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June 2, 2022

Lina M. Khan, Chair
Alvaro Bedoya, Commissioner
Noah Joshua Phillips, Commissioner
Rebecca Kelly Slaughter, Commissioner
Christine S. Wilson, Commissioner
Federal Trade Commission
600 Pennsylvania Avenue, NW
Washington, DC 20580

VIA E-MAIL

Re: Request for Investigation of Unfair and Deceptive Practices by Electronic Arts, Inc.

Dear Chair Khan, Commissioner Bedoya, Commissioner Phillips, Commissioner Slaughter, and Commissioner Wilson:

Fairplay and the Center for Digital Democracy ("CDD"), together with the undersigned organizations, ask the Federal Trade Commission ("FTC") to investigate whether Electronic Arts, Inc. ("EA") is engaging in unfair and deceptive practices in violation of Section 5 of the Federal Trade Commission Act. EA is the publisher of FIFA: Ultimate Team ("FUT"), one of the most popular sports video games of all time.[1] As demonstrated by a major report published this week by the Norwegian Consumer Council ("NCC"), *Insert Coin: How the Gaming Industry Exploits Consumers Using Loot Boxes*, EA's sale of loot boxes, as well as virtual currencies to purchase those loot boxes, unfairly exploits children and teens for profit. A copy of this report is attached.

FUT players build soccer teams made up of real-world players and compete against each other in live, online matches. Professional soccer players who are better athletes in real life are

[1] Robert Kidd, *As FIFA Game Passes Sales Milestone, EA Sports Seeks New Markets And To Clear Up Image Rights 'Misunderstanding,'* Forbes, Feb. 2, 2021, https://www.forbes.com/sites/robertkidd/2021/02/02/as-fifa-game-passes-sales-milestone-ea-sports-seeks-new-markets-and-to-clear-up-image-rights-misunderstanding/?sh=16b76c6f12bc (last visited May 23, 2022).

more powerful in FUT and therefore more likely to help a game player win matches. Game players acquire soccer players and build their teams by buying "FIFA packs," loot boxes that can be purchased with two types of virtual currencies, FIFA points and coins. Points can be purchased with real money, and coins can be earned by playing matches. EA updates the strongest in-game players weekly to correspond with the athletes' performance in the real world.[2]

The NCC's report discusses the ways in which EA engages in a number of sophisticated, manipulative design techniques to exploit game players into buying FIFA packs. The report notes that while children under 13 are not supposed to be able to play FIFA Ultimate Team, which is EA's live, online version of the FIFA game, there is ample evidence that they do.[3] The Entertainment Software Ratings Board, a self-regulatory agency that assigns content ratings and warnings to video games, gives FIFA an "E" rating, which means it is appropriate for everyone.[4] Evidence from video game streaming channels further suggests that the game is enormously popular with minors.[5]

The listed price of FUT is $50-$100 depending on the edition and video game console, but EA aggressively markets FIFA packