give the big prize)⁶³. This creates a belief in the player that he is almost reaching his goal, so he needs to keep trying until he succeeds⁶⁴. Research shows that if a player experiences a near miss, he will most likely play again after a loss than another

⁵⁸ Third party websites that exchange in-game items for real money are one of the reasons why some authors define that law struggles to keep up the pace with technology, since, for example, the gambling commission claims that this parties sites if are not involved with the gaming company, that game's loot box mechanic won't be gambling. However, if the items can be traded for real-world money, they should be considered to have real life value outside of that game. We could say that without these games, there would be no items and without those items, those marketplaces would not exist. - Evans (n 42).

⁵⁹ DSM-5 is a diagnostic and statistical manual made by the American Psychiatric Association to define how the diagnosis of a mental disorder are made.

⁶⁰ David Zendle, Rachel Meyer and Harriet Over, 'Adolescents and Loot Boxes: Links with Problem Gambling and Motivations for Purchase' (2019) 6 Royal Society Open Science 190049 <<https://royalsocietypublishing.org/doi/10.1098/rsos.190049>>.

⁶¹ Hyoun S Kim and others, 'Do Social Casino Gamers Migrate to Online Gambling? An Assessment of Migration Rate and Potential Predictors' (2015) 31 Journal of Gambling Studies 1819 <<http://link.springer.com/10.1007/s10899-014-9511-0>>.

⁶² W Spencer Murch and Luke Clark, 'Games in the Brain' (2016) 22 The Neuroscientist 534 <<http://journals.sagepub.com/doi/10.1177/1073858415591474>>.

⁶³ Natasha Dow Schüll, *Addiction by Design* (Princeton University Press 2012) <<https://www.degruyter.com/document/doi/10.1515/9781400834655/html>>.

⁶⁴ RL Reid, 'The Psychology of the near Miss' (1986) 2 Journal of Gambling Behavior 32 <<http://link.springer.com/10.1007/BF01019932>>.

player that did not get a near miss⁶⁵. On loot boxes, players see the rarer item being passed through, closely to the one they won, representing the same idea⁶⁶.

Another feature analogue to slot machines of casinos, is the use of audio-visual stimulations to indicate a win, even though it can be mostly a non-common item, and have less value than the player spent. There is a graded system in both mechanics, as the win is determined by rarity related to visual aspects and usefulness in the game. It is most likely to get a common item (which is considered a loss) than rare ones. When such a situation occurs, it is emphasised visually and soundly so that the player remembers it more than a series of losses, imprinting the event in the player's memory⁶⁷ ⁶⁸. The items are displayed with different colour scales that are common in most games, assuming a rarity or value of the item, common items can be grey, rare items gold, and very rare items purple, containing other colours amongst these, enabling an easy recognition of the value of the item⁶⁹.

The losses disguised as wins are regular in gambling games since, looking at the roulette's programming documents, the most frequent outcome are full losses. However, the second most common are losses disguised as wins where the gambler gets part of his money back⁷⁰. The player feels like he did not lose when most times he lost 4/5 of his money, getting something, but not what he wanted, being the same as a player that buys a loot box and wins common items⁷¹.

⁶⁵ Denis Côté and others, 'Near Wins Prolong Gambling on a Video Lottery Terminal' (2003) 19 *Journal of Gambling Studies* 433 <<https://doi.org/10.1023/A:1026384011003>>.

⁶⁶ Zende and others (n 34).

⁶⁷ Mike J Dixon and others, 'The Impact of Sound in Modern Multiline Video Slot Machine Play' (2014) 30 *Journal of Gambling Studies* 913 <<http://link.springer.com/10.1007/s10899-013-9391-8>>.

⁶⁸ Belgium Gaming Commission, 'Research Report on Loot Boxes' (2018) <https://www.skadden.com/-/media/files/publications/2019/08/video-gaming-egaming-law-update/fn12_onderzoeksrapportlootboxenengelspublicatie.pdf?la=en>.

⁶⁹ Daniel L King and Paul H Delfabbro, 'Video Game Monetization (e.g., "Loot Boxes"): A Blueprint for Practical Social Responsibility Measures' (2019) 17 *International Journal of Mental Health and Addiction* 166 <<http://link.springer.com/10.1007/s11469-018-0009-3>>.

⁷⁰ Kevin A Harrigan and Mike Dixon, 'PAR Sheets, Probabilities, and Slot Machine Play: Implications for Problem and Non-Problem Gambling' [2009] *Journal of Gambling Issues* 81 <<https://jgi.camh.net/index.php/jgi/article/view/3811>>.

⁷¹ Mike Dixon and Chanel Larche, 'Loot Boxes as a Form of Gambling, and Their Potential for Contributing to Gaming Related Harm' [2021] *Critical Gambling Studies* <<https://www.criticalgamblingstudies.com/index.php/cgs/article/view/102>>.

The use of fake currency enables players to spend more money than if they spend real cash, which similarly is accompanied by casino players who on poker wager more with chips than if they use real-world money⁷². This is called currency distancing⁷³, where the player will not feel as bad for wasting that fake currency as would with real money. Also, these in-game currencies used on it make it hard for players to have a rational purchase decision of loot boxes since the shifting exchange rate between the in-game currency and real-world currencies is more likely to create an overspend situation on loot boxes since the user is not making an informed purchase decision⁷⁴. That is also usually correlated with other tactics, such as when the player tries to buy that currency, he either is able to overbuy or underbuy since he normally gets more or less coins than what he needs to buy loot boxes.

Developers also use operant conditioning, a practice used in gambling that gives positive feedback or random intervals of rewards from a determinate behaviour to keep the person playing for a long period beyond the enjoyment point, leaving the person hoping to get high potential rewards. It can also be seen in the daily rewards offerings or daily challenges given to users for logging in once a day⁷⁵. It is called Intermittent reinforcement, working by reinforcing through a gradual process of incremental rewarding, which can create a desired final behaviour⁷⁶. The rare and valuable prizes encourage consumers to purchase and open more

⁷² Zendle and others (n 34); Priya Raghurir and Joydeep Srivastava, 'Monopoly Money: The Effect of Payment Coupling and Form on Spending Behavior.' (2008) 14 *Journal of Experimental Psychology: Applied* 213 <<http://doi.apa.org/getdoi.cfm?doi=10.1037/1076-898X.14.3.213>>; Jeffrey Lapuz and Mark D Griffiths, 'The Role of Chips in Poker Gambling: An Empirical Pilot Study' (2010).

⁷³ Ian Bousher, '5 Psychological Monetisation Tricks That Mobile Games Use' (*Admix*, 14 July 2020) <<https://blog.admixplay.com/5-psychological-monetisation-tricks-that-mobile-games-use/>> accessed 5 June 2022.

⁷⁴ Leon Y Xiao and Laura L Henderson, 'Towards an Ethical Game Design Solution to Loot Boxes: A Commentary on King and Delfabbro' (2021) 19 *International Journal of Mental Health and Addiction* 177 <<http://link.springer.com/10.1007/s11469-019-00164-4>>.

⁷⁵ Soham Kulkarni, 'The Psychology of Freemium Games. How Game Designers Use Behavioral... ' (*Medium*, 9 March 2019) <<https://medium.com/strategy-insider/https-medium-com-sk-sohamkulkarni-the-psychology-of-freemium-games-b66f68a51205>> accessed 14 April 2022.

⁷⁶ BF Skinner, *Science and Human Behavior* (The B F Skinner Foundation 2014) <www.bfskinner.org/newtestsite/wp-content/uploads/2014/02/ScienceHumanBehavior.pdf>.

loot boxes, releasing dopamine on the consumer's brain, creating a desire sensation and potentially creating an addiction^{77 78}.

The fear of missing out is also a prevalent subject that somewhat overlays with gambling motives. When related to loot boxes, the fear of missing out encompasses a sense of urgency to make the best out of time-limited offers or events, as well as the fear of being excluded from social events regarding loot box openings or their contents^{79 80 81}.

As the last feature, we understand that it might be a feature lesser frequent in casino games. Still, it is highly frequent on loot boxes since developers capture players by creating first easy levels and giving a lot of prizes making the player feel skilled. After that, it becomes more challenging with slower progress and the free items stop coming. At that time, the players will hesitate to quit due to the time they have already put in that game, not wanting to lose the progress. At that moment, there is the second phenomenon, the sunk cost fallacy or effect. After that, sometimes the game gives a unique offer that can keep the player in its good

⁷⁷ To understand how dopamine can function in a context of rewards and probability of creation of addiction, see Kent C Berridge and Terry E Robinson, 'What Is the Role of Dopamine in Reward: Hedonic Impact, Reward Learning, or Incentive Salience?' (1998) 28 *Brain Research Reviews* 309 <<https://linkinghub.elsevier.com/retrieve/pii/S0165017398000198>>.; Kent C Berridge, Terry E Robinson and J Wayne Aldridge, 'Dissecting Components of Reward: "Liking", "Wanting", and Learning' (2009) 9 *Current Opinion in Pharmacology* 65 <<https://linkinghub.elsevier.com/retrieve/pii/S1471489208002129>>.

⁷⁸ Game Informer Staff, 'The Science Behind Why We Love Loot' (*Game Informer*, 23 October 2015) <<https://www.gameinformer.com/b/features/archive/2015/10/23/the-science-behind-why-we-love-loot.aspx>> accessed 5 May 2022; Leon Y Xiao, 'Regulating Loot Boxes as Gambling? Towards a Combined Legal and Self-Regulatory Consumer Protection Approach' (2021) 4 *Interactive Entertainment Law Review* 27 <<https://www.elgaronline.com/view/journals/ielr/4-1/ielr.2021.01.02.xml>>.

⁷⁹ Some games contain social elements related with loot boxes such as rankings, which creates a need of acceptance/approval by others. - Juho Hamari and Vili Lehdonvirta, 'Game Design as Marketing: How Game Mechanics Create Demand for Virtual Goods' [2010] *eBusiness & eCommerce eJournal*.

⁸⁰ As part of this mechanic, we could add that when a consumer is playing a slot machine in a casino full of other players and hits a high prize, the approval and congratulations from all the other players are expressed, encouraging the continuation for the one that won and for the others that watched it and believe if the other person was able to win, they could also win. That similar mechanism happens in video games in terms of loot boxes. The most popular videos on YouTube for games like FIFA series or CS: GO, are not about the gameplay, but rather focused on opening loot boxes. An idea by Activision (publisher of Call of Duty) used in Call of Duty: WWII, where the opening of loot boxes was done publicly in lobby, letting other players view it, being the most faithful representation of the casino analogue expressed before. - Bernadeta Lelonek-Kuleta, Iwona Niewiadomska and Mateusz Chwaszcz, 'Psychological and Legal Aspects of Using Loot Boxes' [2020] *Teka Komisji Prawniczej PAN Oddział w Lublinie* 383.

⁸¹ Close and Lloyd (n 10).

form, and the player opts to purchase with the confidence that it will only be once⁸². This feature can explain why someone keeps losing money but continues to play since it says that someone will continue once they invested money, effort and time on it in the hope that it was not wasted⁸³.

2.2. Problems of loot boxes

It is known by different statistic studies conducted by investigators that a large portion of gamers engage in loot box activities. It is noticed that there is an evident positive correlation concerning loot box engagement and the gambling severity problem⁸⁴. They have established an aggregate correlation between gambling and loot box expenditure, having practical significance, being stronger than relationships between gambling and other psychological problems, such as depression and drug misuse⁸⁵.

Looking at a specific study around the loot boxes, Zendle, D., Cairns, P., Barnett, H., & McCall, C., demonstrated with their results that no matter which kind of loot box the player opened or even what could come inside if the player had purchased a loot box before, there was a higher like hood of developing a gambling addiction⁸⁶. In another study involving two of the previous authors, such as Zendle, D., Cairns, P., they concluded that there was evidence of a link between the purchase of loot boxes and problematic gambling, detected by their spending on loot boxes and their scores on the "Problem Gambling Severity

⁸² Seth Brimley, 'Game Over, Loot Boxes: Insert Self-Regulation to Continue 10..9..8..7..' [2020] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3585551>>.

⁸³ Zendle and others (n 34).

⁸⁴ Søren Kristiansen and Majbritt Christine Severin, 'Loot Box Engagement and Problem Gambling among Adolescent Gamers: Findings from a National Survey' (2020) 103 *Addictive Behaviors* 106254 <<https://linkinghub.elsevier.com/retrieve/pii/S0306460319310007>>; Wen Zhu Li and others, 'FGL2 Prothrombinase Contributes to the Early Stage of Coronary Microvascular Obstruction through a Fibrin-Dependent Pathway' (2019) 274 *International Journal of Cardiology* 27.

⁸⁵ David Zendle and Paul Cairns, 'Correction: Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey' (2019) 14 *PLOS ONE* e0214167 <<https://dx.plos.org/10.1371/journal.pone.0214167>>; James Close and others, 'Secondary Analysis of Loot Box Data: Are High-Spending "Whales" Wealthy Gamers or Problem Gamblers?' (2021) 117 *Addictive Behaviors* 106851 <<https://linkinghub.elsevier.com/retrieve/pii/S0306460321000368>>.

⁸⁶ Zendle and others (n 34).

Index". With results as incredible as "non-problem gamblers spending \$11.14 a month on loot boxes, low-risk gamblers \$21.87, moderate-risk gamblers \$27.55 and problem gamblers spending \$38.24 a month on average on loot boxes"⁸⁷.

Problem gamblers have problems in their personal, family and professional life. For example, people can gamble more than what they can afford, lie to family members about their lost money, cannot quit gambling, borrow money to gamble, and others⁸⁸. Problem gambling is related with drug abuse, depression and alcoholism, leading to several severe negative social health and financial consequences⁸⁹.

Many researchers through survey studies, were able to correlate the use of loot boxes and gambling-related problems, in different parts of the globe⁹⁰, meaning that it does not depend on the culture, but only on the human condition⁹¹.

Developers try to circumvent gambling definitions and as EA Games vice president of legal and government affairs, during a UK Parliament hearing stated that loot boxes should just like kinder eggs be considered a surprising mechanism and not gambling, since, in kinder egg, it is bough because of the surprise mechanic, where the toy is the main attraction, otherwise people would just buy chocolate without that item. Developers think that it could be seen with similar

⁸⁷ Sandqvist (n 23); David Zendle and Paul Cairns, 'Loot Boxes Are Again Linked to Problem Gambling: Results of a Replication Study' (2019) 14 PLOS ONE e0213194 <<https://dx.plos.org/10.1371/journal.pone.0213194>>.

⁸⁸ Robert Ferris , Jackie Wynne, Harold Ladouceur, Randy Stinchfield and Nigel Turner, 'The Canadian Problem Gambling Index: Final Report' (2001) <[https://www.greo.ca/Modules/EvidenceCentre/files/Ferris et al\(2001\)The_Canadian_Problem_Gambling_Index.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Ferris_et_al(2001)The_Canadian_Problem_Gambling_Index.pdf)>.

⁸⁹ David Zendle and Paul Cairns, 'Correction: Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey' (2019) 14 PLOS ONE e0214167; Mark Griffiths, 'Betting Your Life on It' (2004) 329 BMJ 1055 <<https://www.bmj.com/lookup/doi/10.1136/bmj.329.7474.1055>>.

⁹⁰ Loot boxes have been positively correlated to gambling severity in 16 studies in various countries, such as the UK, the USA, Canada, Germany, Australia, Denmark, Spain and New Zealand, and internationally in general. - Leon Y Xiao, 'Breaking Ban: Assessing the Effectiveness of Belgium's gambling Law Regulation of Video Game Loot Boxes' (2022) <<https://osf.io/q6dt8>>.

⁹¹ Matthew Rockloff and others, 'Young People Who Purchase Loot Boxes Are More Likely to Have Gambling Problems: An Online Survey of Adolescents and Young Adults Living in NSW Australia' (2021) 10 Journal of Behavioral Addictions 35 <<https://akjournals.com/view/journals/2006/10/1/article-p35.xml>>.

logic that consumers always get something, whether something common or rare^{92 93}.

There are obvious similarities between loot boxes and physical card packs or kinder eggs, but there is a big difference, loot box spending is linked to problem gaming and gambling. Also, we should not determine what is safe based on the similarities to other objects, since it would bring much harm as an example, given by Dr. David Zendle “imagine I run a cinema, and I serve Coca-Cola to all my customers. Coca-Cola is a thick, black, viscous liquid, full of energy, and I sort of got a great deal of engine oil. And I said to you, (...) I'm just going to swap out the Coca-Cola in people's cups with engine oil because it's similar in that it's also a thick, black, viscous liquid (...) You'd have me arrested. That's never been how things are done. You can't say something is safe because it's similar to something else”⁹⁴.

Loot boxes have a psychological effect since usually these boxes open slowly in a process that can last some seconds, in an elaborate animation that can consist of a box shaking or a list of items rotating on a pointer that will stop and select the item or even in a copy of a slot machine. In the end, some lights indicate the rarity of the item. This process is designed in a way to give the maximum satisfaction to the act of opening, which resembles the ones on the slot machines of the casinos, appealing to the same sensations and feelings just that can create an addiction, because of the release of dopamine⁹⁵.

⁹² The argument that on loot boxes the player always wins an item and therefore always wins can be discussible because studies show that 90% of people that sell loot boxes items do not recoup the price spent on loot boxes, falsifying the claim that everybody wins, because of the game's taxes or the prices of the items - Aaron Drummond and others, 'Why Loot Boxes Could Be Regulated as Gambling' (2020) 4 Nature Human Behaviour 986 <<http://www.nature.com/articles/s41562-020-0900-3>>.

⁹³ Ingi Hilmar Sigurðsson, 'Loot Boxes in Video Games Should Loot Boxes Be Considered a Form of Gambling and Therefore Be Subject to Gambling Laws?' (University of Bifröst 2021) <<http://hdl.handle.net/1946/37687>>.

⁹⁴ Patrick McAlvanah and others, 'Inside the Game: Unlocking the Consumer Issues Surrounding Loot Boxes – An FTC Workshop - Transcript' <https://www.ftc.gov/system/files/documents/videos/inside-game-unlocking-consumer-issues-surrounding-loot-boxes-session-2/ftc_loot_boxes_workshop_transcript_segment_2.pdf>.

⁹⁵ Jamie Madigan, *Getting Gamers: The Psychology of Video Games and Their Impact on the People Who Play Them* (Rowman & Littlefield Publishers 2015); Jason Bailey, 'A Video Game "Loot Box" Offers Coveted Rewards, but Is It Gambling? - The New York Times' (*The New York Times*, 24 April 2018) <<https://www.nytimes.com/2018/04/24/business/loot-boxes-video-games.html>> accessed 10 December 2020.

Dopamine is responsible for two types of sensations, such as reward and pleasure. Nevertheless, not all rewarding stimuli are pleasurable. The problem is that there is a confluence of theory and data that led to an interaction between neuroscientists and computer scientists interested in a way to exploit this science in a way to generate more income⁹⁶.

There are a lot of stories from parents that discover that their children have spent hundreds of euros on loot boxes, but this does not only affect children, some adults have already damaged their families with big debts. It has an impact on individuals' lives by having a financial and psychological cost associated with the mechanic, that cannot be ignored^{97 98}.

Kyle Langvardt found that the majority of players pay little to microtransactions, and most revenue of the companies comes from a small group of addicts who spend thousands. These individuals are viewed as *whales* and they are the ones that developers have the incentive to encourage their addiction⁹⁹.

Moreover, the correlation between loot boxes and problem gambling is increased by unregulated websites that permit the players to cash out^{100 101} and, players that engage with loot boxes buy and sell have a bigger risk of becoming problem gamblers¹⁰². Thus, can be concluded that there is a linkage between loot box purchasing and problem gambling when its contents can be sold.

A critical look should also be taken into younger generations. Resorting to ISFE'S research, video games are especially trendy amongst the youth of today.

⁹⁶ Wolfram Schultz, 'Neuronal Reward and Decision Signals: From Theories to Data' (2015) 95 *Physiological Reviews* 853 <<https://www.physiology.org/doi/10.1152/physrev.00023.2014>>.

⁹⁷ Jones (n 17).

⁹⁸ As some news reported, some individuals even had to call suicide hotlines because they were feeling pathetic due to wasting a lot of money on virtual items. - Ellen McGrody, 'For Many Players, Lootboxes Are a Crisis That's Already Here' (*Vice*, January 2018) <<https://www.vice.com/en/article/kznmwa/for-many-players-lootboxes-are-a-crisis-thats-already-here>> accessed 19 April 2022.

⁹⁹ Kyle Langvardt, 'Regulating Habit-Forming Technology' (2019) 88 *Fordham Law Review* <<https://ir.lawnet.fordham.edu/flr/vol88/iss1/4>>.

¹⁰⁰ These third-party websites, can expose consumers to criminality and illegality, since most of the times, they are used for money laundering, but also can expose players to fraud, spam, harassment and cyber stalking. - Xiao, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (n 52).

¹⁰¹ Zendle and others (n 34).

¹⁰² Kristiansen and Severin (n 84).

According to the study, 76% of children/teens from 6 to 15 play video games, due to their accessibility¹⁰³. The game's access to children is only regulated by PEGI (Pan-European Game Information) and ESRB (Entertainment Software rating board) through indicators such as bad language, violence, drugs, and others, but does not consider the loot box mechanic as having influence in it, as we will develop later in the next chapters.

Many loot boxes in the west are developed and advertised in a way that especially targets minors¹⁰⁴. The minor's brain is not fully developed, making minors more likely to purchase loot boxes, without fully understanding the impact of their action, as they assume it is only a game. Due to the underdevelopment of their prefrontal cortex compared to adults, their decision-making is not as good or reasonable¹⁰⁵. Also, because most minors' own smartphones, the inclusion of loot boxes in mobile games significantly reduced the barriers of entry to participate¹⁰⁶.

According to research, there is a correlation between the amount of money spent on loot boxes and problem gambling, especially among younger populations.¹⁰⁷¹⁰⁸. There are also correlations between the amount of money spent by individuals on loot boxes and the time they spend playing games with such

¹⁰³ Cerulli-Harms and others (n 28).

¹⁰⁴ As an example, according to Zendle, studies on loot boxes on Google Play and Apple app store, 60% of the top mobile games contain loot boxes, where 90% of those are suitable for children aged 12+ - David Zendle and others, 'The Prevalence of Loot Boxes in Mobile and Desktop Games' (2020) 115 *Addiction* 1768 <<https://onlinelibrary.wiley.com/doi/10.1111/add.14973>>.

¹⁰⁵ Veda Cruz, 'The Dangers of Targeting Microtransactions to Minors - *Odin Law and Media*' (*Odin Law and Media*, 5 September 2019) <<https://odinlaw.com/the-dangers-of-targeting-microtransactions-to-minors/>> accessed 13 April 2022.

¹⁰⁶ Hilmar Sigurðsson (n 93).

¹⁰⁷ According to a study, problem gamblers spent less money on a game when loot boxes were removed from it, showing a link between the mechanic and the problem. - David Zendle, 'Problem Gamblers Spend Less Money When Loot Boxes Are Removed from a Game: A before and after Study of Heroes of the Storm' (2019) 7 *PeerJ* e7700 <<https://peerj.com/articles/7700>>.

¹⁰⁸ Gabriel A Brooks and Luke Clark, 'Associations between Loot Box Use, Problematic Gaming and Gambling, and Gambling-Related Cognitions' (2019) 96 *Addictive Behaviors* 26 <<https://linkinghub.elsevier.com/retrieve/pii/S0306460318315077>>; David Zendle and Henrietta Bowden-Jones, 'Loot Boxes and the Convergence of Video Games and Gambling' (2019) 6 *The Lancet Psychiatry* 724 <<https://linkinghub.elsevier.com/retrieve/pii/S2215036619302858>>; Zendle and Cairns, 'Correction: Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey' (n 85); Zendle and Cairns, 'Loot Boxes Are Again Linked to Problem Gambling: Results of a Replication Study' (n 87); Zendle, Meyer and Over (n 60).

mechanics,¹⁰⁹ as well as between spending money on microtransactions and the likelihood of those consumers transitioning to traditional forms of online gambling¹¹⁰. Casually exposing children and teens to simulated gambling may create the optic that gambling is a normal social behaviour, and tempt them to pursue gambling activities in the future¹¹¹.

The current iteration of loot boxes has items that cannot be obtainable in any other way on the game. That way, loot boxes are more limited in terms of the rewards that can come from them, and that way, they can be lucrative for the consumer that gets a high-value item¹¹².

The minor's brains are susceptible, impulsive, impatient, dynamic, have poor judgment and are highly responsive to positive feedback¹¹³. These characteristics can be exploited by game developers in order to create impulsive buying behaviours in their consumers. Loot boxes use instant gratification since players do not need to wait nor do tasks or earn the items, they need to simply press a button. The over-the-top design of loot boxes makes them attractive to impressionable minds¹¹⁴.

As instant gratification is a big appeal to children, the rewards are most likely to appeal to minors, even if they could be gained through playing the game. Adults, on the other hand, are more used to and appreciative of a reward after working for it, as it gives them the feeling of accomplishment that children do not need¹¹⁵.

Also, the microtransactions are often designed in a way to explore the impulsive buying, when for example, the player is offered to purchase a limited-time offer

¹⁰⁹ Wen Li, Devin Mills and Lia Nower, 'The Relationship of Loot Box Purchases to Problem Video Gaming and Problem Gambling' (2019) 97 *Addictive Behaviors* 27 <<https://linkinghub.elsevier.com/retrieve/pii/S0306460319301091>>; Jessica McBride and Jeffrey Derevensky, 'Gambling and Video Game Playing Among Youth' [2017] *Journal of Gambling Issues* <<http://jgi.camh.net/index.php/jgi/article/view/3962>>.

¹¹⁰ Kim and others (n 61).

¹¹¹ Xiao, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (n 52).

¹¹² Hilmar Sigurðsson (n 36).

¹¹³ Rachel Nuwer, 'Teenage Brains Are Like Soft, Impressionable Play-Doh | Smart News| Smithsonian Magazine' (*Smithsonian Magazine*, 18 October 2012) <<https://www.smithsonianmag.com/smart-news/teenage-brains-are-like-soft-impressionable-play-doh-78650963/>> accessed 13 April 2022.

¹¹⁴ Hilmar Sigurðsson (n 36).

¹¹⁵ *ibid.*

for a certain item, or an offer for a limited-time item, forcing the consumer into making quick decisions that affect more an undeveloped person, such as a teen or children¹¹⁶.

Another big difference for children and teens is the value of money, since in general, they have little to no understanding of what is money, thinking their parents have it unlimitedly¹¹⁷. There are a lot of reports and articles of children and teens that spend great amounts of their parents' money on microtransactions either because there are no parental controls or because they were capable of circumventing those controls. These are ways that the developers found to manipulate psychologically, creating an impulse buy, as well as knowing that their consumers do not understand the consequences of their actions¹¹⁸. Furthermore, studies demonstrated that children are more correlated with the risk of problem gambling when compared with adults when a game presents virtual currency¹¹⁹.

If gambling itself is unethical, a gambling mechanism in video games that are targeted at youngsters can be highly unethical, due to the fact that children and teens do not have impulse controls. If a game has this mechanic, it should not be marketed to children¹²⁰.

III. International Analysis of regulations of this mechanic

3.1. Asia

Even though loot boxes have gotten more concerns in the last couple of years in western countries, where many have noticed the similarities between loot boxes and gambling, it is a mechanic that started being analyzed in Asian Countries long before.

¹¹⁶ Duverge (n 8).

¹¹⁷ Cambridge Credit Counseling Corp, 'Teaching Kids the Value of Money ' (*Cambridge Credit Counseling Corp*) <<https://www.cambridge-credit.org/teaching-kids-the-value-of-money.html>> accessed 14 April 2022.

¹¹⁸ Hilmar Sigurðsson (n 93).

¹¹⁹ Zendle and Cairns, 'Loot Boxes Are Again Linked to Problem Gambling: Results of a Replication Study' (n 87).

¹²⁰ Erica L Neely, 'Come for the Game, Stay for the Cash Grab: The Ethics of Loot Boxes, Microtransactions, and Freemium Games' [2019] *Games and Culture* 155541201988765 <<http://journals.sagepub.com/doi/10.1177/1555412019887658>>.

Starting with Japan, it had an aggressive stance on Kompu gacha in video games in 2012. However, they banned this specific mechanic, and that legislation is narrow, meaning that it cannot be interpreted in a broader sense in the future¹²¹.

On loot boxes, the Computer Entertainment Supplier's Association preferred to protect consumers under consumer law instead of gambling regulation, meaning that they have set some self-regulation guidelines that the developers need to comply with one in order to fulfill the conditions. These guidelines have mechanisms such as payment limits for younger players, prohibitions on real money trade, warnings, probability disclosures and restrictions on item rarity¹²².

In Singapore, the Remote Gambling Act¹²³, approved in 2014 was an innovative law since in their definition of gambling in part 1 they understood that the value paid by players on bets and the prizes could be something money's worth, meaning, being able to have within coins, chips, credits, and digital goods value, and as explained by Home Affairs Minister, S. Iswaran, that definition only was possible when the virtual goods could be converted into money, through an integrated cash-out system or trades¹²⁴.

South Korea censored simulated gambling and gambling references in video games, restricting players under the age of 18 from being exposed to simulated gambling content¹²⁵. Their consumer protection entity has taken action against some game developers due to deceptive loot box promotions, as for example, by fining Nexon because of not disclosing the probability of winning an item, that was less than 1%¹²⁶. Due to this, a self-regulatory approach was taken, led by

¹²¹ Hilmar Sigurðsson (n 93).

¹²² Koeder, Tanaka and Mitomo (n 12); Daniel Cermak, 'Micro-Transactions, Massive Headaches: International Regulation of Video Game Loot Boxes' <<https://commons.msu.edu/deposits/objects/hc:35674/datastreams/CONTENT/content>>; Baker McKenzie, 'Loot Boxes in Japan: Legal Analysis and Kompu Gacha Explained' (*Lexology*, 2 August 2018) <https://www.lexology.com/library/detail.aspx?g=9207df10-a8a2-4f67-81c3-6a148a6100e2&fbclid=IwAR2duFj_56xLaS8TYZiyHksTaqnPOtYbBzGHHq-vlGR6GUCdY5-qzORvZdY> accessed 3 June 2022; Close and Lloyd (n 10).

¹²³ Remote Gambling act 2014, revised in 2020.

¹²⁴ Farinha (n 55).

¹²⁵ Xiao, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (n 52).

¹²⁶ Jon Fingas, 'South Korea Fines Game Studios over Deceptive Loot Box Odds' (*Engadget*, 10 April 2018) <<https://www.engadget.com/2018-04-10-south-korea-fines-game-studios-over-loot-boxes.html>> accessed 5 May 2022.

the Korean Association of the Game Industry, in order to bring probabilities disclosure¹²⁷.

Lastly, China, created obligations for the users to verify their identity, to have time limits in terms of gameplay and in what concerns microtransactions in general, maximum in-game spending limits. These maximum spending had 3 different sections. The first one, concerning juveniles younger than 8, where the online gaming service providers were not allowed to provide any kind of paid services. Then, the second from 8 to 16, had restriction of transactions, being the maximum monthly 28 dollars and lastly for juveniles between 16 and 18, a total monthly spending of 57 dollars per game. This was implemented in order to fight predatory in-game monetization of loot boxes and protect the consumers. Some authors like Leon Xiao understand that these limits are welcomed but should also be applied to adults¹²⁸. These limits were further updated in 2021 with the Notice on Further Strictly Regulating and Effectively Preventing Online Video Gaming Addiction in Minors¹²⁹.

To increase transparency, the ministry required organisations to provide details on virtual items, such as the most recent data of player-opened loot boxes, either in-game or on the game's official website¹³⁰.

3.2. Europe and the USA

In the Netherlands, in 2018, the gaming authority declared as gambling loot boxes which content could be traded back to real-world money, since they constituted elements similar to casino slot machines¹³¹. That was due to the randomness of

¹²⁷ Koeder, Tanaka and Mitomo (n 12).

¹²⁸ Leon Y Xiao, 'People's Republic of China Legal Update: The Notice on the Prevention of Online Gaming Addiction in Juveniles (Published October 25, 2019, Effective November 1, 2019)' (2020) 24 *Gaming Law Review* 51 <<https://www.liebertpub.com/doi/10.1089/qlr2.2019.0002>>.

¹²⁹ Leon Y Xiao, 'People's Republic of China Legal Update: The Notice on Further Strictly Regulating and Effectively Preventing Online Video Gaming Addiction in Minors (Published August 30, 2021, Effective September 1, 2021)' (2021) 25 *Gaming Law Review* 379 <<https://www.liebertpub.com/doi/10.1089/qlr2.2021.0026>>.

¹³⁰ Lawrence Phillips, 'Valve Forced to Disclose Item Drop Rates for TI7 Chests' (*joinDOTA*, 9 May 2017) <<https://www.joindota.com/news/53321-valve-forced-to-disclose-item-drop-rates-for-ti7-chests>> accessed 12 April 2022; Jerry Shen, 'The Predatory Nature of Loot Boxes and the Need for Governmental Regulation' (2021) 53 *UIC LAW REVIEW* 1085 <<https://repository.law.uic.edu/cgi/viewcontent.cgi?article=2837&context=lawreview>>.

¹³¹ Sandqvist (n 23); Hilmar Sigurðsson (n 93).

the mechanic and the possibility of exchanging the items for real money, even though those trades can happen outside of the game¹³². They suggested a weekly fine of five hundred thousand dollars for the amount of time that the loot boxes stay on the market¹³³. Nevertheless, the Dutch Betting and Gaming Act allows loot boxes that were considered gambling, in case they gather a legal license which obligates them to remove any element that creates addiction, such as flashy effects or the possibility to open multiple loot boxes consecutively¹³⁴.

The Belgian Gaming Commission, in the same year, declared that loot box mechanics that could be bought using real-world money were gambling¹³⁵. They considered some elements similar to betting, which could result in winning or losing, since chance plays a significant role. They understood that a solution to the problem would be spending limits or the integrated removal of the mechanic, but opted for the license's requirement (Article 2 of the Act of 7 May 1999). Some of the biggest companies, like EA Games, Blizzard, and Valve, removed the loot boxes from their games. Otherwise, they risked up to five years in prison or a fine of up to eight hundred thousand euros because of the illicit gambling (Articles 62/1 and 63 of the Act). The fine could double if it were especially targeting minors (article 65 of the Act)¹³⁶.

Contrarily, in the United Kingdom (hereafter UK), the gambling commission did not qualify loot boxes as gambling. They understand that the rewards from those loot boxes do not represent any direct real money value¹³⁷, due to the fact that

¹³² Koeder, Tanaka and Mitomo (n 12).

¹³³ Andy Robinson, 'Dutch Judge Rules That EA Should Be Fined €500k Every Week until It Removes FIFA Loot Boxes | VGC' (*VideoGamesChronicle*, 29 October 2020) <<https://www.videogameschronicle.com/news/dutch-judge-rules-that-ea-should-be-fined-e250k-every-week-until-it-removes-fifa-loot-boxes/>> accessed 10 December 2021.

¹³⁴ Jerry Shen, 'The Predatory Nature of Loot Boxes and the Need for Governmental Regulation' (2021) 53 UIC LAW REVIEW 1085.

¹³⁵ Gaming comission, 'Belgium's Research Report on Loot Boxes' 1 <https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoekrapport-loot-boxen-Engels-publicatie.pdf>; Sandqvist (n 23).

¹³⁶ NOS, 'Populaire Games Overtreden Gokregels' (NOS, 19 April 2018) <<https://nos.nl/artikel/2228041-populaire-games-overtreden-gokregels.html>> accessed 10 December 2021; Gaming comission (n 135).

¹³⁷ UK Gambling Commission, 'Virtual Currencies, ESports and Social Casino Gaming-Position Paper' 1 <<https://www.gamblingcommission.gov.uk/PDF/Virtual-currencies-eSports-and-social-casino-gaming.pdf>>.

there is no possibility of cash-out from within the game¹³⁸. The House of Lords, in another hand, demonstrated that loot boxes are gambling and, in that case, should be under the gambling act of 2005. However, to the date, there is still no consensus as to whether loot boxes should be considered gambling or not¹³⁹.

In Germany, the German Game Industry Organization does not consider loot boxes as gambling, given the fact that when the player opens a loot box, it always provides a return, instead of the “real” gambling mechanics where the player has a chance to lose money by not winning anything. The Organization also understood that there was no great risk of addiction towards the player, as they interpreted the rise of the market as evidence of the players’ satisfaction. There were also not found any adverse effects on the gameplay, since the German organization believed that, if the effects were, in fact, negative, the game would fail in a matter of time^{140 141}.

At a European level, there is not any official regulatory statement at the moment. There is only a report from the PEGI’s rating system, in which they request gambling legislators to decide on this matter¹⁴². There are also some initiatives that we will address later in the work, however, these did not have any significant impact on the discussion of this matter, at least to date.

¹³⁸ Vic Hood, ‘The Big Interview: The Gambling Commission on Loot Boxes’ (*Eurogamer.net*, 14 December 2017) <<https://www.eurogamer.net/the-big-interview-the-gambling-commission-on-loot-boxes>> accessed 9 May 2022.

¹³⁹ John Woodhouse, ‘Loot Boxes in Video Games’ [2022] House of Commons Library <<https://researchbriefings.files.parliament.uk/documents/CBP-8498/CBP-8498.pdf>>; GOV.UK, ‘Loot Boxes in Video Games - Call for Evidence’ 1.

¹⁴⁰ In 2019 the District Court of The Hague ruled in favour of identification of loot boxes as games of chance, however, the Dutch highest administrative court overturned that decision. According to this decision, loot boxes seem to be out of the ruling of gambling, since they can be acquired by playing or are opened in the digital setting. - Rogier de Vrey, ‘Dutch Court Rules FIFA Loot Boxes Not a Game of Chance, Revokes EA Penalty’ (*CMS Law Now*, 11 March 2022) <https://www.cms-lawnow.com/ealerts/2022/03/dutch-court-rules-fifa-loot-boxes-not-a-game-of-chance-revokes-ea-penalty?cc_lang=en> accessed 9 June 2022; René Otto, ‘Dutch Gambling Authority vs Electronic Arts, and the Future of Loot Boxes ’ (*GamesIndustry.biz*, 25 April 2022) <https://www.gamesindustry.biz/articles/2022-04-25-dutch-gambling-authority-vs-electronic-arts-the-end-of-loot-boxes-as-legislative-black-boxes?utm_source=newsletter&utm_medium=email&utm_campaign=daily&mc_cid=46e037e28b&mc_eid=ab6e3c45ec> accessed 9 June 2022.

¹⁴¹ Koeder, Tanaka and Mitomo (n 13).

¹⁴² Alessio Palumbo, ‘PEGI on Loot Boxes: We Can’t Define What’s Gambling, Only A Gambling Commission Can’ (*wccfttech*, 12 October 2017) <<https://wccfttech.com/pegi-loot-boxes-cant-define-gambling/>> accessed 10 December 2021.

The United States of America (hereafter USA) jurists', and psychologists', recognise the resemblance between loot boxes and gambling, nonetheless the legal definition had elements that created a problem for the regulation. There are some discussions at the moment in order to create a bill¹⁴³. We still need to wait to find out if these entities will change the law to remove the restrictions¹⁴⁴.

3.3. Review

Even though this work will focus on the Portuguese case, it is especially important to focus on western countries and particularly European ones, due to the influence of European Union laws in the Portuguese law. That way, we have analysed the biggest developments of those countries, but have also analysed the Asian countries since they were the ones to first face these issues.

It is difficult to look at the UK and Germany's results in this matter, seeming that they did not consider the mechanic as gambling, looking at all the facts. We understand that their arguments are not decent and demonstrate unknowledge of the mechanic. Looking at the UK, even though loot boxes do not represent direct real money value, the items in some games or even the accounts can be sold, so, indirectly, they may represent real-world money. Just because the game was not designed that way, it does not mean that it will not be used that way. For Germany, it is needed to understand that even though the player always wins an item, most of the items are common and are not the items that the player desires, so, the win is subjective in this case. The second argument seems unclear, since if the market rises, maybe that means that people are getting addicted, and not the contrary. The last argument is something that we saw with games like Star Wars Battlefront 2¹⁴⁵ and Shadow of War, that failed entirely because of the loot

¹⁴³ The proposal is called Senate Bill 6266 (S-3638.1) and can be found in the link <https://lawfilesexternal.wa.gov/biennium/2017-18/Pdf/Bills/Senate%20Bills/6266.pdf>.

¹⁴⁴ Mark D Griffiths, 'IS THE BUYING OF LOOT BOXES IN VIDEO GAMES A FORM OF GAMBLING OR GAMING?' (2018) 22 Gaming Law Review 52 <<https://doi.org/10.1089/glr.2.2018.2216>>; Jonathan Simmons, 'Gimme the Loot – United States Proposes Ban on Loot Boxes - Blog - Lexology' (26 June 2019) <<https://www.lexology.com/blog/2019/06/gimme-the-loot-united-states-proposes-ban-on-loot-boxes>> accessed 10 December 2020.

¹⁴⁵ Ben Gilbert, "'Star Wars: Battlefront 2' Finally Drops Loot Boxes, but It May Be Too Late - Business Insider' (*Business Insider*, 16 March 2018) <<https://www.businessinsider.com/star-wars-battlefront-2-drops-loot-boxes-2018-3>> accessed 10 December 2021.

box's mechanic, and they took the mechanic out of the game in a way to save the sales. Contrarily, other games such as FIFA have studies that demonstrate that the loot box's system is *pay to win* and have adverse effects on the gameplay, and although the game is widely criticized, it manages to sell really well every year. In this case we can conclude that the argument is also improper.

In some jurisdictions, the fact that the majority of loot boxes do not provide players with digital content that constitutes, in their view, something with a monetary value (due to the impossibility to sell or convert into real money) does not allow them to understand the mechanic as gamble, forgetting the possibility of an item's ability to have a high perceived value, brought to us by the new online world, as we have previously demonstrated¹⁴⁶.

We have to highlight the development of EA Games, the gaming company behind FIFA and Star Wars Battlefront II, in order to demonstrate how they have been looking at the development of the regulation in some countries in the videogame FIFA 21. In December of 2020 the developers included a new line of code that suggests a region block for FIFA Ultimate Team: the FIFA 21 game mode that has loot boxes. *Region block* means that if a person is trying to enter in the game through an IP of a banned country, the access to that game mode will be unpermitted^{147 148}.

Although this might seem like a small step, if all the western countries join and start regulating, this may result on the change of the game mode by removing or adapting the loot boxes' mechanic, instead of its blockage. EA Games had already had problems with loot boxes in the title that we referred above, Star Wars Battlefront II. The game received public backlash, which led the company to remove the loot boxes' mechanism¹⁴⁹. Hopefully, they will do the same for FIFA

¹⁴⁶ Cerulli-Harms and others (n 28).

¹⁴⁷ There is not any information about which countries have been region blocked.

¹⁴⁸ Jamie Hore, 'New FIFA 21 Code Suggests Ultimate Team Could Be Blocked in Some Regions' (*THE LOADOUT*, 8 December 2020) <<https://www.theloadout.com/fifa-21/ultimate-team-regional-ban-code>> accessed 10 December 2021.

¹⁴⁹ The backlash was huge since fans could not use favourite characters from Star Wars without paying more money than the base game's price. EA tried its defence but managed to get the Guinness world record of the most downvoted reddit comment of all time - Cariaga (n 31).

Ultimate Team mode (that gets a new iteration every year) and their other games or change their loot boxes for a more consumer friendly approach.

The game Star Wars Battlefront 2, had backlash due to its content being blocked behind soft paywall, that could only be lifted either through numerous hours of gameplay, or through payment, which, in an early game, could bring high advantages to some players over others. This could be seen in former freemium games, but we should remember that in freemium games there are not any initial costs, contrarily to triple A games where there are initial costs that can be high¹⁵⁰.

The Asian countries saw loot boxes as an opportunity for the industry and enabled their use by the developers when containing mechanisms that turned those loot boxes into a more ethical mechanic. We consider that approach to be the desirable and will explore some of those mechanisms later, in order to possibly be adopted as a legal requirement.

IV. Contractual Classification

After analysing how some countries have regulated loot boxes, we will proceed to analyse the contract behind loot boxes within the Portuguese Law, beginning by the contractual classification.

Starting with the legal nature of the contract, we can identify that the contract is bilateral since it generates obligations for both parties. The game company is obliged to transfer the virtual item to the player who, in return, makes the payment. With this reciprocity, we identify another effect of the contract, its *onerosity*. The patrimonial advantage is a consequence of a consideration and

¹⁵⁰ Olli Sotamaa and others, *Game Production Studies* (Amsterdam University Press 2021) <<https://www.aup.nl/en/book/9789463725439>>.

constitutes an onerous contract in which both contracting parties obtain a benefit^{151 152}.

Being also of instantaneous execution, after all, the provision is made soon after the confirmation of payment. The solution is carried out at once and by single instalment, having as effect the complete extinction of the obligation. It corresponds to a consensual contract, not solemn, established by the agreement of free will.

It is a contract formed within a pre-existing legal relationship that arises from the software license agreement. It is then an accessory contract that depends on the link between player and company. However, it is a standard contract since the clauses are unilaterally established by the supplier (general terms).

We have previously seen that the contract is onerous, however onerous contracts may be commutative or aleatory; being classified as commutative, the contract in which benefits are specific and determined, so that the parties know the advantages and disadvantages of the business. On the other hand, the classification of a random contract is divided into *random by nature* and *accidentally random*. Aleatory originates from the Latin word *alea*, which means luck, risk, chance. Contracts that are aleatory in nature are those in which one of the parties cannot determine the advantage that will obtain, assuming the risk with future things or facts. Examples of these subspecies are gambling and insurance contracts¹⁵³.

¹⁵¹ This is the case in most loot boxes. However, some loot boxes, as we have mentioned, are *gratuitous* due to the free form in which they are presented: as an offer to the player. It is debatable whether, by watching an advertisement, the player is doing a compensation towards the company, when considering the company will earn money through that "view". Nevertheless, although there are some authors, such as Mafalda Miranda Barbosa, that understand that there is no real consideration on the part of the user equivalent to a compensating sacrifice of the service provided by the content provider, we do not agree with this view, as we believe that the players' sacrifice is the time lost watching the advertisement.- Mafalda Miranda Barbosa, 'Negócios Onerosos e Gratuitos: Uma Reflexão a Propósito de Novos Fenómenos de Gratuitidade' [2020] Revista de Direito Comercial <<https://static1.squarespace.com/static/58596f8a29687fe710cf45cd/t/5fc7b143c953717e09e1e726/1606922565498/2020-36+-+1809+-1852.pdf>>.

¹⁵² Luís Manuel Teles de Menezes Leitão, *Direito Das Obrigações Volume III* (11th edn, Almedina 2016).

¹⁵³ Luís A Carvalho Fernandes, *Teoria Geral Do Direito Civil II* (5th edn, Universidade Católica Editora 2017) <<https://repositorio.ucp.pt/bitstream/10400.14/36594/1/97897254027.pdf>>; Pedro Pais de Vasconcelos and Pedro Leitão Pais de Vasconcelos, *Teoria Geral Do Direito Civil* (Almedina ed, 9th edn, 2019).

For the above, it is not suitable to fit the loot box in the commutative contract mode since, in this classification, the consumer knows precisely what he will get with the completion of the deal, which does not occur in the model in question, given the fact that loot boxes are consumables used to generate, randomly, definite items. Therefore, it is evident that the randomness factor is intrinsic to the loot boxes' mechanic because the risk determines the advantage obtained by the consumer. After all, the lower the probability of dropping the item, the better it will be.

In order to infer the adequacy of the type of contract, we need to understand the gambling game, which will be analysed in the next chapter.

V. Gambling in the Portuguese Legislation

In the Portuguese Law, there is the Online Gambling Act (hereafter OGA), the decree-law no. 66/2015, of 29 of April, that applies to gambling at a distance, “by electronic, computer, telematic and interactive means, or by any other means “(art. 1º of OGA). In another way, to complete this study, it is also essential to explore the decree-law no. 446/85, of 25 of October, also known as Gaming Act (hereafter GA).

Firstly, by analysing OGA, we can understand that the criteria of application of this law, set in article 1, verifies in loot boxes, since it happens from a distance and through informatic means.

Article 49 refers that any unlicensed gambling is criminalized, having as justification the protection of legal assets such as public order, combating fraud and money laundering, preventing excessive gambling, and protecting minors and gambling addicts (paragraph 16 of the preamble OGA). Gambling categories are found in article 5 no. 1 c), however, although it defines some types of gambling games, it allows, through article 5 no. 2, the creation of new types, through the authorization of the SRIJ, the Gambling Regulation and Inspection

Service, which is organically part of the Portuguese Institute of Tourism (article 45)¹⁵⁴.

However, we still need to define what gambling is for this law, looking at article 4 n) OGA defines gambling as being “that which implies the expenditure of an amount of money and whose outcome is contingent as it is based exclusively or fundamentally on luck”, yet, it may be observed as a vague and indefinite definition, needing other complementary elements in order to get a correct interpretation of the concept. As it can be noted, this definition was taken from the GA¹⁵⁵.

In the OGA, the legislator reaffirmed the state monopoly on gambling through licensing (articles 8 and 9 OGA). Almost all definitions that come on OGA are from GA, but it was added a territorial criterion that limits the licensing since, through its article 49, it criminalizes if there are servers used for those games outside of Portugal. In order to confer competitiveness to the Portuguese market in terms of online gambling, the legislator decided to liberalize the exploitation through licensing to all the entities that meet strict requirements of “suitability and economic and financial and technical capacity” (Paragraphs 17 and 18 of the RJO preamble).

5.1. Physiology of gambling

In the concept of gaming, we can encompass several realities, where some of them are irrelevant to law, and others are complex legal institutes. Gambling is one of those with relevance to the law, since, when it is not authorised, it is illicit, giving rise to criminal liability for the exploiter and the individuals involved. This contract is then considered null and produces no effects. On the contrary, when

¹⁵⁴ Serviço de Regulação e Inspeção de Jogos, ‘Missão - Regulação e Inspeção de Jogos’ (SRIJ) <<https://www.srij.turismodeportugal.pt/pt/regulacao-e-inspecao-de-jogos/missao/>> accessed 8 June 2022.

¹⁵⁵ The letters of both laws on the definition are alike, with the difference that the GA definition of gambling from article 1 does not contain the element “implies the expenditure of an amount of money”. However, as we will demonstrate later, it represents the bet, a fundamental element of gambling. So, we can still consider its presence without it being expressed.

it is authorised, it is valid and produces civil obligations (article 1245^o of the Portuguese Civil Code, hereafter CC)¹⁵⁶.

The Portuguese doctrine tends to diverge in opinion on whether three or five essential elements are structuring gambling contracts¹⁵⁷. We will explore the five essential elements, such as the free will of the parties to gamble; the bet; the randomness, the result and the reward¹⁵⁸. We will proceed to analyse each of these elements using both OGA and the GA. Even though we understand this last law does not apply to this situation, the fact that most definitions of the OGA were taken from it allows us to understand better the situation, since it contains doctrine and jurisprudence, due to the fact that it is an older law with more use.

5.1.1. The free will to participate in the game

The first element is part of all legal business, which requires *unilateral, bilateral, reciprocal* or *onerous free will*. This free will needs to be verified, through the initiative or adhesion to the game. Supposing the adhesion declaration is valid, then, under the terms of articles 1245^o and following of CC, we have a licit gambling game. In that case, we have a legal gambling contract to which OGA, the special legislation, is applied¹⁵⁹.

The fundamental value of our legal system in this matter is the autonomy of the will, which is the basis of every legal transaction. The most important component of these legal businesses is the contract, which includes, at least, two legally effective *wills* (article 405^o CC). Therefore, if we speak of autonomy of will, we speak of contractual autonomy or freedom. However, we cannot forget that mandatory rules limit the parties' autonomy under public policy values¹⁶⁰.

¹⁵⁶ Januário Pinheiro, *Lei Do Jogo Anotada e Comentada* (1st edn, Edições Almedina 2016).

¹⁵⁷ Jorge Godinho, *Direito Do Jogo* (1^a Edição, Fundação Rui Cunha 2016).

¹⁵⁸ Carlos Alberto Batista Correia, 'Do Jogo de Fortuna Ou Azar O Atual Paradigma Na Exploração Ilícita' (NOVA School of Law 2015).

¹⁵⁹ On gambling games, sometimes, this free will is not accurate, since the actions are determined by the addiction to gambling.

¹⁶⁰ José de Azeredo Perdigão, 'O Princípio Da Autonomia Da Vontade e as Cláusulas Limitativas Da Responsabilidade Civil' (1946) Ano 6.^o, n Revista da Ordem dos Advogados <<https://portal.oa.pt/upl/%7B33084DF8-84BA-4DAD-806E-830BD73CDD77%7D.pdf>>.

5.1.2. The bet

In the second element, the bet, we are remitted to the CC, where we will need to resort to the same articles as before (1245^o and following). The name of the contracts is presented as *game and bet contracts*, where it inserts two different figures, without any legal definition. However, it was deliberate due to difficulty in finding an adequate precise definition. That way, it was preferred to assign to jurisprudence the duty to perform a "legal qualification, in harmony with the common meaning of the words and the usable elements" in cases ¹⁶¹.

However, we need to distinguish these two figures and there are multiple theories with many criteria ¹⁶²: starting by the *criterion of purpose*, where the game is part of the fun and profit, and the bet is strengthening an opinion; the *criterion of uncertainty or lack of knowledge of the fact*, where it states that in the game, the fact is uncertain, since it has not yet occurred, while the bet is certain, but only the parties are the ones who are not sure in their knowledge, for presenting opposing opinions; the *criterion of participation*, where it states that in the game, the contracting parties participate in an active way in the realization or not of the fact, while in the bet they assume a passive posture, with no ability of conditioning the outcome^{163 164}.

We follow the position of the majority of the doctrine, which understands that the most appropriate criterion to adopt is the *criterion of participation*¹⁶⁵. It allows distinguishing between gambling and a mere bet. In the first case, depending on the active participation of at least one of the parties in creating the outcome, GA is applicable (or OGA, if the game is carried out under the requirements already

¹⁶¹ Farinha (n 55). P.15.

¹⁶² Pinheiro (n 156).

¹⁶³ There is a new radical position on this distinction that understands that gaming in itself is irrelevant to law, except when allied to economic interest. That is, the loss for one side and a gain for the other, which translates into the emergence of a bet (which becomes the only contract). As professor Carlos Mota Pinto referred, the absence of a legal definition and the fact that the legal regime for both figures is precisely the same may lead to the conclusion that this distinction is unnecessary. While interesting, this theory goes directly against the letter of article 1245, and for this reason, this theory is thus discarded. - Carlos Alberto da Mota Pinto, António Pinto Monteiro and João Calvão da Silva, *O Jogo e a Aposta - Subsídios de Fundamentação Ética e Histórico-Jurídica* (1982); Farinha (n 55).

¹⁶⁴ Leitão (n 152); Farinha (n 55).

¹⁶⁵ Correia (n 158).

mentioned and does not fall within the exceptions of art.2 n. 2 of the latter)¹⁶⁶. In the case where there is not any authorization, there will be a criminal or administrative offence. In the second, according to Antunes Varela and Pires de Lima, we have a "convention whereby two or more persons, who disagree in relation to a certain matter, establish (...) that the one who is right will receive from the others a sum of money or any object, the bettors, however, do not participate in the event that will determine the winner"¹⁶⁷.

Thus, if this betting contract corresponds to a predicted model (such as the Totobola), special legislation will apply by the remission of art. 1247. If it corresponds to none of the models, it will be the provisions of art. 1245 that will apply. In the case of being invalid, it will not produce legal effects¹⁶⁸.

Therefore, it is concluded that a bet may arise as an isolated contract and that in the case of gambling, it is always a requirement. Although it is not present in the definition of art. 1 of the GA, it should be understood as its obligation, without restriction as to the object¹⁶⁹, it only must have economic value. This element already appears expressly in the OGA, in art. 4 paragraph n) in "implies the expenditure of a sum of money", i.e., the service provided by the players to play must be of a monetary value, as we have previously explored.

5.1.3 The Randomness

The third element, the randomness (*alea*) is part of the wording of both GA and OGA where it is stated that "the result (...) relies exclusively or fundamentally on luck"¹⁷⁰ (article 4 n) OGA) allowing the competition of other elements such as the

¹⁶⁶ *ibid.*

¹⁶⁷ Pinheiro (n 156). P.40.

¹⁶⁸ Farinha (n 55).

¹⁶⁹ Godinho (n 157).

¹⁷⁰ The old diploma, Decree-Law no.14.643, of 3 December 1927, stated that the result relied exclusively on luck, expressively ruling out the possibility of players affecting the result through skill, intelligence, dexterity or calculation, and that way, games like poker and blackjack, were out of that definition, as their outcome does not rely purely on luck. In subsequent legislation, the expressive ruling out of ways that the players could affect the game was removed but maintained the exclusivity of luck (Decree-Law no.41.562, of 18 March 1958, in Art. 1 and Decree-Law no.48.912, of 18 March 1969, in Art. 1). Due to the creation of new games, the law's material content was expanded to allow elements other than chance. - Correia (n 158).

player's skill, experience and intelligence to condition the outcome, but never determine it alone¹⁷¹. There are several random contracts in the Portuguese legal system where the parties undertake to provide or do something upon verifying an uncertain future fact or event (e.g., an insurance contract). The gambling contract differs from other random legal transactions due to the nature of the risk, since the contract itself creates it from the moment of its conclusion. In contrast, in the others, the risk typically precedes the contract.

The element of luck, the randomness, must maintain its primacy and this was the clear intention of the legislator when using the expression "fundamentally" (which some authors even translate into the idea that the element of luck has a "possibility of variation between a maximum of 100% and a minimum of 50%"¹⁷²). On the issue of loot boxes, they rely exclusively on luck due to its random algorithm that assigns the items based on probabilities without any input from the player.

5.1.4 The Result

The result is the fundamental, imperative requirement of any game and the player hopes it to be a victory. It is expressly referred to in OGA and GA in art.4^o paragraph n) and art.1^o, respectively, in "whose result is contingent". Contingency means "the possibility of losing or winning"¹⁷³. Therefore, result is the final stage of a game (or game cycle) in which the players' hopes of winning are based.

5.1.5 The Reward

The last element, the reward, while not expressly referred to in the definitions of the laws, is intrinsically and materially linked to the nature of the game and the

¹⁷¹ Doctrine criticizes the ambiguity and imprecision of this concept, stating that in certain games of chance (referring to poker), due to the significant imbalance in the experience and skill of the players, the final result of a "one night" game is not random, but determined right from the start. Therefore, the element of randomness depends on the existence of this balance between players. - Farinha (n 55).

¹⁷² Vasco António Vilares Roque, *A Lei Do Jogo e Os Seus Regulamentos Anotada e Comentada* (1ª Edição, Coimbra Editora 2011). P.51.

¹⁷³ *ibid.*

bet. When there is a game with legal relevance, there must be a reward with economic value to be delivered to the winner ¹⁷⁴.

In gambling, the prize is not simply a victory, but the delivery of a benefit, generally, in a pecuniary value, however, it does not need to be necessarily pecuniary, but something with economic value (by doing a systematic analysis of the GA, on articles 4 and 159 to 163).

Article 4 of the GA lists several types of games of chance but does not define their operation and rules, leaving these matters to special legislation. Regarding the prizes for these games, there is also no stipulation in this article, with the exception of one particular instance that denounces, in part, the intention of the legislator, which is that of gaming machines. Machines that pay "directly prizes in tokens or coins" are considered to be games of chance, as stated by the legislator in this article's paragraph 1(f). Using the argument, a *contrario sensu* in this article, we can come to the conclusion that gaming machines cannot be considered "games of chance" as long as the winners do not receive a prize in the form of coins or tokens, since it is obvious that such prizes have a monetary value in this particular setting. However, thanks to paragraph g), the GA is also able to regulate these machines if they develop "themes characteristic of games of chance or have as their outcome scores that depend exclusively or fundamentally on luck". From this statement, it is clear that the legislator is increasingly concerned with ensuring that it is made clear that both varieties of gaming machines are to be regarded as forms of gambling. This is done to ensure that, when the law is applied, the mistake of failing to apply the GA regime due to the legal technicality of the prize not being monetary does not take place. Therefore, although it is common practise for the prizes won in casinos to be monetary in nature, this is not required by law, which leaves open the possibility that the prizes could be things that have economic value¹⁷⁵, an argument with which we agree.

Nevertheless, it should be noted that this orientation is not uniform in doctrine, and there are some researchers, such as Rui Pinto who disagree with this

¹⁷⁴ Correia (n 158).

¹⁷⁵ Roque (n 172); Farinha (n 55).

conclusion on the basis of how they interpret the GA. Their orientation is based on the definition of the term "modalities alike gambling" that is provided in article 159. According to this definition, "operations offered to the public in which the hope of winning lies in the player's luck and skill, or only in luck, and which award prizes that have an economic value" are considered to be modalities alike gambling. The legislator thus clarifies the content of this concept on no. 2 of this article and in art. 4 no.1, by expressly exemplifying several games that are covered by this regime such as "raffles, tombolas, advertising contests, competitions of knowledge, pastimes, and prize draws". This allows for other games to also be covered by this regime, which is considered exceptional in comparison to the general regime of gambling¹⁷⁶. However, in accordance with paragraph 3, these games cannot develop themes that are typical of gambling games, and the prize cannot be monetary (as stated in article 159(1))¹⁷⁷. The violation of these rules have a more favourable regime, as it only carries a *misdemeanour liability* (Art. 163 no.1 da GA) instead of giving rise to *criminal liability*. In light of the disparity in liability that exists between the two regimes, it is of the utmost importance to correctly differentiate between them; however, doing so has proven to be problematic for both jurisprudence and doctrine.

When we compare the definition found in Article 159 no.1 GA to the one found in Article 1, we find that there are two new components: first, these are operations that are offered to the public, and second, the prize cannot be monetary; rather, it must consist of things that have economic value. Over the course of many years, the jurisprudence has been extremely inconsistent. In some instances, courts have chosen to differentiate between cases based on the first component of the transaction that was offered to the public¹⁷⁸ while in other instances, they have focused on the characteristics of the prize. If the prize were monetary, it would be considered a game of chance, the exploitation of which without permission constitutes a criminal offence. On the other hand, if the prize was of a different nature, it would be considered modalities alike gambling, which may

¹⁷⁶ Newspapers, magazines, radio or television broadcasters are also allowed to organize competitions of knowledge, pastimes and advertising contests to promote goods or services

¹⁷⁷ It is understood this way do to the fact that normally those are games that entail less exposure to the problems that can arise from gambling.

¹⁷⁸ Case 3381/2006-5 TRL.

result in a charge of a misdemeanour.¹⁷⁹ This is the position that is held by Rui Pinto Duarte, who believes that "in the light of the legal texts, it seems (...) that the element that characterises these modalities alike gambling is that their prizes must consist of something other than money"¹⁸⁰.

Although this solution could simply and efficiently solve the issue, we cannot agree with this position since, while an example typifies casino games as having monetary prizes, in Art. 4(1), nothing prevents them from being things with economic value and, thus, remain gambling¹⁸¹. An illustration of this would be a poker competition in which the winner would not receive a sum of money or chips that could be exchanged for money, but rather a collection of jewellery, a house, or a car as their prize. According to the Portuguese laws, this scenario is still considered to be a form of gambling¹⁸².

In order to solve the issue of understanding if something is a modality alike gambling or gambling, by examining law and jurisprudence, we believe that the criteria that should be adopted is based on: the low value spent by the player¹⁸³; the impossibility of the prize items to be exchanged for money¹⁸⁴ and, lastly, the prize value to be more or less equivalent to the money spent by the consumer. Any of these three criteria are alternative (non-cumulative), meaning by verifying one of them, is enough to be considered gambling, instead of a modality alike¹⁸⁵. This way, the law separates the modalities alike gambling from the games that can create major negative impact on consumers, such as gambling games.

Moreover, we propose that the criteria above mentioned, needs to be combined with the criteria created by Batista Correia, which understands that in order to be gambling and not an alike modality, the game needs to: have all the characteristics of the physiology; have the structure of the concepts of art. 4 and

¹⁷⁹ Case 8653/2006-3 TRL.

¹⁸⁰ Rui Pinto Duarte, 'O Jogo e o Direito' [2001] *Themis, Revista do Direito, Ano II* . nº3. P.80 and 81.

¹⁸¹ Correia (n 158).

¹⁸² Farinha (n 55).

¹⁸³ Case 81/109 GCOMMNE1 TRE.

¹⁸⁴ Case 1678/07-1 TRE.

¹⁸⁵ Case 308/087TBVNCG1 TRG.

do not fit into the concept of modalities alike of art. 159 and its standard concepts, that we have just referred ¹⁸⁶.

5.2. Correlation between Gambling and Loot Boxes within Portuguese Law

After analysing all the physiologic elements that constitute the concept of gambling in Portugal, thus, to fit the phenomenon into the concept, it must present the five structuring elements: the free will of the parties; the stake (which is understood as the provision made by the players, which is not restricted to the object); randomness (which does not have to be exclusive in determining the outcome, but must be paramount); a clear and precise result (which determines a clear winner or winners, as opposed to losers); a prize (the payment made to the winner or winners, which has no restriction to the object, and may be a monetary value or a good with economic value, and must provide an advantage more significant than the cost of participation (the bet)); and it should not be included in the related modality of gambling, which appears as a negative delimitation of this concept^{187 188}.

Because loot boxes are conducted in an online setting, the Online Gambling Act (OGA) would be the body of law that would govern their operation if we were able to classify them as a form of gambling, as has already been stated. As a result, according to article 2 paragraph 3 of the OGA, this situation excludes the application of the GA. However, as has also been discussed, there is a fundamental distinction between the definition of gambling that is used in the GA and the definition that is used in the OGA. In the latter, the concept is less broad due to a restriction to the object of the "bet," that is, the service performed by the players in order to participate, which, in contrast to the GA regime, "implies the expenditure of a sum of money" (art. 4 n). The interpretation of this article that seems to be the most correct is that the object of this benefit may assume a mixed

¹⁸⁶ Correia (n 158).

¹⁸⁷ Having misdemeanour protection makes it more favourable to the defendant and thus applicable in detriment to the criminal protection of gambling, which, due to the principles of criminal law, should only be applied in a subsidiary manner.

¹⁸⁸ Farinha (n 55).

character, requiring at least part of it to be in cash, and that this must be done not to access the game (the access to the platform where it is located, be it a site that requires registration, for example), but to participate in the game itself (but not necessarily in each round of the game - for example, in cases of a poker tournament where there is a fixed registration cost, paid at the start, which is distinct from the bets made by the players in each round)¹⁸⁹.

Even though the OGA, as well as the GA deal with areas of Administrative and Tax Law, as they incorporate incriminating rules, are considered separate pieces of Criminal Law and, therefore, the rules and principles of interpretation of this branch of Law apply to them, and in this specific case, to the very concept of gambling, as the basis of these regimes. As such, we must bear in mind that these are much stricter compared to other branches. The *analogy* is forbidden, based on the principle of legality, in art. 29 no.3 of the Constitution of the Portuguese Republic (hereafter CRP) and art. 1 no.3 of the Criminal Code. Therefore, extensive interpretation is extremely limited and, to some doctrine, prohibited. However, a more consensual position admits its possibility when the interpretative result can fit into the possible meaning of the words^{190 191}.

We are able to draw the conclusion that behaviours that fit into a legal loophole in terms of incriminating rules of criminal law cannot be criminalised, even if we could infer that it was the intention of the legislator. This is because the legal

¹⁸⁹ *ibid.*

¹⁹⁰ In criminal law, *analogy* is absolutely prohibited when it comes to broadening the elements of the type, it is prohibited *malam partem*, against the accused, but some doctrine understands that it is permitted *bonam partem*, in favour of the accused. An analogical process to extend the scope of protection of the rule is clearly forbidden. The only entity with legislative power in Portugal, and therefore able to create a legal type of crime, is the National Assembly, or the Government, when given the authorisation by the National Assembly (article 165 CRP - Relative reservation of legislative competence). This has, as consequence, the prohibition of analogy, since increasing the margins of punishment is something that falls exclusively to the legislator. There is a doctrine, however, that defends the possibility of analogy *bonam partem* in criminal law, but we find it unconstitutional. Without the prohibition of analogy, we would be facing a system of total insecurity. The prohibition of analogy is not an end in itself, it is a guarantee for the citizen. Extensive interpretation coincides with an analogy. However, in criminal law, one can make an extensive interpretation up to a certain limit, but one cannot make an analogical interpretation. - José de Faria Costa, *Direito Penal* (Imprensa Nacional Casa da Moeda ed, 2017).

¹⁹¹ Maria João Antunes, 'Direito Penal, Direito Processual Penal e Direito Da Execução Das Sanções Privativas Da Liberdade e Jurisprudência Constitucional' (2013) N.º 21 JULGAR <<http://julgar.pt/wp-content/uploads/2013/09/06-M-J-Antunes-jurisprudência-TC-penal.pdf>>.

goods that the law seeks to protect are in favour of the Principle of Liberty, a key pillar of the constitution¹⁹².

As a result of this narrowing of the concept of gambling in the OGA, one must conclude that the legislator left these games out, when practised without a monetary payment by the players in an online environment, even when these games clearly develop themes of Gambling outside the scope of application of the OGA regime, and the GA regime, thus finding themselves in a legal vacuum with the current Portuguese legislation on these matters. Since the interpretative result would go beyond the bounds of extensive interpretation of criminal law and could even be considered *contra legem*, any attempt to fill this legal loophole seems impossible. Moreover, this situation is not equivalent to the one in which all online games of chance were before the publication of the OGA in 2015, as in this period, these were illegal, due to the prohibition of the exploration and practice of all games of chance without a GA license, not existing a structure that would allow their exploration and practice, legally and safely (Paragraph 11 and 12 of the Preamble of the OGA).

According to the definition of the OGA, these games are not games of chance because they do not involve a bet that involves the expenditure of money. Because of this, they do not fall under the restrictions that are imposed by that law. In addition, as was mentioned earlier, because of the nature of the online environment, we are unable to use the GA or any other laws regarding these issues, specifically arts. 1 and 2 of the OGA. One possible conclusion is that the OGA regulates all forms of online gambling. However, the other laws are only applicable in the exceptions listed in art.2 no.2, specifically paragraph k), which refers to games with a territorial basis that are played in casinos and outside of them, which is the GA. Because of this, the subsidiary application of other diplomas, specifically the GA, is not permitted, even though these may have a broader definition of gambling.

The exploitation and practise of games of chance, including those listed in Article 5(1)(c) of the OGA, carried out from websites, without the expenditure of monetary amounts by players, cannot be considered to be criminalised.

¹⁹² Maria Fernanda Palma, *Direito Penal Conceito Material de Crime, Princípios e Fundamentos* (4th edn, AAFDL Editora 2019).

Furthermore, in this instance, not only sites that use physical goods with economic value can be included, but also sites that use cryptocurrencies, such as Bitcoin, for example¹⁹³.

The next thing that needs to be done is to determine whether or not the phenomenon of loot boxes falls into this legal void¹⁹⁴. To be included in the gambling concept, one must first fulfil the prerequisites, which include things like being excluded from modalities alike gambling and having a specific set of five elements that define the structure of the gambling activity.

Most elements do not seem problematic, however, regarding the object of the bet, an issue arises. In addition to buying the loot boxes from the in-game store with real money, there are other ways for the player to obtain them. For example, in various video games, such as CS: GO, Team Fortress 2, FIFA and others, players can receive loot boxes for free by performing specific tasks in the game, that are typically time-consuming with increasing difficulty spikes, by watching live streams of certain e-sports competitions, or even, by playing for several hours straight. Due to these factors, it becomes necessary to conduct a case-by-case analysis to determine which games have loot boxes that are only purchasable by cash, which thus do not raise doubts about the fulfilment of the gambling element of the OGA and which ones have other avenues for players. Given that not all players must spend money, in order to obtain loot boxes, where particularly those who are exceptionally persistent, fortunate and diligent may earn them for free, it may seem reasonable to question whether this element has been satisfied in the latter case¹⁹⁵.

Nevertheless, we believe that, so long as it is possible to acquire them with money, even if other means exist, this element should be considered to have been met. This is because these tactics are comparable to those used by casinos and other online gambling platforms that have been licenced by the OGA, namely offering tokens or points and other promotions to entice players or prospective

¹⁹³ Farinha (n 55).

¹⁹⁴ The reality is that if loot boxes do not fall under any of the requirements verified by the OGA, the principle of *nullum crimen sin lege* tells us that they are allowed. There may be a dire need to legislate and the legislator has to be made aware of this social reality, that we have demonstrated in previous chapters, leading to the existence of a social type.

¹⁹⁵ Farinha (n 55).

players to begin or continue playing, ultimately risking their own money. The widespread practise of immediately suggesting to the player, after opening a loot box, to purchase more through the in-game shop by spending money lends credence to this line of reasoning, and it also strengthens the argument¹⁹⁶. Assuming a predatory character, this technique is employed when the player is most susceptible to suggestions of this nature.

We proceed to the final criterion, due to the fact that all the elements are verified and the issue of the object of the bet has been clarified. The possibility of exclusion because loot boxes may be considered modalities alike gambling, thus applying the GA, in this regime. As stated above, the line separating these two concepts is relatively thin, being drawn mainly according to the concept-types of modalities alike listed in article 159 no. 2 and verifying the elements that constitute it. The interpretation and application of this element of the operation offered to the public is not a viable criterion of distinction and seems rather complicated, being more suitable for situations in the physical world, where it is clear which areas are authorised to practice and exploit gambling games, namely casinos and certain tourist areas, and which other areas are called upon by the target public to practice modalities alike gambling¹⁹⁷. Technically, the degree of public access to both is practically identical in the digital space, whether on social gaming sites or online gambling. When analysing different video games and the implementation of loot boxes, the application of this criterion is also manifestly uncertain¹⁹⁸. Free to play games, that are easily downloaded by the consumers, seem to have a higher degree of public access when compared to games whose license costs 60 euros, but this does not seem like a possible argument in order to differentiate the two.

That way, as we have proposed before, the criterion that should be used to determine if something could or not be a modality alike gambling is based on the value spent by the player, that even though may be low on some loot boxes, it depends on the game; also on the impossibility for the prize items to be exchanged for money, which is possible in some games, due to the cash out

¹⁹⁶ It is also typical for a promotion to be announced as a discount in the price and/or that the loot box type is only a temporary offer.

¹⁹⁷ Correia (n 158).

¹⁹⁸ Farinha (n 55).

mechanic and, lastly, the prize value to be more or less equivalent to the money spent, which, in the case of loot boxes, depends on the rarity of the items rewarded¹⁹⁹. These criteria should be seen casuistically, but we understand that the games that we have before presented as examples when introducing the mechanic, all fall within this criterion and are considered gambling, enabling the law to protect the consumers from the risks that loot boxes create, as demonstrated before.

Moreover, the loot boxes should also be analysed in the light of the items listed in article 159 no. 2 to clarify the nature of this phenomenon better and bring greater legal certainty. Out of all the items mentioned in the article, *Raffles* seem to be the one that require a special attention. These are generally understood, in the common understanding and within doctrine, namely by Professor Januário Pinheiro and Professor Cunha Gonçalves, as a contract made between the organising entity and a greater or lesser number of players who, through the payment of a small sum of money, qualify for the acquisition of one or more movable or immovable items employing a raffle. Raffles differ from lotteries in the object that will be drawn, since in lotteries the object is money²⁰⁰.

The number of significant differences between the two is significantly higher than the number of similarities, which renders this framework impossible. A suggestion could be made that these could constitute a new type, a new mode of a raffle, since the player technically always wins a digital good and the value of his prize can vary greatly due to its qualities and rarity between being practically worthless and worth more than the wager placed. However, this construction appears fragile and distances itself from the raffle and its mechanics, namely the existence of a limited number of prizes that will only correspond to a portion of the total number of tickets sold, in order to correspond more authentically to a new game of chance.

¹⁹⁹ In a game such as CS: GO there are no doubts that the loot boxes constitute gambling, due to the value of the items and the cash out feature. On another way, FIFA, could be more debatable, however, as we have demonstrated, it does have the cash out feature, (some items are sold in external marketplaces) where the items are worth a lot of money, and so, it is obviously gambling in the eyes of this particular criteria.

²⁰⁰ Pinheiro (n 156).

5.3. Inefficiency of the Portuguese Law to regulate Loot boxes

Loot boxes are a mechanic that the SRIJ have knowledge of and does understand that can bring some problem, since they have participated in the 2018 joint statement from worldwide regulators that highlighted their concerns about the use of loot boxes in video games and the "distortion of boundaries" between betting and other forms of digital entertainment²⁰¹. Also, in the same year, a meeting of regulators was held in Birmingham on matters such as "online gambling supervision, loot boxes, skin betting and match-fixing"²⁰². However, no resolution to the problem has been presented to date.

Our development throughout the last chapters shows that loot boxes are gambling under the Portuguese OGA. So, it leaves the player with no protections under the law, such as protecting minors or vulnerable groups and preventing addiction. This can be seen on the website of the SRIJ, which states that if a person does illegal gambling, they may be compromising their data, be subject of fraud, dishonest practices and even collaborate with criminal organisations²⁰³.

Consumers should not be left without protection, since those games can be acquired in any online store (e.g., Steam, Microsoft, and others), as well as physical stores (e.g., Fnac, Worten, and others). That way, Articles 49 and 52 of the OGA are applicable, as it is a criminal offence. As has happened in Belgium and The Netherlands, the game developers needed to remove loot boxes from their games or remove those games from the stores. We already have an example of a game that applied this law in Portugal and removed one mechanic from it. GTA Online removed the online casino from the game, since they did not have a license for gambling, allowing the game to exist, but only removing that mechanic; however, in that game, it is a real casino where gambling is not

²⁰¹ Abílio Rodrigues, 'Portugal Assina Declaração Conjunta Sobre "gambling e Loot Boxes" Em Videojogos' (*IGN*, 17 September 2018) <<https://pt.ign.com/games/66490/news/portugal-assina-declaracao-conjunta-sobre-gambling-e-loot-boxes-em-videojogos>> accessed 9 June 2022.

²⁰² Serviço de Regulação e Inspeção de Jogos, 'Notícias - Regulação e Inspeção de Jogos' (*SRIJ*, 19 April 2018) <<https://www.srij.turismodeportugal.pt/pt/noticias/encontro-de-reguladores-em-birmingham/>> accessed 9 June 2022.

²⁰³ Serviço de Regulação e Inspeção de Jogos, 'Jogo Online Ilegal - Regulação e Inspeção de Jogos' (*SRIJ*) <<https://www.srij.turismodeportugal.pt/pt/jogo-online/jogo-online-ilegal/>> accessed 9 June 2022.

debatable, allowing the law to work as intended²⁰⁴. It is harder to extract conclusions from the situations suggested before.

With this exposition, it was demonstrated that the Portuguese legislation on online gambling, like that of other States, is not adapted to these new phenomena in the online space and only through extended research is it able to determine something as gambling or not, which can compromise the protection of the consumers²⁰⁵. For that reason and due to the approach of other states that were pioneers in this theme, by reviewing legislation, changing definitions to include digital goods, creating specific laws to regulate loot boxes or create pressure for the industry to abandon the predatory nature of these practices through self-regulation²⁰⁶, Portugal can explore all those solutions and choose the ones that better fit its reality.

That way, even though we concluded that loot boxes are gambling, we propose that the law should be changed in order to create a new modality of gambling, allowing loot boxes when they have determinate characteristics/mechanisms²⁰⁷. Taking what we have learnt from the experience of Belgium and the Netherlands, we believe that the decision to ban loot boxes (or allow under a license), even though it can easily fix the problem, can bring issues for the economy of those video games while undermining the individual freedom of the users. We need to keep in mind that not all players are harmed by loot boxes and restrictive regulatory solutions can retrieve the eventual freedom that such consumers could have in the choice of when and how to pay for video games, failing to balance the interests of all stakeholders²⁰⁸.

²⁰⁴ Jorge Loureiro, 'GTA Online: Porque Razão Portugal Não Pode Apostar No Casino' (*Eurogamer.pt*, 24 July 2019) <<https://www.eurogamer.pt/gta-online-porque-razao-portugal-nao-pode-apostar-no-casino>> accessed 9 June 2022.

²⁰⁵ The biggest problems that we have encountered are the difficulty in understanding if there could be rewards other than money and the clear difficulty in determining if something is gambling or a modality alike gambling, due to the lack of clarification of the law and jurisprudence.

²⁰⁶ Then there are countries such as Belgium and the Netherlands that contained such vague and imprecise definitions of the nature of this activity, that the regulators were able to frame these presented phenomena.

²⁰⁷ Also, the law should more simply differentiate between gambling and modalities alike, due to different types of liability that they encounter. The psychological issues that come from gambling, but not from modalities alike gambling, should be taken in account.

²⁰⁸ Leon Y Xiao, Laura L Henderson and Philip Newall, 'What Are the Odds? Lower Compliance with Western Loot Box Probability Disclosure Industry Self-Regulation than Chinese Legal Regulation' [2021] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3934941>>.

We propose the allowance of loot boxes within the Portuguese law if they are limited in age (+18)²⁰⁹ and have all the ethical mechanisms we will develop in the next chapter, such as limit-setting, probability disclosure, parental controls, AI targeting to release and the removal of in-game currencies²¹⁰.

Furthermore, we propose partnerships between the industry and regulators as that can be the most efficient and effective way to regulate loot boxes. Collaboration between these two parties could provide the correct data needed²¹¹, to balance the opposing interests of the public and game business, while being suitable and adaptable to be able to respond to the innovative and constantly evolving nature of technologies^{212 213}.

²⁰⁹ Based on the constitutional imperative of protection of children (article 69 of the CRP) since as we have demonstrated, loot boxes can bring problems for these minors, needing criminal law protection. Also, we connect this with the human dignity and health (article 1 and 64 of the CRP), due to the need to protect minors, as they are at a stage of development in which they cannot yet form a will in a totally free manner. This is needed because only if the protection of a fundamental right is at stake, can criminal law act. Otherwise, it could go against the principle of the subsidiarity of the criminal law.

²¹⁰ Although we will not develop this topic, there are researchers that understand that the government should adopt Pigouvian Taxation, like the ones from tabaco, in a way to not restrict the consumers from buying loot boxes, but instead pay an additional sum that would then go to the government as tax. This additional fee may discourage players from purchasing loot boxes and diminish their profitability, making so the developers choose another type of microtransaction instead. The revenue from those taxes could go to rehabilitee centres in order to treat problematic gamblers. This initiative is seen in countries such as South Korea. - Jonathan Klick and Gregory Mitchell, 'Government Regulation of Irrationality: Moral and Cognitive Hazards' (2006) 90 *Minnesota Law Review* <<https://ssrn.com/abstract=766824>>; Melia Robinson, 'South Korea Online Gaming Addiction Rehab Centers' (*Business Insider*, 25 March 2015) <<https://www.businessinsider.com/south-korea-online-gaming-addiction-rehab-centers-2015-3>> accessed 4 May 2022.

²¹¹ Players have discovered how much they have spent on a game, by using GDPR, to acquire data. That means that the company have the data and, if anonymized, could be used by researchers to analyze the risks from loot boxes, rather than only gathering data from surveys. - Wesley Yin-Poole, 'FIFA Player Uses GDPR to Find out Everything EA Has on Him, Realises He's Spent over \$10,000 in Two Years on Ultimate Team |' (*www.eurogamer.net/articles/2018-07-23-fifa-player-uses-gdpr-to-find-out-everything-ea-has-onhim-realises-hes-spent-over-usd10-000-in-two-years-on-ultimate-team*, 25 July 2018) <<https://www.eurogamer.net/fifa-player-uses-gdpr-to-find-out-everything-ea-has-on-him-realises-hes-spent-over-usd10-000-in-two-years-on-ultimate-team>> accessed 5 May 2022.

²¹² Due to lack of data, the DCMS Committee argued in a report that there should be a pre-emptive regulation of loot boxes, because it was believed that companies could not prove that those mechanics were not harmful. The Committee understood that there is a lot of research that proves that loot boxes are correlated to gambling and now, the *burden of proof* needs to be inverted and the gaming companies need to demonstrate that loot boxes are safe before they may be allowed to operate without regulation. Through the ideas that we propose, this would not be needed, - DCMS Committee, 'Immersive and Addictive Technologies: Fifteenth Report of Session 2017–19' <publications.parliament.uk/pa/cm201719/cmselect/cmcmds/1846/1846.pdf>.

²¹³ Brett Abarbanel, 'Gambling vs. Gaming: A Commentary on the Role of Regulatory, Industry, and Community Stakeholders in the Loot Box Debate' [2018] *SSRN Electronic Journal* <<https://www.ssrn.com/abstract=3129811>>.

Finally, we understand that awareness is an important way to address the issue through websites, or educator's handbooks, informing parents and interested individuals on gaming and practices linked with the activity, such as the appropriate age to play determined games and problems that can arise from playing. Parents need to understand that they must supervise the gaming experience of their children²¹⁴.

VI. Solutions Presented

As we have demonstrated earlier, no consensus was found internationally to whether loot boxes should be regulated and how, since on the one hand, some countries try to link loot boxes and gambling through their law, (e.g., the Netherlands, Belgium) and on the other hand, there are countries that have a consumer protection approach (e.g., South Korea, Japan, and China)²¹⁵.

Three key elements that enable the consideration of something as gambling are prevalent in most jurisdictions, such as the *consideration* (input of something with monetary value), *chance* (the outcome is determined by chance, even if only partly) and the *prize* (it can generate a prize with monetary value). The first element means that only loot boxes bought with real money or bought with in-game currency bought with real money, meet this requirement. The loot boxes earned by gameplay do not meet it. The second, requires an element of chance created by an algorithm, not determined by the player and in which he cannot influence its outcome. The last requirement entails that the item has a value that

²¹⁴ There are a lot of initiatives that are arising in this matter. Starting by Finland, there was created a consortium between a library, a university and an audio-visual institute, with support from the EU, published a "Game Educator's Handbook", a book that explains the relationship between games and money, such as virtual goods in exchange of real money. In France, the website "PédaGoJeux" was created to educate parents about gaming and present practices linked with this activity. Also, in the same country, there was created the association "e-Enfance" also co-funded by the EU, to raise awareness of the risks of digital technology. This association is present in schools, maintaining a relationship with children, parents and professionals. They organize debates for parents, to help them understand how to supervise the gaming experience of their children. One thing present in most of these initiatives is that they are co-funded by the EU, but the EU itself has also created measures to raise awareness in the digital and gaming fields such as the "Better Internet for Kids policy". - Cerulli-Harms and others (n 28).

²¹⁵ Stephanie Derrington, Shaun Star and Sarah J Kelly, 'The Case for Uniform Loot Box Regulation: A New Classification Typology and Reform Agenda' (2021) 46 Journal of Gambling Issues <<https://jgi.camh.net/index.php/jgi/article/view/4103>>.

can be translated into real life wealth. This cannot be found within games that do not allow the prize to be traded outside the game or within the game. Even though the games that allow items to be traded within the game, unwillingly, allow them to be traded in third party markets (that are not associated with the videogame), violating the videogame's terms and conditions, they are considered as confirming these criteria. Even though it does not remove the liability, we see that publishers have been actively taking action against those marketplaces in order to keep their video games safe. For Belgium, for example, they do have those elements that define gambling, however, they interpret that the reward does not have to have a monetary value, it only needs to have value for the player, which many times, comes from the rarity/scarcity of the item. It does not require it to be transferred into real-world money. In the Netherlands, contrarily, the reward must have a market value for it be traded between players, being such that it does not matter if the terms and conditions prohibit the trade²¹⁶.

Both countries request the removal of loot boxes from games that are offered in those countries, with risk of fines up to 830 000 Euro and criminal prosecution²¹⁷. After these decisions, it had an immediate effect, where publishers changed the mechanism by allowing, for example, the content to be visible before purchase, eliminating loot boxes all together or just withdrawing games from those countries' markets²¹⁸.

However, as we have previously mentioned, China and Japan had a different approach. Creating certain perimeters, obligated the companies not to adopt pay to win models that exploit players, in the sense that they are only able to be competitive if they spend more money and ensure that the rewards from loot boxes can be obtained realistically through gameplay or through direct purchase. The adoption of these measures could allow the company to keep loot boxes mechanic and not seek to find another mechanic as a replacement and force academics and regulators to attempt again to discover harms of that new

²¹⁶ Cerulli-Harms and others (n 28).

²¹⁷ *ibid.*

²¹⁸ Rebekah Valentine, 'Rocket League Nixes Loot Boxes in Belgium, the Netherlands' (*GamesIndustry.biz*, 16 April 2019) <<https://www.gamesindustry.biz/articles/2019-04-16-rocket-league-nixes-loot-boxes-in-belgium-the-netherlands>> accessed 4 May 2022.

monetisation method and justify regulation, while subjecting consumers to damages in the meantime²¹⁹.

We will in the next subchapters explore the phenomenon of Self-regulation and some mechanisms that can be implemented in loot boxes in order to make them ethical, some of those that were adopted by those Asian countries.

6.1. Self-Regulation

The ESRB and PEGI are the video game industry self-regulatory bodies in charge of issuing age and content ratings to video games in North America and Europe, respectively. Retailers and online marketplaces rely on the content ratings that ESRB and PEGI give to prevent consumers below the rating age from purchasing the game²²⁰.

On April 13th, of 2020, due to public backlash on loot boxes, these authorities introduced the “Interactive Element” of “Includes Paid Random Items” “Content Descriptor,” and the “In-game Purchases (Includes Random Items)”, respectively. Those descriptions apply to games that contain offers to buy digital products with real money or in-game virtual currency that needs to be exchanged with real money and in which the player has no notion of what good will be received before the purchase and opening²²¹.

The ESRB argued that this measure intends to inform the consumers identifying the randomized nature of the in-game purchases, ensuring some consumer protection. However, this is flawed. The ESRB understand that the player does not lose anything of value since, in their understanding, he always wins something, just like collectible card games. However, as authors have mentioned, since ESRB is run by ESA, which is made up of major publishers and developers, it was understood that classifying loot boxes as gambling could damage

²¹⁹ Xiao, ‘Regulating Loot Boxes as Gambling? Towards a Combined Legal and Self-Regulatory Consumer Protection Approach’ (n 78).

²²⁰ Brimley (n 82).

²²¹ Derrington, Star and Kelly (n 214).

companies financially, as they would need to categorize the game as for adults, which could drastically reduce the profit²²².

The term “Random Items” used by both authorities does not grant the consumer sufficient information as to what is the mechanism in question. It does not grant any other information, such as cost, effect on gameplay or use, and others. Also, this new label does not grant protection to children, since it does not assign a different age to the game²²³.

As demonstrated before, ESRB and PEGI deny any potential gambling-related harms that loot boxes have, and so, have not used their content descriptors of gambling or simulated gambling on these mechanics, this way the new categorized description will not restrict these mechanics to children. Taking a look into an example, FIFA 22, released this year, has loot boxes and its ESRB Rating is “E for everyone” and its PEGI Rating is “+3”, giving the idea that the game will not bring any problem for any person, from children to elders²²⁴. Also, it will not allow consumers to have transparent information about what they are about to buy, since random items are not self-explanatory, nor inform what they are, how will the gamer be confronted with it, how much it costs, if impacts gameplay, if they are merely cosmetic, if can be cashed out, and others²²⁵. As we demonstrated, loot boxes have a strict connection with gambling, making this description meaningless. Furthermore, there is no suitable content descriptor that indicates the game contains loot boxes, but merely indicates whether or not there are microtransactions in the game²²⁶.

In the same line of sight, the Portuguese RJO has as a pillar to grant the protection of minors and vulnerable people. In article 21/3, we find that the publicity of gambling to minors on platforms intended for them is illegal, and in

²²² Jason Schreier, ‘After Months Of Controversy, ESRB Will Add “In-Game Purchases” Label To Games’ (*KOTAKU*, 27 February 2018) <<https://kotaku.com/after-months-of-controversy-esrb-will-add-in-game-purc-1823356171>> accessed 7 January 2022; Shen (n 130).

²²³ Leon Y Xiao, ‘ESRB’s and PEGI’s Self-Regulatory “Includes Random Items” Labels Fail to Ensure Consumer Protection’ (2021) 19 *International Journal of Mental Health and Addiction* 2358 <<https://link.springer.com/10.1007/s11469-020-00329-6>>.

²²⁴ ESRB, ‘FIFA 22 - ESRB’ (*ESRB*, 2022) <<https://www.esrb.org/ratings/37973/FIFA+22/>> accessed 11 April 2022.

²²⁵ Leon Y Xiao, ‘ESRB’s and PEGI’s Self-Regulatory “Includes Random Items” Labels Fail to Ensure Consumer Protection’ (2021) 19 *International Journal of Mental Health and Addiction* 2358.

²²⁶ Zendle and others (n 104).

article 6 d) that it is forbidden the practice of gambling by minors. That way, we understand that the PEGI self-regulatory system is not really working, but rather creating more problems in this matter.

If a game has an ESRB or PEGI rating that does not reflect the content in the video game, it will not trigger the appropriate parent control, since the parents might believe that the game has no harm, given that it is not displayed. Also, as noted by specialists, the parental interaction with children in terms of social media monetarizing is low and, so, it is likely to extend to loot box purchases, even more, if the parent does not understand the harm that such mechanics can cause²²⁷.

In another way, we also found that to circumvent this content description, some games, such as Animal Crossing: New Horizons, where, even though the game does not contain loot boxes, it supports a physical cards product that is bought on sealed randomized booster packs, like any Pokémon or Yu-Gi-Oh! cards, but are then registered in the game²²⁸. Basically, these card packs are the same as loot boxes, but require the items to be physically bought. As Leon Xiao said, these measures are deceptive false signals, since they make consumers believe that there are protections against loot boxes when, in fact, they will not change anything and will keep the problem on the surface²²⁹.

On another spectre, there are companies that supply the video games that also self-regulate themselves. Companies like Apple²³⁰ and Google²³¹ have imposed the requirement of probabilities disclosure to be published and revealed by the video game company. The only country that adopted the mechanics of *probability*

²²⁷ Alex Reyes, 'Open World Regulation: The Urgent Need for Federal Legislation on Video Game Loot Boxes' (2021) 16 Washington Journal of Law, Technology & Arts 83 <<https://digitalcommons.law.uw.edu/wjlta/vol16/iss2/4/>>.

²²⁸ Ricky Berg, 'Complete Guide to Using Amiibo in Animal Crossing: New Horizons' (*Nintendo Wire*, 2021) <<https://nintendowire.com/guides/animal-crossing-new-horizons/amiibo/>>.

²²⁹ Xiao, 'ESRB's and PEGI's Self-Regulatory "Includes Random Items" Labels Fail to Ensure Consumer Protection' (n 224).

²³⁰ "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" - Apple, 'App Store Review Guidelines - Apple Developer' (*Apple.com*, 2022) <<https://developer.apple.com/app-store/review/guidelines/>> accessed 12 April 2022.

²³¹ "Apps and games offering mechanisms to receive randomized virtual items from a purchase including, but not limited to, "loot boxes" must clearly disclose the odds of receiving those items in advance of, and in close and timely proximity to, that purchase." - Google, 'Payments - Play Console Help' (*Google.com*, 2022) <<https://support.google.com/googleplay/android-developer/answer/9858738?hl=en>> accessed 12 April 2022.

disclosure as law was China, but, as shown by researches, in a suboptimal way²³². We will analyse this mechanic in the next chapter.

Self-regulation can encourage uniformity between different jurisdictions since, for example, PEGI ratings are used in 37 countries, so, joined with the government, it could be the optimal regulation loot boxes needed²³³. For that matter, Derrington, proposed a different classification for PEGI and ESRB to use, such as the external market for in-game items, simulated gambling or in-game microtransactions, that would be adopted and reviewed yearly by a committee that would comprise psychology experts and relevant stakeholder's, comprising developer representatives and consumer protection advocates²³⁴.

Starting by the existence of an external market for in-game items, those loot boxes should be restricted to people under the legal gambling age, since those markets add value to such items, even if it is not only in a pecuniary sense²³⁵, that way, only with parents' consent, will youngsters be able to play that game or purchase loot boxes. In case of a game adding that mechanic later, there should be a requirement for parental consent due to the rating change²³⁶.

The Simulated gambling rating should be applied to games that do not fulfil a legal definition of gambling, but have traditional psychological elements of gambling, compelling games that have reinforcement schedules, near misses and others²³⁷. This classification would be extremely broad, due to the number of games that feature those elements; however, evidence indicates that they present similar psychological risks that can lead to problem gambling²³⁸. But, in order to overcome the strength of the rating, there should be, inside this rating, different warning labels, that could warn parents of the specifics of that game and

²³² Leon Y Xiao and others, 'Gaming the System: Suboptimal Compliance with Loot Box Probability Disclosure Regulations in China' [2021] Behavioural Public Policy 1 <https://www.cambridge.org/core/product/identifier/S2398063X21000233/type/journal_article>; Leon Xiao, Tullia Fraser and Philip Newall, *Opening Pandora's Loot Box: Novel Links with Gambling, and Player Opinions on Probability Disclosures and Pity-Timers in China* (2021).

²³³ Derrington, Star and Kelly (n 214).

²³⁴ *ibid.*

²³⁵ Nielsen and Grabarczyk (n 33).

²³⁶ Derrington, Star and Kelly (n 214).

²³⁷ *ibid.*

²³⁸ Tess Armstrong and others, 'An Exploration of How Simulated Gambling Games May Promote Gambling with Money' (2018) 34 Journal of Gambling Studies 1165 <<http://link.springer.com/10.1007/s10899-018-9742-6>>; Zende and others (n 104).

the appropriate age range. The flexibility is needed to allow consumers to make informed choices and protect the commercial interests of developers, since this rating would include, for example, Caesars casino, which is a virtual casino and other games, such as Fortnite, that contains chests with random weapons, ammunition and other items opened during gameplay. Both games adopt psychological elements of gambling, but in different ways, bringing different problems. The committee we previously discussed would review classification guidelines each year, to ensure ratings in accordance with changes in societal values and understanding of the psychological dangers associated with video games.

Regarding the warning labels, it would be important for them to be accompanied by pertinent information about the dangers of exposition to those mechanics in-game, since there is a lack of understanding of the issues, making them hard to supervise²³⁹.

Lastly, there would be the In-game microtransactions, that are already utilized by ESRB and PEGI and should be used to alert consumers to the possibility of hidden microtransactions in a game. Such classification would deal with concerns about the possibility of players spending money within a game. Within this rating, would be an age restriction lower than the other ratings, but high enough to warn of the possibility of spending money²⁴⁰.

The review and enforcement process of PEGI and ESRB would remain the same, since they can correct mislabeled games and issue sanctions and fines against the publishers that do not fully disclose the content of the game during the rating process. In the case of the developers adding a new mechanic that enters into a new rating, that information would need to be submitted, so that it could be

²³⁹ Julie Deblaquiere, Megan Carroll and Rebecca Jenkinson, 'Inquiry into Gaming Micro-Transactions for Chance-Based Items' (2018) <https://aifs.gov.au/agrc/sites/default/files/201807_aifs_submission_micro-transactions_27072018.pdf>; Derrington, Star and Kelly (n 214).

²⁴⁰ King and Delfabbro (n 69); Derrington, Star and Kelly (n 214).

reviewed and rated²⁴¹. Any purchase made within the time that the rating was not changed would be possible to be refunded²⁴².

There should be a separate neutral organization to investigate any type of monetisation methods that could affect the individuals, publish their guidelines and enforce compliance with such.

6.2. Ethical mechanisms

Loot boxes have a bigger potential for implementing consumer protection ethical measures due to their non-zero-sum game, which means that the video game company earns money regardless of what item the loot box contains, differently from gambling casinos, where there is always one side that loses for the other to win²⁴³. In the next subchapters, we will analyze the main mechanisms used in other jurisdictions and self-regulation, such as limit-setting and probabilities disclosure, as well as other mechanisms that can bring some innovation in enabling the loot box to be ethical.

6.2.1 Limit-setting

Authors like Drummond and Sauer conducted research in which they concluded that it was possible, through a limit-setting pre-commitment, for the player to choose the limit amount of money he would be allowed to spend in gambling throughout the month. In their opinion, this would be a harm minimisation control that could work since it has been proven effective in traditional gambling^{244 245}.

There are two conceptions of this theory of limiting the spending of the player. The theory that understands that this ability should be voluntary and could be

²⁴¹ PEGI, 'How We Rate Games' (*Pan European Game Information*) <<https://pegi.info/uk/node/47>> accessed 5 May 2022; Entertainment Software Rating Board, 'Ratings Process' (*ESRB*) <<https://www.esrb.org/ratings/ratings-process/>> accessed 5 May 2022.
²⁴² Brimley (n 82).

²⁴³ Leon Y Xiao and Philip W.S. Newal, 'Probability Disclosures Are Not Enough: Reducing Loot Box Reward Complexity as a Part of Ethical Video Game Design' [2021] PsyArXiv.

²⁴⁴ These limits can be also seen in online casinos, not being limited to presental gambling.

²⁴⁵ Aaron Drummond, James D Sauer and Lauren C Hall, 'Loot Box Limit-Setting: A Potential Policy to Protect Video Game Users with Gambling Problems?' (2019) 114 *Addiction* 935.

used by the player or the player's parents in order to control children's spending in-game²⁴⁶ and the theory that understands a default limit-setting in the game, to limit compulsory maximum spending for all players. They are distinguished by the suggestive form or the mandatory form. The mandatory limit-setting has a philosophical perspective that questions whether this mechanism is positive because it limits the autonomy of individuals²⁴⁷.

Then, as proposed by Leon Y. Xiao, a combined approach where there would be a high maximum spending limit set for all players and, then, players and their parents could define an even lower spending limit themselves²⁴⁸.

Maximum spending limits would not allow a player from spending more than what he is limited to. This, of course, would be difficult on countries that do not possess universal identification systems, such as western countries, contrary to China and South Korea, where those limits can only stay on the account, being susceptible to be circumvented by making numerous accounts within the same game²⁴⁹.

Daniel King and John Marsden said that those limit-setting could lead to new unintended consequences, like the need for players to compensate with more time playing, or even game designers creating a new revenue system from other micro-transactions, meaning the problem would not be solved²⁵⁰. However, we do not agree with this position, since we believe that these mechanisms, when joined together with others that we propose in the next subchapters, could work to prevent players from spending a lot of money and maintain a healthy gametime.

²⁴⁶ Zendle, Meyer and Over (n 60).

²⁴⁷ Jones (n 17).

²⁴⁸ Xiao and Henderson (n 74).

²⁴⁹ Xiao, 'Regulating Loot Boxes as Gambling? Towards a Combined Legal and Self-Regulatory Consumer Protection Approach' (n 78).

²⁵⁰ Daniel L King and Paul H Delfabbro, 'Loot Box Limit-Setting Is Not Sufficient on Its Own to Prevent Players from Overspending: A Reply to Drummond, Sauer & Hall' (2019) 114 *Addiction* 1324.

6.2.2 Probability Disclosure

The probability disclosures in loot boxes, as its name indicates, allow the user to understand what the odds are of opening a loot box and winning the item they desire. This disclosure is important since, for example, unlike the roulette wheels from casinos, where by looking at it, the player can mathematically calculate the probability of winning for one single bet, on loot boxes it is impossible. It is an important mechanism for reducing gambling-related harms and seemingly balances damage prevention whilst preserving the consumer's freedom of choice²⁵¹. Also, some loot boxes contain pity timers' mechanics, which create a complex changing statistical environment that makes the gamer struggle with its decision.

A remarkable work done by Arthur Carvalho, so as to ensure that loot boxes probabilities are done through a blockchain-based solution on Ethereum blockchain network (although it can work in any blockchain network that allows smart contracts), in order to guarantee the veracity of the information. The solution unravels the computations required to randomly draw the items from the game's source code, starting to be done by a smart contract on a public blockchain. That way, players and regulatory agencies can check the list of items and probabilities, before purchasing. This solution, as shown by the author, is accurate, secure and inexpensive²⁵². Although there is not any research regarding this solution besides the one done by the author, there is potential in order to address the cooldowns other authors have addressed²⁵³, since blockchain could whitelist usernames or even require some type of cooldown between determinate transactions from that user²⁵⁴.

Major businesses like Apple, Google, Sony, Microsoft, and Nintendo demand companies that release games on their platforms to disclose the chances of

²⁵¹ Leon Y Xiao and Philip W.S. Newal, 'Probability Disclosures Are Not Enough: Reducing Loot Box Reward Complexity as a Part of Ethical Video Game Design' [2021] PsyArXiv <<https://psyarxiv.com/nuksd>>.

²⁵² Although the work still requires more research, it reveals a possible new solution, using new technologies in our advantage.

²⁵³ King and Delfabbro (n 69).

²⁵⁴ Arthur Carvalho, 'Bringing Transparency and Trustworthiness to Loot Boxes with Blockchain and Smart Contracts' (2021) 144 Decision Support Systems 113508 <<https://linkinghub.elsevier.com/retrieve/pii/S016792362100018X>> accessed 14 April 2022.

obtaining particular items on the loot boxes that are purchased²⁵⁵. In China, as we have mentioned, this mechanism was adopted as a law.

Looking at the probability disclosure used in China, it did not specify the methods of the disclosure. That allowed the disclosure to be published in different places by the gaming companies (in-game, on the website or in both places) and the method of disclosure was dependent of the given location (sometimes in random places hard to access)²⁵⁶.

Furthermore, Xiao's research on the Apple Store, concluded that only 64% of 75 games that contain loot boxes, of the 100 highest-grossing games list in the UK that contained loot boxes have made probability disclosures available to their users, stating that any disclosure that was not found in the study, would also not be found by the average user. However, Apple financially benefits from the sale of loot boxes through its 15% to 30% commission and has failed to enforce its own regulation and policy. There is an effective conflict of interest, since the regulator benefits more from non-compliance. Apple is obligated to audit all games in accordance to its guidelines²⁵⁷. It gives policymakers, regulators and consumers a false impression of compliance and transparency that has not been met. Promising something and then failing to provide is worst, bringing a bigger risk to consumers. The research even demonstrated that the self-regulation of Apple has a 64% of compliance rate in the UK, while the legal regulation of China has a compliance rate of 95.6%²⁵⁸.

Probabilities disclosure discretion as to the amount, format and location, allows developers to choose suboptimal methods in order to mislead consumers²⁵⁹. The best approach would be a disclosure in-game on the loot boxes purchase page as well as on the official website, with added info²⁶⁰. The law needs to require the

²⁵⁵ Cariaga (n 31).

²⁵⁶ Xiao, Henderson and Newall (n 207).

²⁵⁷ Apple (n 229); Xiao, Henderson and Newall (n 207).

²⁵⁸ Xiao, Henderson and Newall (n 207).

²⁵⁹ Philip WS Newall, Lukasz Walasek and Elliot A Ludvig, 'Equivalent Gambling Warning Labels Are Perceived Differently' (2020) 115 *Addiction* 1762 <<https://onlinelibrary.wiley.com/doi/10.1111/add.14954>>.

²⁶⁰ Research shows that when it is given the choice, video game companies prefer to do the disclosure on the website instead of in-game, which is not the best way in terms of visual prominence - Leon Y Xiao, 'Drafting Video Game Loot Box Regulation for Dummies: A Chinese Lesson' [2021] *Information and Communications Technology Law* <<https://osf.io/b6x97>>.

odds to be disclosed in a particular place, so that it is not hidden in places that are hard to find on the game. “The probabilities disclosure could be an automatic pop-up (with audio effects, such as an alarm sound) that interrupts purchase when the player attempts to buy loot boxes”²⁶¹. Of course, this self-regulation needs an enforcement system, such as monitorisation by an independent entity.

To meet transparency and consumer protection in terms of access to the disclosure, there needs to be uniformity and consistency²⁶². Contrarily to this belief, ESRB supports and encourages non-uniformity. As its president stated that there are no standard disclosures and the disclosure should be dealt with by the developers, dissuading users into making harmful choices²⁶³.

Leon Xiao and Philip Newal defined 4 measures that could help probability disclosures to work as they were intended. First, there should be a maximum limit for the number of loot boxes present in a current game, since some of them have over 400 loot boxes with different winning probabilities, limiting the ability or probability disclosures to work as intended²⁶⁴.

Secondly, reduce the number of rewards that the gamer can earn per loot box. This can cause higher complexity for the probability disclosures, due to a more complex expected value of each loot box, permitting video game companies to continue selling loot boxes with appealing valuable items, whilst only offering less-valuable items most of the times. The authors proposed 25 items per loot box²⁶⁵.

Thirdly, it is proposed that the probabilities across all rewards should be the same, which would prevent companies from using pity timers, increasing the probability to get a rarer item²⁶⁶.

²⁶¹ Xiao, ‘Regulating Loot Boxes as Gambling? Towards a Combined Legal and Self-Regulatory Consumer Protection Approach’ (n 78).

²⁶² Xiao, Henderson and Newal (n 207).

²⁶³ Rebekah Valentine, ‘Consumer Advocates to ESRB, FTC: Loot Box Odds Disclosure Is Not Enough’ (*GamesIndustry.biz*, 7 August 2019) <<https://www.gamesindustry.biz/articles/2019-08-07-consumer-advocates-to-esrb-ftc-loot-box-odds-disclosure-is-not-enough>> accessed 20 April 2022.

²⁶⁴ Xiao and Philip W.S. Newal (n 242).

²⁶⁵ *ibid.*

²⁶⁶ *ibid.*

Lastly, the removal of duplicated rewards. For example, if there were 100 rewards on a loot box, an unlucky gamer would possibly need to buy more than 100 loot boxes in order to get the desired item. Exhaustible loot boxes enable the player to accurately determine the maximum number of loot boxes that may be required to be purchased in order to get a certain reward, thereby setting a maximum spending limit for any individual reward²⁶⁷.

In order to address one other problem that we have aforementioned, we would add that, along with those measures, companies should disclose the probabilities both in-game, on the loot box payment page and on the official website, in order to benefit players from the use of those probabilities²⁶⁸. These probabilities should be displayed in an easily interpretable manner in-game, but on the website, should include calculations, any modifiers as well as an average cost of obtaining rare items. Also, it could be important to deepen research on the blockchain-based solution presented above, given that solution could eventually benefit transparency.

6.2.3 Other Mechanisms

As other mechanisms that could be used in loot boxes to make them more ethical and less of a risk for players, we propose firstly a removal of in-game currencies that are only obtainable with real-world money, creating the currency distancing that we have previously described. That way, the price of any in-game item would be clearly displayed in local currencies. In normal traditional real-world business, pricing items in different currencies from the legal currency is not an acceptable practice and so, it should not be allowed in virtual shops²⁶⁹. A different currency can only be accepted in order to keep the game immersive and in the case of that currency being won in the game. Otherwise, the immersive argument does not make sense, since there is no immersion involved in gaining money without concluding any in-game objective within the game world.

²⁶⁷ *ibid.*

²⁶⁸ Xiao, Henderson and Newall (n 207).

²⁶⁹ Close and Lloyd (n 10).

As a second mechanism, we propose adopting parental controls and player controls with direct in-game application. Most of the distribution platforms, like Google Play, Apple App Store, Nintendo, PlayStation, Microsoft and Steam offer controlling mechanisms that allow limiting game time, settings that prevent certain content (violence or gambling, and others), spending limits or even parents' approval requirement for any purchase²⁷⁰. Some stores also include refund practices in the case of unwanted spending (e.g., App Store or Steam)²⁷¹.

However, as research has shown, many parents do not use these mechanisms. For example, one of the research projects, by the NSPCC (UK child protection organisation), found that only one in every five parents in the UK use them²⁷². It is an important mechanism that, when implemented along with others, can help bring transparency and some control to become ethically balanced, since they allow the free will to participate, if desired.

Lastly, we would propose the Artificial Intelligence Targeting (hereafter AI Targeting), which is a mechanism found in some loot boxes, that would identify high spenders through the in-game spending habits, manipulating them into buying more loot boxes. However, instead of capturing the players, we would like it to release them. This means to flag players with problem gambling or problem spending behaviour and allow them to customize spending habits or impose even stricter spending limits²⁷³. This could cut the revenues of developers, but, on the bright side, it could ensure that higher risk players could still spend money, but in a moderated situation, with a degree of protection²⁷⁴.

²⁷⁰ Marie Dealessandri, 'Xbox Boosts Responsible Gaming Strategy with Family Settings App' (*GamesIndustry.biz*, 27 May 2020) <<https://www.gamesindustry.biz/articles/2020-05-27-xbox-boosts-responsible-gaming-strategy-with-family-settings-app>> accessed 4 May 2022; Sarah Perez, 'Microsoft Adds Per-App Time Limits to Its Parental Controls' (*TechCrunch*, 8 October 2019) <<https://techcrunch.com/2019/10/08/microsoft-adds-per-app-time-limits-to-its-parental-controls/?guccounter=2>> accessed 2 May 2022.

²⁷¹ Cerulli-Harms and others (n 28).

²⁷² Jo Thornhill, 'With Children off School and Gaming Online, Parents Face Shock Bills' (*The Guardian*, 5 April 2020) <<https://www.theguardian.com/money/2020/apr/05/with-children-off-school-and-gaming-online-parents-face-shock-bills>> accessed 1 March 2022.

²⁷³ Alex Walker, 'Someone Spent Over \$150,000 In Microtransactions On A Transformers Game' (*KOTAKU*, 14 October 2019) <<https://kotaku.com/someone-spent-over-150-000-in-microtransactions-on-a-t-1839040151>> accessed 4 May 2022.

²⁷⁴ Evans (n 42).

All these mechanisms used together could, in our opinion, bring a level of protection to the user and, simultaneously, allow the game developers to gather economic value out of the games.

VII. European Legislation on Loot boxes

Truth is, as we have demonstrated before, the Portuguese legislation and some other states are not adapted to this new phenomenon in the online space. Moreover, having different gambling laws with different conceptions of what should be done about loot boxes can create problems in terms of compliance for the game developers. Therefore, the countries that looked at this mechanism created new laws specifically for the regulation of digital goods commerce and loot boxes.

However, not all countries have assumed a static position. There have been pioneer countries that have opted to review their legislation, thus changing their definition of gambling to include digital goods. Others have created specific laws for the trade of digital goods and, more specifically, for loot boxes and others have pressured the sector's agents to abandon predatory practices through the adoption of self-regulation. There was no need for the legislator to intervene in concrete cases, as the gambling laws, with their vague and imprecise definitions, allowed regulators to manage this phenomenon (Belgium and the Netherlands).

In Portugal, the definitions of the OGA must be reviewed. It is not because a gambling activity is performed on assets other than money that it ceases to be a gambling game. The risks to the legal assets that this law is intended to protect remain the same, and then allow its criminalization, since it safeguards fundamental legal assets, constitutionally enshrined. That is why, in the GA, both possibilities were covered in its definition, so it is not understandable why, at the time of the creation of the OGA, they proceeded to remove this possibility, making seem to have been a failure of the legislator.

However, given the dynamic and international nature of the internet, enforcing such legislation becomes very difficult for regulators. On the other hand, game

developers will have to comply with regulations from hundreds of different states that are different, and, as a consequence, understand loot boxes as gambling in the legislation of some states and not in others.

Therefore, we need to take a step back and examine the situation in its entirety in order to gain an understanding of the steps that can be taken by states to better enforce these rules and prevent illegal gambling. For instance, cooperation between various legal systems, regulatory bodies, and courts is one of the most frequently used preventative measures. The liberalisation of laws pertaining to online gambling is another measure that has been taken. To attract agents who were previously found operating in an illegal space, among other goals, it is necessary, among other things, to simplify and streamline the process of acquiring licences.

Nevertheless, some states could benefit from a single mechanism that could multiplicatively increase the individual capacity and the application of the regulation exponentially. This is, the UE states, when using the legal mechanisms of the UE, for example, through a directive to harmonise the matter, as we will explain.

The single market is one of the pillars of the European Union, as stated in the TFEU (Treaty on the Functioning of the European Union). In article 4, number 2, we can verify that the union can intervene in matters, where it can make a regulation if it desires to uniformise the regimen or a directive, a mechanism that enables the states to decide how to transpose those rules into their national laws.

The TFEU in its Article 26 (2) states that this internal market "shall comprise an area without internal frontiers in which the free movement of goods, persons, services and capital is ensured in accordance with the provisions of the Treaties". These freedoms are then developed individually in the following articles of this title, namely in articles 26, 28, 56 and others. This set of freedoms is necessary for the operation of the Internal Market and it is forbidden for the laws of the individual states to impose any restrictions on these liberties.

In regard to Articles 56 and 57 of the TFEU, which deal with the free movement of services, it is permitted that, in exceptional circumstances, it may be restricted, by application of Article 52(1) TFEU, by reference to Article 62 of the TFEU, when national legislation has as its objective the protection of legal goods such as

"public policy, public security and public health"²⁷⁵. The application of this article has been called into question on more than one occasion over the course of the past few decades as a result of the requirement to interpret these nebulous concepts, the meaning and significance of which vary from one legal system to another. As a consequence of this, it is the responsibility of the Court of Justice of the European Union, also known as the CJEU, to provide an interpretation of these principles. The case law that has been handed down by the CJEU has established both the parameters and the range of permissible circumstances for the limitation of this freedom.

When one examines the extensive jurisprudence that the CJEU has produced on these articles, one can see how they have evolved in a never-ending cycle over the course of time. Since the *Säger*²⁷⁶ case, there has been an increased concern for market access itself, both by nationals and by foreigners²⁷⁷. Therefore, art. 49 TFEU demands, on the 12 paragraph "not only the elimination of all discrimination against a person providing services on the grounds of his nationality, but also the abolition of any restriction, even if it applies without distinction to national providers of services and to those of other Member States, when it is liable to prohibit or otherwise impede the activities of a provider of services established in another Member State where he lawfully provides similar services".

Because gambling legislation is one of the most egregious examples of the restriction of freedom, the Court of Justice of the European Union (CJEU) has ruled on it multiple times in the context of this issue. As Advocate General Yves Bot states in paragraphs 36, 37 and 38 of his Opinion on Case C-42/07 "Liga Portuguesa de Futebol Profissional" (CA/LPFP), *Baw International Ltd v "Departamento de Jogos da Santa Casa da Misericórdia de Lisboa"*, "nowadays games of chance and gambling are subject to restrictive regulation in most Member States of the European Union". In some of those "States these restrictions take the form of a ban in principle on games of chance and gambling,

²⁷⁵ This is a topic with particular relevance, since it allowed the closing of the borders between countries during the covid 19 pandemic. - Christina Ratcliff, Barbara Martinello and Kevin Paul Kaiser, 'Freedom of Establishment and Freedom to Provide Services' (*European Parliament*, December 2021) <<https://www.europarl.europa.eu/factsheets/en/sheet/40/freedom-of-establishment-and-freedom-to-provide-services>> accessed 22 May 2022.

²⁷⁶ *Case C-76/90 CJEU*.

²⁷⁷ Catherine Barnard, *The Substantive Law of the EU* (6th edn, Oxford 2019).

with specific exceptions. Likewise in most Member States, the operation of a game of chance or gambling by a private operator, where it is provided for, is subject to obtaining a licence from the appropriate authority. In addition, the number of operators who may be authorised to operate a particular game is normally limited, usually by a quota. In several Member States, the operation of games of chance and gambling may also be the subject of an exclusive right granted to a state organisation or a private operator". As a result, we have a service that falls under the purview of Article 57(b) of the TFEU and is heavily regulated in a variety of distinct ways.

Given that they satisfy the requirements of Art 52, these violations of Art 56 have been justified over the years in the various cases that have been brought before the CJEU. In the Schindler case²⁷⁸, agents of the SKL, the public entity responsible for organising lotteries in four of Germany's Länder, sent lottery advertising material to the UK, which resulted in a court action against it for breaching UK law prohibiting lotteries. The CJEU ruled that this was a case where the violation of Art. 49 (which corresponds to now Art. 56) TFEU because, taking into consideration the "moral, religious and cultural values" that are associated with gambling games, the objective is to prevent lotteries from becoming a source of private profit, to avoid the serious risks of crime and fraud created by these activities, to protect individuals and to maintain order in society²⁷⁹.

The previously mentioned case C-42/07 is the most recent case brought before the CJEU on this type of legal provisions, already concerning the exploitation of gambling using online platforms. In this particular instance, the Court restated the jurisprudential position that restrictions on the practise and exploitation of gambling by national regulations may be justified, even in the realm of the internet, by "overriding reasons in the public interest" ²⁸⁰, namely "public policy, public security or public health (...) consumer protection and the prevention of both fraud and incitement to squander money on gambling, as well as the general need to preserve public"²⁸¹, provided that they comply with certain requirements

²⁷⁸ Case C-275/92 CJEU.

²⁷⁹ Barnard (n 276).

²⁸⁰ Case C-42/07 CJEU. Paragraph 55.

²⁸¹ *ibid.* Paragraph 56.

established by the Court of Justice of the European Community of proportionality and necessity²⁸².

All of the above, demonstrated that Member states could legislate on gambling and restrict this freedom, however, we should now analyse whether the European Union has the competence to do so.

Starting by looking at Article 4 of the TFEU, which provides a listing of the competencies that are jointly held by the Union and the member states. As a result, in the absence of provisions established at the European level, the law of each state governs. In the event that this is not the case, European provisions take precedence. Article 4 TFEU, paragraph 2(a), states that the Union may indeed intervene in these matters of the Internal Market and may opt for a regulation, if it intends to standardise the regime in all of the Member States, or for a directive, the harmonisation mechanism, which still leaves a margin of manoeuvre in which the Member States may choose which type of regime to enshrine.

In the case C-42/07, the possibility that these mechanisms exist concerning gambling is alluded to by Advocate General Yves Bot when listing the applicable law and its sources, stating that "games of chance and gambling have not so far been the subject of any regulation or harmonisation within the Union"²⁸³ and " it should be noted that the sector involving games of chance offered via the internet has not been the subject of Community harmonisation"²⁸⁴. It is important to note that, in this judgment, the Court did not confine itself to ruling on the absence of secondary Community legislation, rather, it also gave reasons to justify this apparent inaction on the part of the European institutions, stating that, "in that context, as most of the Member States which submitted observations to the Court have noted, the legislation on games of chance is one of the areas in which there are significant moral, religious and cultural differences between the Member

²⁸² *ibid.* Paragraphs 59 and 60.

²⁸³ Yves Bot, 'Case C-42/07 - Opinion of Advocate General' (*InfoCuria*, 2008) <<https://curia.europa.eu/juris/document/document.jsf?jsessionid=8A5B5AB07D368149A19BDF64F057CC45?text=&docid=69311&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=222657#Footnote17>> accessed 22 May 2022. Paragraph 46.

²⁸⁴ *Case C-42/07 CJEU* (n 279). Paragraph 69.

States. In the absence of Community harmonisation in the field, it is for each Member State to determine in those areas, in accordance with its own scale of values, what is required in order to ensure that the interests in question are protected"²⁸⁵.

The European Commission in 2017 acknowledged that they no longer have the role of regulating gambling, due to enforcement difficulties, since the complaints could be better handled in national courts and national remedies are more appropriate for consumers²⁸⁶.

Also, the Gaming Regulators European Forum (hereafter GREF) members signed, in 2018, a declaration of concerns between gambling and gaming, including loot boxes. The signatories started a cooperation to understand if those features could constitute gambling. In the assessment they had an economic review, with consultation of the video game industry and consumer organizations. This assessment concluded that chance is an element that defines loot boxes and is present in all national definitions of gambling, due to the uncertainty of the reward. Also, they identified lack of transparency in terms of probabilities of obtaining different items. However, they concluded that whether it constitutes gambling or not, it depends on national legislation. Their only recommendation on the matter was that national authorities should continue dialogues with other stakeholders in order to bring more transparency in disclosure odds on loot boxes^{287 288}.

For these reasons, the European institutions have left it up to the Member States to regulate these matters. However, we are observing a change in circumstances that may start to justify legislative intervention by the European institutions. The massification of access to the Internet and its platforms has changed many aspects that characterise our society, from how we access services, entertainment, information, and how we do business. The highly dynamic

²⁸⁵ *ibid.* Paragraph 57.

²⁸⁶ 'Commission Closes Infringement Procedures and Complaints in the Gambling Sector' (*European Commission*, 7 December 2017) <https://ec.europa.eu/commission/presscorner/detail/en/IP_17_5109> accessed 4 May 2022.

²⁸⁷ There was a European Commission Expert Group on Gambling Services that was unfortunately only active between 2012 and 2018, but during that time, it dealt with many topics like IT governance in anti-money laundering. Loot boxes were part of the agenda for the year that the expert group was demised.

²⁸⁸ Honer (n 16).

character of the Internet brings many advantages but makes the supervision of specific activities and the application of the law very difficult, whether concerning games of chance, the distribution of music content, concerning video games and the practices developed in them, and others. In order to regulate this phenomenon in the online space, with such an international matrix that ignores the existence of borders, in its classic conception, it is necessary for States to cooperate among themselves - the best example of this being the European Union and the results obtained by the initiatives taken under the scope of the great project of the Digital Single Market²⁸⁹.

One of the main pillars of the Digital Single Market is eCommerce, i.e., boosting the so-called Digital Economy, the buying and selling of products (physical and digital) and the provision of services over the Internet between consumers and suppliers in the various EU Member States. Under this objective, the European institutions have taken numerous initiatives regarding the prevention of Geo-blocking, the harmonisation of several regimes of various branches of law applied in the online space, such as Contract Law, Commercial Law, Consumer Law, Intellectual Property, Advertising, among other areas. By consulting the Directives 2019/770 and 2019/771 of the European Parliament and of the Council, it is possible to verify the breadth and ambition of the European institutions regarding the e-Commerce aspect of the Digital Single Market.

Thus, it should be understood that, faced with the emergence of phenomena such as the economic valuation of digital goods and their use in e-commerce, either for the purchase of other goods and services online or for the practice of games of chance and the popularisation of commercial strategies such as loot boxes. It is in the interest of the European institutions and the Member States to try to find the best ways to protect European consumers against fraud, abuse, and

²⁸⁹The European Commission noticing the problems arising on the topic, has taken several recommendations and communications, such as, for example, the green paper on online gambling, the communication towards a “comprehensive European framework for online gambling” and adopted recommendations for the protection of online gamblers and for prevention of minors on online gambling. This is an effort to modernize states’ national online gambling legal framework and ensure protection for consumers and vulnerable people. The European Commission has got a page on the internet with all those developments in terms of online gambling services found in https://ec.europa.eu/growth/sectors/online-gambling/commission-work-field-online-gambling-services_en - Cerulli-Harms and others (n 28).

misleading advertising, among other risks inherent to these and to try to implement them on a European scale, either through regulations or directives.

An attempt is thus being made to open a debate- not necessarily to classify- at the European level, certain phenomena as new gambling games. However, as has already been demonstrated, this is an issue in which it will always be challenging to reach an agreement between States in order to find a possible form of harmonisation, due to how different cultures define and deal with this issue²⁹⁰. Nevertheless, these debates are important in order to thoroughly investigate and analyse its effects, to find the best way to regulate them.

VIII. European Consumer Law

The objective of a business is to maximise its profit. The video games industry is one subsection of the entertainment industry that has today a big part of the income of that sector. The consumer law was created to grant consumers protection in relation to a supplier, due to their position of vulnerability²⁹¹.

Considering that the possibility of incorporating loot boxes within the EU consumer law framework might well be difficult, since the mechanic could not be considered gambling in order to be within the scope of the 2011 Directive (Directive 2011/83/EU Article 3(3)(c).) or the Directive for contracts of the supply of digital content and digital services of 2019 (Article 3(5)(d) Directive (EU) 2019/770 of the European Parliament and the Council of 20 May 2019 on certain aspects concerning contracts for the supply of digital content and digital services), which would contradict the approaches taken in Belgium and the Netherlands.

Then, there is the problem of defining loot boxes under those directives, since, in the directive 2019/770, loot boxes can fall under digital content definition (“data produced and supplied in a digital form) or digital services (“service that allows consumers to create, process, store or access data in digital form, or a service

²⁹⁰ As we have seen with Belgium and Netherlands, they are close cultures, with intertwined historical pasts, but end up having different definitions of gambling.

²⁹¹ Matheus Oba Galvão, ‘Contratos de Licenciamento de Software Aleatórios: Loot Boxes e a Aplicação Do Direito Do Consumidor’ (2020).

that allows the sharing of or any other interaction with data in digital form uploaded or created by the consumer or other users of that service”) (Article 2/1 and 2/2 respectively). There is a conflict of positions, where the first understands that when loot boxes are purchased, the consumer has been supplied with the box or the contents of the box. That being said, it would be digital content. The other position advocates that the consumer just purchases access to the data that already exists in the game, but was locked by the developer with code that creates a condition that needs to be met to unlock it, being a digital service²⁹².

Recital 12 states that the directive does not try to impose a contractual form on contracts that supply digital content or services, due to the development of technologies. For example, modern video games are no longer distributed as the game itself, but rather a limited license that allows the consumer to use the game (due to the gaming platforms that are a requirement to play those games but do not answer to what is to be supplied).

The 2011 Directive requires that the trader comprehensively and clearly provides information on the characteristics of the good or service, to its extent appropriate to the medium and the goods or services. (Article 5/1 of the 2011/83/EU). It is unclear which characteristics would need to be supplied in loot boxes. If the box is considered specific content under this law, then it would have a mandatory disclosure of the odds, where it would disclose what items are exactly on it and even warn of the addictive tendencies that could arise from the opening of the loot box. If the mechanic is seen as a service in another way, it would only need to describe the potential items that the consumer could acquire upon opening the loot box²⁹³.

The most difficult interpretation for gaming businesses would be if the loot could be categorised, because the necessity of a legal guarantee of conformity under article 5 1 e) of the 2011 Directive would not allow chance to be part of the loot

²⁹² Honer (n 16).

²⁹³ *ibid.*

box, removing its essence. It is possible, as seen by Epic Games transparent loot boxes, but the industry might not be willing to make that shift²⁹⁴.

After those definitional issues, there is a chance that loot boxes could breach the Unfair Commercial Practices Directive, due to its articles 3 and 7, which could prohibit loot boxes at their current stand, since article 7/1 states that it is a misleading commercial practice if “it omits material information that the average consumer needs, according to the context, to take an informed transactional decision and thereby causes or is likely to cause the average consumer to take a transactional decision that he would not have taken otherwise” and number 2 of the same article adds that, even though there can be information, it cannot be hidden or provided in “an unclear, unintelligible, ambiguous or untimely manner”.

The disclosures of odds for loot boxes could have an argument suggesting that the average consumer would not purchase in low pay-out loot boxes²⁹⁵. However, the main concern among interest groups, regulators, and academics is not the average consumer, but children, teens, and problem gamblers and article 3 allows specific categories of consumers to be identified as vulnerable consumers in case it is reasonable to expect that that practice could distort the economic behaviour of that group²⁹⁶.

That way, the European Consumer Law would catch the most predatory forms of loot box practices. In contrast, the others could have civil sanctions, shame tactics, warnings, or other types of persuasion mechanisms such as, for example, tax reliefs²⁹⁷.

On 31 May of 2022, the Forbrukerrådet (the Norwegian Consumer Council) published a report called "INSERT COIN: How the gaming industry exploits consumers using loot boxes", detailing problems that loot boxes raise in terms of

²⁹⁴ Rebekah Valentine, 'Epic Games Commits to Loot Box Transparency across Portfolio' (*GamesIndustry.biz*, 9 August 2019) <<https://www.gamesindustry.biz/articles/2019-08-09-epic-games-commits-to-loot-box-transparency-across-portfolio>> accessed 4 May 2022.

²⁹⁵ Frank de Leeuw, 'The Convergence of Gaming and Gambling The Loot Box Conundrum' (Utrecht University 2019) <https://studenttheses.uu.nl/bitstream/handle/20.500.12932/33552/deLeeuw_TheLootBoxConundrum.pdf?sequence=2>.

²⁹⁶ Honer (n 16).

²⁹⁷ *ibid.*

applicable legislation and consumer protection²⁹⁸. The Portuguese Association for Consumer Protection (DECO) and 19 organisations from 18 European countries joined together to ask authorities to implement reforms in the legislation and enforcement of microtransactions, specifically loot boxes²⁹⁹. This report explores Consumer Law matters regarding loot boxes, such as aggressive advertising; exploitation of user vulnerabilities using deceptive design³⁰⁰; misleading transparency criteria about the odds of users winning prizes; the use of opaque algorithms that modify and mask results and probabilities; the use of in-game currencies specific to each game and platform to hide the real monetary cost of buying loot boxes; game design techniques to encourage players to purchase loot boxes; the true cost of free to play business models; the risk of losing digital content at any time, due to contractual clauses inserted in End-User License Agreements (EULA) and the sale of loot boxes especially targeted at minors³⁰¹. Matters that we have already developed throughout this work.

This report created recommendations, such as a ban on misleading and deceptive practices by video game companies; prices in in-game shops should be indicated in local currency; video games aimed at minors should not have loot boxes, or "pay-to-win" functionalities, whereas, if the game is free, there is the possibility of substantial advantages being conferred to the user for the payment of monetary sums; more transparency in the operation of algorithms, and consumers should be expressly informed when they are subject to automated decisions that may affect their behaviour; strengthen the action and cooperation of administrative authorities and regulatory bodies in the video game sector, to ensure compliance with the law by professionals and adequate protection of consumers and, finally, if these "remedies" do not have the effect of mitigating

²⁹⁸ Forbrukerrådet, 'INSERT COIN: How the Gaming Industry Exploits Consumers Using Loot Boxes' (2022) <<https://fil.forbrukerradet.no/wp-content/uploads/2022/05/2022-05-31-insert-coin-publish.pdf>>.

²⁹⁹ Martim Ferreira dos Santos Farinha, 'Reabrir a Controvérsia Das Loot Boxes Nos Videojogos' (*Nova Consumer Lab*, 8 June 2022) <<https://novaconsumerlab.novalaw.unl.pt/reabrir-a-controversia-das-loot-boxes-nos-videojogos/>> accessed 9 June 2022; João Tereso Casimiro, "'Loot Boxes": O Que São e Como é Que "Promovem o Vício Do Jogo"?' (*O Jornal Económico*, 31 May 2022) <<https://jornaleconomico.pt/noticias/loot-boxes-o-que-sao-e-como-e-que-promovem-o-vicio-do-jogo-899850>> accessed 9 June 2022.

³⁰⁰ BEUC, "'DARK PATTERNS" AND THE EU CONSUMER LAW ACQUIS: Recommendations for Better Enforcement and Reform' (2022) <https://www.beuc.eu/publications/beuc-x-2022-013_dark_patters_paper.pdf>.

³⁰¹ Farinha (n 298).

the problems caused by the use of this commercial practice, they should be banned³⁰².

Those recommendations were already explained in the previous chapters, as we believe that the mechanisms that we explore throughout the work may enable to allow loot boxes to exist within games, without damaging consumers, where we even recommended the adoption by the Portuguese legislator, however, as demonstrated, we believe that there should be European legislation on such matter, or at least, considering that the European Union cannot legislate in this matter (due to the fact that is considered gambling), to create determinate guidelines or recommendations³⁰³ with all those mechanisms, that could guide the legislation on the Union States.

We understand that is of interest for the European institutions and the member states, to discover the best ways in which they can protect the European consumers from commercial strategies like the loot boxes and implement them on a European scale.

IX. Conclusion

The major industry of video games has evaded regulatory scrutiny, because of the highly complex technologies endorsed. However, given the size of the market and the number of impacted consumers, it is evident that the problems should be addressed, not only at a national level, but also at an EU level, even if harmonization is hard. Experts from different regulatory authorities should collaborate in order to analyse the information regarding the mechanic in the industry.

Regarding the mechanic on Portugal, we conclude that, although we can include loot boxes in gambling regulation (OGA), the law was not meant for it and does

³⁰² *ibid.*

³⁰³ Dr Margaret Carran, 'CONSUMER PROTECTION IN EU ONLINE GAMBLING REGULATION Review of the Implementation of Selected Provisions of European Union Commission Recommendation 2014/478/EU across EU States. Follow Up Study' (2021) <https://www.city.ac.uk/__data/assets/pdf_file/0010/646516/Consumer-Protection-in-Online-Gambling-Regulation-02Dec2021.pdf>.

not understand that new reality. That way, it is important to create a new separate regulation for loot boxes within the Portuguese law, in order to protect the consumers that, have, to date, been exposed to such harms. Remembering the conclusions made throughout the work, we found that there is a big dilemma in Portuguese law, given the fact that, in Portugal, we can see that, according to the law, loot boxes are gambling and, consequently, are forbidden. However, no competent entity is taking action towards fixing the issue. This indeed leaves a door open for harm to happen to consumers and demonstrates animosity towards this theme.

Although we understand that some regulations and initiatives have been conducted in some countries, we believe they have been less than satisfactory and need to find a way to work together because, even though considering loot boxes as gambling can be an obstacle to the EU regulatory response, it is more problematic for video games' companies to meet up to 27 different regulatory schemes, disrupting what was supposed to be the nature of the single market, while, also depriving consumer rights from consumer law directives.

That way, as we have been proposing throughout the work, it is important for the European Union states to follow certain guidelines created by the European Union, that determinate that loot boxes should be regulated. Those guidelines should be discussed with researchers, as well as with the industry, since collaboration could provide the correct data so as to create a clear balance.

The guidelines proposed the prohibition of loot boxes sold to minors and, even though we understand that it is highly difficult to control whether or not minors will play video games only because they cannot buy one in the physical store, still being easily able to obtain them online, we keep that prohibition with parental controls as a next level of protection of those children. Of course, it can only be possible if parental controls are more extensively used. That way, awareness is important in websites, as well as in handbooks, that can teach individuals all the problems that can arise from those mechanics. That mindfulness can also allow parents to understand the risks that can come from the unsupervised gaming experiences of their children. Regarding PEGI, we understand that their ratings and labels are a problem that needs to be addressed, with the creation of the

relevant stakeholders committee, in order to keep the ratings up to date with the regulation advancements or guidelines.

Continuing the idea of an ethical loot box, when allowed, it is important to allow users to set limits per platform and game, as well as give the user player controls and for the parents, parental controls. Furthermore, we propose the disclosure of probabilities on the in-game store (on the loot box payment page) and on the official website (obviously aligned with the 4 measures that Leon and Philip defined as necessary), the use of only one currency for immersion and a real-world money currency for the loot boxes, so to keep transparency. Then, finally, as a last mechanism, the use of AI targeting to release, instead of capture, in order to give some protection to volatile consumers.

All these mechanisms could be adopted in the new law that, as we conclude, should be adopted by Portugal. However, at the moment and at a European level, these measures, can only be adopted as guidelines for as long as loot boxes are possibly considered gambling and for as long as gambling remains regulated by the member states. In case these aspects ever change, it is important to turn those guidelines into an EU directive or regulation, given the importance of the issue.

REFERENCES

Abarbanel B, 'Gambling vs. Gaming: A Commentary on the Role of Regulatory, Industry, and Community Stakeholders in the Loot Box Debate' [2018] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3129811>>

Agarwal P, 'Microtransactions In Video Games - Intelligent Economist' (*Intelligent Economist*, 2 February 2022) <<https://www.intelligenteconomist.com/microtransactions/>> accessed 10 April 2022

Antunes MJ, 'Direito Penal, Direito Processual Penal e Direito Da Execução Das Sanções Privativas Da Liberdade e Jurisprudência Constitucional' (2013) N.º 21 JULGAR <<http://julgar.pt/wp-content/uploads/2013/09/06-M-J-Antunes-jurisprudência-TC-penal.pdf>>

Apple, 'App Store Review Guidelines - Apple Developer' (*Apple.com*, 2022) <<https://developer.apple.com/app-store/review/guidelines/>> accessed 12 April 2022

Armstrong T and others, 'An Exploration of How Simulated Gambling Games May Promote Gambling with Money' (2018) 34 *Journal of Gambling Studies* 1165 <<http://link.springer.com/10.1007/s10899-018-9742-6>>

Bailey D, 'Loot Boxes Lead Overwatch to \$1 Billion of In-Game Revenue ' (*PCGamesN*, 24 July 2019) <<https://www.pcgamesn.com/overwatch/revenue>> accessed 4 May 2022

Bailey J, 'A Video Game "Loot Box" Offers Coveted Rewards, but Is It Gambling? - The New York Times' (*The New York Times*, 24 April 2018) <<https://www.nytimes.com/2018/04/24/business/loot-boxes-video-games.html>> accessed 10 December 2020

Barbosa MM, 'Negócios Onerosos e Gratuitos: Uma Reflexão a Propósito de Novos Fenómenos de Gratuitidade' [2020] *Revista de Direito Comercial* <<https://static1.squarespace.com/static/58596f8a29687fe710cf45cd/t/5fc7b143c953717e09e1e726/1606922565498/2020-36+++1809+-1852.pdf>>

Barnard C, *The Substantive Law of the EU* (6th edn, Oxford 2019)

Bartle DRA, 'Virtual Worldliness: What the Imaginary Asks of the Real' (2005) 49
NYLS Law Review
<https://digitalcommons.nyls.edu/cgi/viewcontent.cgi?article=1306&context=nyls_law_review>

Belgium Gaming Commission, 'Research Report on Loot Boxes' (2018)
<https://www.skadden.com/-/media/files/publications/2019/08/video-gaming-egaming-law-update/fn12_onderzoeksrapportlootboxenengelspublicatie.pdf?la=en>

Berg R, 'Complete Guide to Using Amiibo in Animal Crossing: New Horizons' (*Nintendo Wire*, 2021) <<https://nintendowire.com/guides/animal-crossing-new-horizons/amiibo/>>

Berridge KC and Robinson TE, 'What Is the Role of Dopamine in Reward: Hedonic Impact, Reward Learning, or Incentive Saliency?' (1998) 28 *Brain Research* Reviews 309
<<https://linkinghub.elsevier.com/retrieve/pii/S0165017398000198>>

Berridge KC, Robinson TE and Aldridge JW, 'Dissecting Components of Reward: "Liking", "Wanting", and Learning' (2009) 9 *Current Opinion in Pharmacology* 65
<<https://linkinghub.elsevier.com/retrieve/pii/S1471489208002129>>

BEUC, "'DARK PATTERNS" AND THE EU CONSUMER LAW ACQUIS: Recommendations for Better Enforcement and Reform' (2022)
<https://www.beuc.eu/publications/beuc-x-2022-013_dark_patterns_paper.pdf>

Birmingham J, 'Revenue from Online Gaming Loot Boxes Will Exceed \$US20 Billion by 2025: Study' (*WHICH-50*, 2021) <<https://which-50.com/revenue-from-online-gaming-loot-boxes-will-exceed-us20-billion-by-2025-study/>> accessed 13 December 2021

Bot Y, 'Case C-42/07 - Opinion of Advocate General' (*InfoCuria*, 2008)
<<https://curia.europa.eu/juris/document/document.jsf?jsessionid=8A5B5AB07D368149A19BDF64F057CC45?text=&docid=69311&pageIndex=0&doclang=en&mode=lst&dir=&occ=first&part=1&cid=222657#Footnote17>> accessed 22 May 2022

Boucher I, '5 Psychological Monetisation Tricks That Mobile Games Use' (*Admix*,

14 July 2020) <<https://blog.admixplay.com/5-psychological-monetisation-tricks-that-mobile-games-use/>> accessed 5 June 2022

Brimley S, 'Game Over, Loot Boxes: Insert Self-Regulation to Continue 10..9..8..7..' [2020] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3585551>>

Brooks GA and Clark L, 'Associations between Loot Box Use, Problematic Gaming and Gambling, and Gambling-Related Cognitions' (2019) 96 Addictive Behaviors 26 <<https://linkinghub.elsevier.com/retrieve/pii/S0306460318315077>>

Cambridge Credit Counseling Corp, 'Teaching Kids the Value of Money ' (*Cambridge Credit Counseling Corp*) <<https://www.cambridge-credit.org/teaching-kids-the-value-of-money.html>> accessed 14 April 2022

Cariaga S, 'Getting Away with Gambling : How Loot Boxes Sidestep American Gambling Laws' (2021) 15 Law Review <https://digitalcommons.liberty.edu/cgi/viewcontent.cgi?article=1299&context=lu_law_review>

Carran DM, 'CONSUMER PROTECTION IN EU ONLINE GAMBLING REGULATION Review of the Implementation of Selected Provisions of European Union Commission Recommendation 2014/478/EU across EU States. Follow Up Study' (2021) <https://www.city.ac.uk/__data/assets/pdf_file/0010/646516/Consumer-Protection-in-Online-Gambling-Regulation-02Dec2021.pdf>

Carvalho A, 'Bringing Transparency and Trustworthiness to Loot Boxes with Blockchain and Smart Contracts' (2021) 144 Decision Support Systems 113508 <<https://linkinghub.elsevier.com/retrieve/pii/S016792362100018X>> accessed 14 April 2022

Casimiro JT, "'Loot Boxes": O Que São e Como é Que "Promovem o Vício Do Jogo"?' (*O Jornal Económico*, 31 May 2022) <<https://jornaleconomico.pt/noticias/loot-boxes-o-que-sao-e-como-e-que-promovem-o-vicio-do-jogo-899850>> accessed 9 June 2022

Castronova E, 'The Right to Play' (2004) 49 NYLS Law Review <<https://digitalcommons.nyls.edu/cgi/viewcontent.cgi?article=1313&context=nyl>

s_law_review>

Cermak D, 'Micro-Transactions, Massive Headaches: International Regulation of Video Game Loot Boxes'

<<https://commons.msu.edu/deposits/objects/hc:35674/datastreams/CONTENT/content>>

Cerulli-Harms DA and others, 'Loot Boxes in Online Games and Their Effect on Consumers, in Particular Young Consumers' (2020)

<[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)> accessed 11 March 2022

Close J and others, 'Secondary Analysis of Loot Box Data: Are High-Spending "Whales" Wealthy Gamers or Problem Gamblers?' (2021) 117 Addictive Behaviors 106851

<<https://linkinghub.elsevier.com/retrieve/pii/S0306460321000368>>

Close J and Lloyd J, 'Lifting the Lid on Loot-Boxes - Chance-Based Purchases in Video Games and the Convergence of Gaming and Gambling' (2021)

<https://www.begambleaware.org/sites/default/files/2021-03/Gaming_and_Gambling_Report_Final.pdf>

Colagrossi M, 'How Microtransactions Impact the Economics of Gaming' (*Investopedia*, 24 March 2020)

<<https://www.investopedia.com/articles/investing/022216/how-microtransactions-are-evolving-economics-gaming.asp>> accessed 10 December 2020

'Commission Closes Infringement Procedures and Complaints in the Gambling Sector' (*European Commission*, 7 December 2017)

<https://ec.europa.eu/commission/presscorner/detail/en/IP_17_5109> accessed 4 May 2022

Correia CAB, 'Do Jogo de Fortuna Ou Azar O Atual Paradigma Na Exploração Ilícita' (NOVA School of Law 2015)

Costa J de F, *Direito Penal* (Imprensa Nacional Casa da Moeda ed, 2017)

Côté D and others, 'Near Wins Prolong Gambling on a Video Lottery Terminal' (2003) 19 Journal of Gambling Studies 433

<<https://doi.org/10.1023/A:1026384011003>>

Cruz V, 'The Dangers of Targeting Microtransactions to Minors - Odin Law and Media' (*Odin Law and Media*, 5 September 2019) <<https://odinlaw.com/the-dangers-of-targeting-microtransactions-to-minors/>> accessed 13 April 2022

Damjan, 'Mobile Killed the PC Star: Mobile Gaming Statistics for 2022' (*KOMMANDO TECH*, 29 March 2022) <<https://kommandotech.com/statistics/mobile-gaming-statistics/>> accessed 13 April 2022

DCMS Committee, 'Immersive and Addictive Technologies: Fifteenth Report of Session 2017–19' <publications.parliament.uk/pa/cm201719/cmselect/cmcomeds/1846/1846.pdf>

Dealessandri M, 'Xbox Boosts Responsible Gaming Strategy with Family Settings App' (*GamesIndustry.biz*, 27 May 2020) <<https://www.gamesindustry.biz/articles/2020-05-27-xbox-boosts-responsible-gaming-strategy-with-family-settings-app>> accessed 4 May 2022

Deblaquiere J, Carroll M and Jenkinson R, 'Inquiry into Gaming Micro-Transactions for Chance-Based Items' (2018) <https://aifs.gov.au/agrc/sites/default/files/201807_aifs_submission_micro-transactions_27072018.pdf>

Derrington S, Star S and Kelly SJ, 'The Case for Uniform Loot Box Regulation: A New Classification Typology and Reform Agenda' (2021) 46 *Journal of Gambling Issues* <<https://jgi.camh.net/index.php/jgi/article/view/4103>>

Dixon M and Larche C, 'Loot Boxes as a Form of Gambling, and Their Potential for Contributing to Gaming Related Harm' [2021] *Critical Gambling Studies* <<https://www.criticalgamblingstudies.com/index.php/cgs/article/view/102>>

Dixon MJ and others, 'The Impact of Sound in Modern Multiline Video Slot Machine Play' (2014) 30 *Journal of Gambling Studies* 913 <<http://link.springer.com/10.1007/s10899-013-9391-8>>

Dobrilova T, 'How Much Is the Gaming Industry Worth in 2020? [+22 Powerful Stats]' (2020) <<https://techjury.net/blog/gaming-industry-worth/#gref>> accessed 2 December 2021

Drummond A and others, 'Why Loot Boxes Could Be Regulated as Gambling' (2020) 4 *Nature Human Behaviour* 986 <<http://www.nature.com/articles/s41562-020-0900-3>>

Drummond A, Sauer JD and Hall LC, 'Loot Box Limit-Setting: A Potential Policy to Protect Video Game Users with Gambling Problems?' (2019) 114 *Addiction* 935

Duarte RP, 'O Jogo e o Direito' [2001] *Themis, Revista do Direito, Ano II . nº3*

Duverge G, 'Insert More Coins: The Psychology Behind Microtransactions' (*Touro University Worldwide*, 25 February 2016) <<https://www.tuw.edu/psychology/psychology-behind-microtransactions/>> accessed 10 April 2022

'ELECTRONIC ARTS USER AGREEMENT' (*Electronic Arts*) <<http://tos.ea.com/legalapp/WEBTERMS/US/en/PC#section6>> accessed 15 June 2022

Entertainment Software Rating Board, 'Ratings Process' (*ESRB*) <<https://www.esrb.org/ratings/ratings-process/>> accessed 5 May 2022

ESRB, 'FIFA 22 - ESRB' (*ESRB*, 2022) <<https://www.esrb.org/ratings/37973/FIFA+22/>> accessed 11 April 2022

Evans S, 'Pandora's Loot Box' [2020] *SSRN Electronic Journal* <<https://www.ssrn.com/abstract=3733910>>

Farinha MF dos S, "'Loot-Boxes" e "Skin Gambling" – Novos Jogos de Fortuna e Azar Online Análise Do Panorama Internacional, Da Legislação Portuguesa e a Necessidade de Futura Harmonização' (2019) 1 *ELSA Portugal Law Review*

——, 'Reabrir a Controvérsia Das Loot Boxes Nos Videojogos' (*Nova Consumer Lab*, 8 June 2022) <<https://novaconsumerlab.novalaw.unl.pt/reabrir-a-controversia-das-loot-boxes-nos-videojogos/>> accessed 9 June 2022

Fernandes LAC, *Teoria Geral Do Direito Civil II* (5th edn, Universidade Católica Editora 2017) <<https://repositorio.ucp.pt/bitstream/10400.14/36594/1/97897254027.pdf>>

Ferris , Jackie Wynne, Harold Ladouceur R, Stinchfield R and Turner N, 'The

Canadian Problem Gambling Index: Final Report' (2001)
<[https://www.greo.ca/Modules/EvidenceCentre/files/Ferris et al\(2001\)The_Canadian_Problem_Gambling_Index.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Ferris_et_al(2001)The_Canadian_Problem_Gambling_Index.pdf)>

'FIFA 22 - EA SPORTS FIFA Rules to Know and Follow' (*Electronic Arts*, 11 October 2021) <<https://help.ea.com/en/help/fifa/fifa-rules/>> accessed 15 June 2022

Fingas J, 'South Korea Fines Game Studios over Deceptive Loot Box Odds' (*Engadget*, 10 April 2018) <<https://www.engadget.com/2018-04-10-south-korea-fines-game-studios-over-loot-boxes.html>> accessed 5 May 2022

Forbrukerrådet, 'INSERT COIN: How the Gaming Industry Exploits Consumers Using Loot Boxes' (2022) <<https://fil.forbrukerradet.no/wp-content/uploads/2022/05/2022-05-31-insert-coin-publish.pdf>>

Foye L, 'In-Game Gambling ~ The Next Cash Cow for Publishers' (2018) <<https://www.juniperresearch.com/document-library/white-papers/in-game-gambling-the-next-cash-cow>>

Galvão MO, 'Contratos de Licenciamento de Software Aleatórios: Loot Boxes e a Aplicação Do Direito Do Consumidor' (2020)

Game Informer Staff, 'The Science Behind Why We Love Loot' (*Game Informer*, 23 October 2015) <<https://www.gameinformer.com/b/features/archive/2015/10/23/the-science-behind-why-we-love-loot.aspx>> accessed 5 May 2022

Gaming comission, 'Belgium's Research Report on Loot Boxes' 1 <https://www.gamingcommission.be/opencms/export/sites/default/jhksweb_nl/documents/onderzoeksrapport-loot-boxen-Engels-publicatie.pdf>

Gilbert B, "'Star Wars: Battlefront 2' Finally Drops Loot Boxes, but It May Be Too Late - Business Insider' (*Business Insider*, 16 March 2018) <<https://www.businessinsider.com/star-wars-battlefront-2-drops-loot-boxes-2018-3>> accessed 10 December 2021

Godinho J, *Direito Do Jogo* (1ª Edição, Fundação Rui Cunha 2016)

Google, 'Payments - Play Console Help' (*Google.com*, 2022) <<https://support.google.com/googleplay/android->

developer/answer/9858738?hl=en> accessed 12 April 2022

GOV.UK, 'Loot Boxes in Video Games - Call for Evidence' 1

Griffiths M, 'Betting Your Life on It' (2004) 329 BMJ 1055
<<https://www.bmj.com/lookup/doi/10.1136/bmj.329.7474.1055>>

Griffiths MD, 'IS THE BUYING OF LOOT BOXES IN VIDEO GAMES A FORM OF GAMBLING OR GAMING?' (2018) 22 Gaming Law Review 52
<<https://doi.org/10.1089/glr2.2018.2216>>

Griffiths MD, 'Is the Buying of Loot Boxes in Video Games a Form of Gambling or Gaming?' (2018) 22 Gaming Law Review 52
<<http://www.liebertpub.com/doi/10.1089/glr2.2018.2216>>

Hamari J and Lehdonvirta V, 'Game Design as Marketing: How Game Mechanics Create Demand for Virtual Goods' [2010] eBusiness \& eCommerce eJournal

Handrahan M, 'EA's Ultimate Team Earning around \$650 Million a Year ' (*GamesIndustry.biz*, 2 March 2016)
<<https://www.gamesindustry.biz/articles/2016-03-02-eas-ultimate-team-earning-around-usd650-million-a-year>> accessed 4 May 2022

Harrigan KA and Dixon M, 'PAR Sheets, Probabilities, and Slot Machine Play: Implications for Problem and Non-Problem Gambling' [2009] Journal of Gambling Issues 81 <<https://jgi.camh.net/index.php/jgi/article/view/3811>>

Hilmar Sigurðsson I, 'Loot Boxes in Video Games Should Loot Boxes Be Considered a Form of Gambling and Therefore Be Subject to Gambling Laws?' (University of Bifröst 2021)

—, 'Loot Boxes in Video Games Should Loot Boxes Be Considered a Form of Gambling and Therefore Be Subject to Gambling Laws?' (University of Bifröst 2021) <<http://hdl.handle.net/1946/37687>>

Honer P, 'Limiting the Loot Box: Overview and Difficulties of a Common EU Response' (2021) 4 Interactive Entertainment Law Review 63
<<https://www.elgaronline.com/view/journals/ielr/4-1/ielr.2021.01.04.xml>>

Hood V, 'The Big Interview: The Gambling Commission on Loot Boxes' (*Eurogamer.net*, 14 December 2017) <<https://www.eurogamer.net/the-big->

interview-the-gambling-commission-on-loot-boxes> accessed 9 May 2022

Hore J, 'New FIFA 21 Code Suggests Ultimate Team Could Be Blocked in Some Regions' (*THE LOADOUT*, 8 December 2020) <<https://www.theloadout.com/fifa-21/ultimate-team-regional-ban-code>> accessed 10 December 2021

Howard J, 'When Kids Get First Cell Phone around the World - CNN' (*CNN health*, 11 December 2017) <<https://edition.cnn.com/2017/12/11/health/cell-phones-for-kids-parenting-without-borders-explainer-intl/index.html>> accessed 13 April 2022

Jenna, 'In-Game Currency Explained: Part 1' (*KIDAS*, 13 December 2021) <<https://www.kidas.net/post/in-game-currency-explained>> accessed 13 April 2022

Jones CC, 'The Fox in the Henhouse: The Failure of the Video Game Industry's Self-Regulation with Regard to Loot Boxes' (2020) 24 *Chapman Law Review* <<https://digitalcommons.chapman.edu/chapman-law-review/vol24/iss1/4/>>

Jou E, 'A Look Inside the Smoky World of Chinese Internet Cafes' (*KOTAKU*, 2012) <<https://kotaku.com/a-look-inside-the-smoky-world-of-chinese-internet-cafes-5934131>> accessed 10 June 2022

Kim HS and others, 'Do Social Casino Gamers Migrate to Online Gambling? An Assessment of Migration Rate and Potential Predictors' (2015) 31 *Journal of Gambling Studies* 1819 <<http://link.springer.com/10.1007/s10899-014-9511-0>>

King DL and Delfabbro PH, 'Loot Box Limit-Setting Is Not Sufficient on Its Own to Prevent Players from Overspending: A Reply to Drummond, Sauer & Hall' (2019) 114 *Addiction* 1324

—, 'Video Game Monetization (e.g., "Loot Boxes"): A Blueprint for Practical Social Responsibility Measures' (2019) 17 *International Journal of Mental Health and Addiction* 166 <<http://link.springer.com/10.1007/s11469-018-0009-3>>

Klick J and Mitchell G, 'Government Regulation of Irrationality: Moral and Cognitive Hazards' (2006) 90 *Minnesota Law Review* <<https://ssrn.com/abstract=766824>>

Koeder M, Tanaka E and Mitomo H, "'Lootboxes" in Digital Games - A Gamble with Consumers in Need of Regulation? An Evaluation Based on Learnings from Japan', *22nd Biennial Conference of the International Telecommunications*

Society: *'Beyond the boundaries: Challenges for business, policy and society'*
(International Telecommunications Society (ITS) 2018)

—, *'Lootboxes' in Digital Games - A Gamble with Consumers in Need of Regulation? An Evaluation Based on Learnings from Japan* (2018)

Kristiansen S and Severin MC, 'Loot Box Engagement and Problem Gambling among Adolescent Gamers: Findings from a National Survey' (2020) 103 Addictive Behaviors 106254
<<https://linkinghub.elsevier.com/retrieve/pii/S0306460319310007>>

Kulkarni S, 'The Psychology of Freemium Games. How Game Designers Use Behavioral...' (*Medium*, 9 March 2019) <<https://medium.com/strategy-insider/https-medium-com-sk-sohamkulkarni-the-psychology-of-freemium-games-b66f68a51205>> accessed 14 April 2022

Langvardt K, 'Regulating Habit-Forming Technology' (2019) 88 Fordham Law Review <<https://ir.lawnet.fordham.edu/flr/vol88/iss1/4>>

Lapuz J and Griffiths MD, 'The Role of Chips in Poker Gambling: An Empirical Pilot Study' (2010)

Leeuw F de, 'The Convergence of Gaming and Gambling The Loot Box Conundrum' (Utrecht University 2019)
<https://studenttheses.uu.nl/bitstream/handle/20.500.12932/33552/deLeeuw_TheLootBoxConundrum.pdf?sequence=2>

Leitão LMT de M, *Direito Das Obrigações Volume III* (11th edn, Almedina 2016)

Lelonek-Kuleta B, Niewiadomska I and Chwaszcz M, 'Psychological and Legal Aspects of Using Loot Boxes' [2020] *Teka Komisji Prawniczej PAN Oddział w Lublinie* 383

Li W, Mills D and Nower L, 'The Relationship of Loot Box Purchases to Problem Video Gaming and Problem Gambling' (2019) 97 Addictive Behaviors 27
<<https://linkinghub.elsevier.com/retrieve/pii/S0306460319301091>>

Li WZ and others, 'FGL2 Prothrombinase Contributes to the Early Stage of Coronary Microvascular Obstruction through a Fibrin-Dependent Pathway' (2019) 274 *International Journal of Cardiology* 27

Loftus T, 'Top Video Games May Soon Cost More' (*NBC News*, June 2017) <<https://www.nbcnews.com/id/wbna3078404>> accessed 4 May 2022

Loureiro J, 'GTA Online: Porque Razão Portugal Não Pode Apostar No Casino' (*Eurogamer.pt*, 24 July 2019) <<https://www.eurogamer.pt/gta-online-porque-razao-portugal-nao-pode-apostar-no-casino>> accessed 9 June 2022

Madigan J, *Getting Gamers: The Psychology of Video Games and Their Impact on the People Who Play Them* (Rowman & Littlefield Publishers 2015)

McAlvanah P and others, 'Inside the Game: Unlocking the Consumer Issues Surrounding Loot Boxes – An FTC Workshop - Transcript' <https://www.ftc.gov/system/files/documents/videos/inside-game-unlocking-consumer-issues-surrounding-loot-boxes-session-2/ftc_loot_boxes_workshop_transcript_segment_2.pdf>

McBride J and Derevensky J, 'Gambling and Video Game Playing Among Youth' [2017] *Journal of Gambling Issues* <<http://jgi.camh.net/index.php/jgi/article/view/3962>>

McGrody E, 'For Many Players, Lootboxes Are a Crisis That's Already Here' (*Vice*, January 2018) <<https://www.vice.com/en/article/kznmwa/for-many-players-lootboxes-are-a-crisis-thats-already-here>> accessed 19 April 2022

McKenzie B, 'Loot Boxes in Japan: Legal Analysis and Kompu Gacha Explained' (*Lexology*, 2 August 2018) <https://www.lexology.com/library/detail.aspx?g=9207df10-a8a2-4f67-81c3-6a148a6100e2&fbclid=IwAR2duFj_56xLaS8TYZiyHksTaqnPOtYbBzGHHq-vIGR6GUCdY5-qzORvZdY> accessed 3 June 2022

Murch WS and Clark L, 'Games in the Brain' (2016) 22 *The Neuroscientist* 534 <<http://journals.sagepub.com/doi/10.1177/1073858415591474>>

Neely EL, 'Come for the Game, Stay for the Cash Grab: The Ethics of Loot Boxes, Microtransactions, and Freemium Games' [2019] *Games and Culture* 155541201988765 <<http://journals.sagepub.com/doi/10.1177/1555412019887658>>

Newall PWS, Walasek L and Ludvig EA, 'Equivalent Gambling Warning Labels Are Perceived Differently' (2020) 115 *Addiction* 1762

<<https://onlinelibrary.wiley.com/doi/10.1111/add.14954>>

Newman J, 'How Loot Boxes Led to Never-Ending Games (And Always-Paying Players)' (Variety, 14 November 2017)

<<https://variety.com/2017/gaming/opinion/loot-box-evolution-1203048057/>>

accessed 22 May 2022

Nielsen RKL and Grabarczyk P, 'Are Loot Boxes Gambling? Random Reward Mechanisms in Video Games' (2019) 4 Transactions of the Digital Games Research Association <<http://todigra.org/index.php/todigra/article/view/104>>

NOS, 'Populaire Games Overtreden Gokregels' (NOS, 19 April 2018)

<<https://nos.nl/artikel/2228041-populaire-games-overtreden-gokregels.html>>

accessed 10 December 2021

Nuwer R, 'Teenage Brains Are Like Soft, Impressionable Play-Doh | Smart News| Smithsonian Magazine' (Smithsonian Magazine, 18 October 2012)

<<https://www.smithsonianmag.com/smart-news/teenage-brains-are-like-soft-impressionable-play-doh-78650963/>> accessed 13 April 2022

Otto R, 'Dutch Gambling Authority vs Electronic Arts, and the Future of Loot Boxes' (GamesIndustry.biz, 25 April 2022)

<https://www.gamesindustry.biz/articles/2022-04-25-dutch-gambling-authority-vs-electronic-arts-the-end-of-loot-boxes-as-legislative-black-boxes?utm_source=newsletter&utm_medium=email&utm_campaign=daily&mc_cid=46e037e28b&mc_eid=ab6e3c45ec> accessed 9 June 2022

Palma MF, *Direito Penal Conceito Material de Crime, Princípios e Fundamentos* (4th edn, AAFDL Editora 2019)

Palumbo A, 'PEGI on Loot Boxes: We Can't Define What's Gambling, Only A Gambling Commission Can' (wccfttech, 12 October 2017)

<<https://wccfttech.com/pegi-loot-boxes-cant-define-gambling/>> accessed 10 December 2021

PEGI, 'How We Rate Games' (Pan European Game Information)

<<https://pegi.info/uk/node/47>> accessed 5 May 2022

Perdigão J de A, 'O Princípio Da Autonomia Da Vontade e as Cláusulas Limitativas Da Responsabilidade Civil' (1946) Ano 6.º, n Revista da Ordem dos

Advogados <<https://portal.oa.pt/upl/%7B33084DF8-84BA-4DAD-806E-830BD73CDD77%7D.pdf>>

Perez S, 'Microsoft Adds Per-App Time Limits to Its Parental Controls' (*TechCrunch*, 8 October 2019) <<https://techcrunch.com/2019/10/08/microsoft-adds-per-app-time-limits-to-its-parental-controls/?guccounter=2>> accessed 2 May 2022

Phillips L, 'Valve Forced to Disclose Item Drop Rates for TI7 Chests' (*joinDOTA*, 9 May 2017) <<https://www.joindota.com/news/53321-valve-forced-to-disclose-item-drop-rates-for-ti7-chests>> accessed 12 April 2022

Pinheiro J, *Lei Do Jogo Anotada e Comentada* (1st edn, Edições Almedina 2016)

Pinto CA da M, Monteiro AP and Silva JC da, *O Jogo e a Aposta - Subsídios de Fundamentação Ética e Histórico-Jurídica* (1982)

Raghubir P and Srivastava J, 'Monopoly Money: The Effect of Payment Coupling and Form on Spending Behavior.' (2008) 14 *Journal of Experimental Psychology: Applied* 213 <<http://doi.apa.org/getdoi.cfm?doi=10.1037/1076-898X.14.3.213>>

Ratcliff C, Martinello B and Kaiser KP, 'Freedom of Establishment and Freedom to Provide Services' (*European Parliament*, December 2021) <<https://www.europarl.europa.eu/factsheets/en/sheet/40/freedom-of-establishment-and-freedom-to-provide-services>> accessed 22 May 2022

Reid RL, 'The Psychology of the near Miss' (1986) 2 *Journal of Gambling Behavior* 32 <<http://link.springer.com/10.1007/BF01019932>>

Reyes A, 'Open World Regulation: The Urgent Need for Federal Legislation on Video Game Loot Boxes' (2021) 16 *Washington Journal of Law, Technology & Arts* 83 <<https://digitalcommons.law.uw.edu/wjlta/vol16/iss2/4/>>

Robinson A, 'Dutch Judge Rules That EA Should Be Fined €500k Every Week until It Removes FIFA Loot Boxes | VGC' (*VideoGamesChronicle*, 29 October 2020) <<https://www.videogameschronicle.com/news/dutch-judge-rules-that-ea-should-be-fined-e250k-every-week-until-it-removes-fifa-loot-boxes/>> accessed 10 December 2021

Robinson M, 'South Korea Online Gaming Addiction Rehab Centers' (*Business Insider*, 25 March 2015) <<https://www.businessinsider.com/south-korea-online->

gaming-addiction-rehab-centers-2015-3> accessed 4 May 2022

Rockloff M and others, 'Young People Who Purchase Loot Boxes Are More Likely to Have Gambling Problems: An Online Survey of Adolescents and Young Adults Living in NSW Australia' (2021) 10 *Journal of Behavioral Addictions* 35 <<https://akjournals.com/view/journals/2006/10/1/article-p35.xml>>

Rodina S, 'These Are the Most Expensive Skins You'll Find in All of CSGO ' (*Win.gg*, 2 January 2020) <<https://win.gg/news/these-are-the-most-expensive-skins-youll-find-in-all-of-csgo/>> accessed 14 April 2022

Rodrigues A, 'Portugal Assina Declaração Conjunta Sobre "gambling e Loot Boxes" Em Videojogos' (*IGN*, 17 September 2018) <<https://pt.ign.com/games/66490/news/portugal-assina-declaracao-conjunta-sobre-gambling-e-loot-boxes-em-videojogos>> accessed 9 June 2022

Roque VAV, *A Lei Do Jogo e Os Seus Regulamentos Anotada e Comentada* (1ª Edição, Coimbra Editora 2011)

Sandqvist A, 'Correlations and Similarities between Loot Boxes and Gambling' (Malmö University, Faculty of Technology and Society 2021)

Schreier J, 'After Months Of Controversy, ESRB Will Add "In-Game Purchases" Label To Games' (*KOTAKU*, 27 February 2018) <<https://kotaku.com/after-months-of-controversy-esrb-will-add-in-game-purc-1823356171>> accessed 7 January 2022

Schreiner J, 'Why Video Games Cost So Much To Make' (*KOTAKU*, 17 September 2018) <<https://kotaku.com/why-video-games-cost-so-much-to-make-1818508211>> accessed 4 May 2022

Schüll ND, *Addiction by Design* (Princeton University Press 2012) <<https://www.degruyter.com/document/doi/10.1515/9781400834655/html>>

Schultz W, 'Neuronal Reward and Decision Signals: From Theories to Data' (2015) 95 *Physiological Reviews* 853 <<https://www.physiology.org/doi/10.1152/physrev.00023.2014>>

Schwiddessen S and Karius P, 'Watch Your Loot Boxes! – Recent Developments and Legal Assessment in Selected Key Jurisdictions from a Gambling Law

Perspective' (2018) 1 Interactive Entertainment Law Review 17
<<https://www.elgaronline.com/view/journals/ielr/1-1/ielr.2018.01.02.xml>>

Serviço de Regulação e Inspeção de Jogos, 'Jogo Online Ilegal - Regulação e Inspeção de Jogos' (SRIJ) <<https://www.srij.turismodeportugal.pt/pt/jogo-online/jogo-online-ilegal/>> accessed 9 June 2022

—, 'Missão - Regulação e Inspeção de Jogos' (SRIJ) <<https://www.srij.turismodeportugal.pt/pt/regulacao-e-inspecao-de-jogos/missao/>> accessed 8 June 2022

—, 'Notícias - Regulação e Inspeção de Jogos' (SRIJ, 19 April 2018) <<https://www.srij.turismodeportugal.pt/pt/noticias/encontro-de-reguladores-em-birmingham/>> accessed 9 June 2022

Shen J, 'The Predatory Nature of Loot Boxes and the Need for Governmental Regulation' (2021) 53 UIC LAW REVIEW 1085
<<https://repository.law.uic.edu/cgi/viewcontent.cgi?article=2837&context=lawreview>>

—, 'The Predatory Nature of Loot Boxes and the Need for Governmental Regulation' (2021) 53 UIC LAW REVIEW 1085

Simmons J, 'Gimme the Loot – United States Proposes Ban on Loot Boxes - Blog - Lexology' (26 June 2019) <<https://www.lexology.com/blog/2019/06/gimme-the-loot-united-states-proposes-ban-on-loot-boxes>> accessed 10 December 2020

Skinner BF, *Science and Human Behavior* (The B F Skinner Foundation 2014) <www.bfskinner.org/newtestsite/wp-content/uploads/2014/02/ScienceHumanBehavior.pdf>

Smahel D and others, 'EU Kids Online 2020 Survey Results from 19 Countries' (2020) <<https://doi.org/10.21953/lse.47fdeqj01of0>> accessed 13 April 2022

Sotamaa O and others, *Game Production Studies* (Amsterdam University Press 2021) <<https://www.aup.nl/en/book/9789463725439>>

T. Wright S and Wright S, 'The Evolution of Loot Boxes' (*PC Gamer*, 8 December 2017) <<https://www.pcgamer.com/the-evolution-of-loot-boxes/>> accessed 19 April 2022

Thornhill J, 'With Children off School and Gaming Online, Parents Face Shock Bills' (*The Guardian*, 5 April 2020) <<https://www.theguardian.com/money/2020/apr/05/with-children-off-school-and-gaming-online-parents-face-shock-bills>> accessed 1 March 2022

UK Gambling Commission, 'Two Men Convicted after Offering Illegal Gambling Parasitic upon Popular FIFA Computer Game - Gambling Commission' (*Gambling Commission*, 7 February 2017) <<https://www.gamblingcommission.gov.uk/news/article/two-men-convicted-after-offering-illegal-gambling-parasitic-upon-popular>> accessed 9 May 2022

UK Gambling Commission, 'Virtual Currencies, ESports and Social Casino Gaming-Position Paper' 1 <<https://www.gamblingcommission.gov.uk/PDF/Virtual-currencies-eSports-and-social-casino-gaming.pdf>>

Valentine R, 'Rocket League Nixes Loot Boxes in Belgium, the Netherlands' (*GamesIndustry.biz*, 16 April 2019) <<https://www.gamesindustry.biz/articles/2019-04-16-rocket-league-nixes-loot-boxes-in-belgium-the-netherlands>> accessed 4 May 2022

—, 'Consumer Advocates to ESRB, FTC: Loot Box Odds Disclosure Is Not Enough' (*GamesIndustry.biz*, 7 August 2019) <<https://www.gamesindustry.biz/articles/2019-08-07-consumer-advocates-to-esrb-ftc-loot-box-odds-disclosure-is-not-enough>> accessed 20 April 2022

—, 'Epic Games Commits to Loot Box Transparency across Portfolio' (*GamesIndustry.biz*, 9 August 2019) <<https://www.gamesindustry.biz/articles/2019-08-09-epic-games-commits-to-loot-box-transparency-across-portfolio>> accessed 4 May 2022

Vasconcelos PP de and Vasconcelos PLP de, *Teoria Geral Do Direito Civil* (Almedina ed, 9th edn, 2019)

Vrey R de, 'Dutch Court Rules FIFA Loot Boxes Not a Game of Chance, Revokes EA Penalty' (*CMS Law Now*, 11 March 2022) <https://www.cms-lawnow.com/ealerts/2022/03/dutch-court-rules-fifa-loot-boxes-not-a-game-of-chance-revokes-ea-penalty?cc_lang=en> accessed 9 June 2022

Walker A, 'Someone Spent Over \$150,000 In Microtransactions On A Transformers Game' (KOTAKU, 14 October 2019) <<https://kotaku.com/someone-spent-over-150-000-in-microtransactions-on-a-t-1839040151>> accessed 4 May 2022

Williams M, 'The Harsh History Of Gaming Microtransactions: From Horse Armor to Loot Boxes' (11 October 2017) <<https://www.usgamer.net/articles/the-history-of-gaming-microtransactions-from-horse-armor-to-loot-boxes>> accessed 12 April 2022

Woodhouse J, 'Loot Boxes in Video Games' [2022] House of Commons Library <<https://researchbriefings.files.parliament.uk/documents/CBP-8498/CBP-8498.pdf>>

Wright S, 'The First Games with Loot Boxes ' (*PC Gamer*, December 2017)

Xiao L, Fraser T and Newall P, *Opening Pandora's Loot Box: Novel Links with Gambling, and Player Opinions on Probability Disclosures and Pity-Timers in China* (2021)

Xiao LY, 'People's Republic of China Legal Update: The Notice on the Prevention of Online Gaming Addiction in Juveniles (Published October 25, 2019, Effective November 1, 2019)' (2020) 24 *Gaming Law Review* 51 <<https://www.liebertpub.com/doi/10.1089/glr2.2019.0002>>

—, 'Drafting Video Game Loot Box Regulation for Dummies: A Chinese Lesson' [2021] *Information and Communications Technology Law* <<https://osf.io/b6x97>>

—, 'Regulating Loot Boxes as Gambling? Towards a Combined Legal and Self-Regulatory Consumer Protection Approach' (2021) 4 *Interactive Entertainment Law Review* 27 <<https://www.elgaronline.com/view/journals/ielr/4-1/ielr.2021.01.02.xml>>

—, 'People's Republic of China Legal Update: The Notice on Further Strictly Regulating and Effectively Preventing Online Video Gaming Addiction in Minors (Published August 30, 2021, Effective September 1, 2021)' (2021) 25 *Gaming Law Review* 379 <<https://www.liebertpub.com/doi/10.1089/glr2.2021.0026>>

—, 'ESRB's and PEGI's Self-Regulatory "Includes Random Items" Labels Fail

to Ensure Consumer Protection' (2021) 19 International Journal of Mental Health and Addiction 2358

——, 'ESRB's and PEGI's Self-Regulatory "Includes Random Items" Labels Fail to Ensure Consumer Protection' (2021) 19 International Journal of Mental Health and Addiction 2358 <<https://link.springer.com/10.1007/s11469-020-00329-6>>

——, 'Breaking Ban: Assessing the Effectiveness of Belgium's gambling Law Regulation of Video Game Loot Boxes' (2022) <<https://osf.io/q6dt8>>

——, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (2022) 20 International Journal of Mental Health and Addiction 437

——, 'Which Implementations of Loot Boxes Constitute Gambling? A UK Legal Perspective on the Potential Harms of Random Reward Mechanisms' (2022) 20 International Journal of Mental Health and Addiction 437 <<https://link.springer.com/10.1007/s11469-020-00372-3>>

——, 'Gaming the System: Suboptimal Compliance with Loot Box Probability Disclosure Regulations in China' [2021] Behavioural Public Policy 1 <https://www.cambridge.org/core/product/identifier/S2398063X21000233/type/journal_article>

——, 'Loot Boxes: Gambling-Like Mechanics in Video Games', *Encyclopedia of Computer Graphics and Games* (Springer International Publishing 2022) <https://link.springer.com/10.1007/978-3-319-08234-9_459-1>

Xiao LY and Henderson LL, 'Towards an Ethical Game Design Solution to Loot Boxes: A Commentary on King and Delfabbro' (2021) 19 International Journal of Mental Health and Addiction 177 <<http://link.springer.com/10.1007/s11469-019-00164-4>>

Xiao LY, Henderson LL and Newall P, 'What Are the Odds? Lower Compliance with Western Loot Box Probability Disclosure Industry Self-Regulation than Chinese Legal Regulation' [2021] SSRN Electronic Journal <<https://www.ssrn.com/abstract=3934941>>

Xiao LY and Philip W.S. Newal, 'Probability Disclosures Are Not Enough: Reducing Loot Box Reward Complexity as a Part of Ethical Video Game Design'

[2021] PsyArXiv

——, 'Probability Disclosures Are Not Enough: Reducing Loot Box Reward Complexity as a Part of Ethical Video Game Design' [2021] PsyArXiv <<https://psyarxiv.com/nuksd>>

Yin-Poole W, 'FIFA Player Uses GDPR to Find out Everything EA Has on Him, Realises He's Spent over \$10,000 in Two Years on Ultimate Team |' (*www.eurogamer.net/articles/2018-07-23-fifa-player-uses-gdpr-to-find-out-everything-ea-has-onhim- realises-hes-spent-over-usd10-000-in-two-years-on-ultimate-team*, 25 July 2018) <<https://www.eurogamer.net/fifa-player-uses-gdpr-to-find-out-everything-ea-has-on-him-realises-hes-spent-over-usd10-000-in-two-years-on-ultimate-team>> accessed 5 May 2022

Zeithaml VA, 'Consumer Perceptions of Price, Quality, and Value: A Means-End Model and Synthesis of Evidence' (1988) 52 *Journal of Marketing* 2 <<https://www.jstor.org/stable/1251446?origin=crossref>>

Zendle D, 'Problem Gamblers Spend Less Money When Loot Boxes Are Removed from a Game: A before and after Study of Heroes of the Storm' (2019) 7 *PeerJ* e7700 <<https://peerj.com/articles/7700>>

——, 'Paying for Loot Boxes Is Linked to Problem Gambling, Regardless of Specific Features like Cash-out and Pay-to-Win' (2020) 102 *Computers in Human Behavior* 181 <<https://linkinghub.elsevier.com/retrieve/pii/S0747563219302468>>

——, 'The Prevalence of Loot Boxes in Mobile and Desktop Games' (2020) 115 *Addiction* 1768 <<https://onlinelibrary.wiley.com/doi/10.1111/add.14973>>

Zendle D and Bowden-Jones H, 'Loot Boxes and the Convergence of Video Games and Gambling' (2019) 6 *The Lancet Psychiatry* 724 <<https://linkinghub.elsevier.com/retrieve/pii/S2215036619302858>>

Zendle D and Cairns P, 'Correction: Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey' (2019) 14 *PLOS ONE* e0214167

——, 'Loot Boxes Are Again Linked to Problem Gambling: Results of a Replication Study' (2019) 14 *PLOS ONE* e0213194 <<https://dx.plos.org/10.1371/journal.pone.0213194>>

—, 'Correction: Video Game Loot Boxes Are Linked to Problem Gambling: Results of a Large-Scale Survey' (2019) 14 PLOS ONE e0214167 <<https://dx.plos.org/10.1371/journal.pone.0214167>>

Zendle D, Meyer R and Over H, 'Adolescents and Loot Boxes: Links with Problem Gambling and Motivations for Purchase' (2019) 6 Royal Society Open Science 190049 <<https://royalsocietypublishing.org/doi/10.1098/rsos.190049>>

Case 1678/07-1 TRE

Case 308/087TBVNCG1 TRG

Case 3381/2006-5 TRL

Case 81/109 GCMMNE1 TRE

Case 8653/2006-3 TRL

Case C-275/92 CJEU

Case C-76/90 CJEU

Case C-42/07 CJEU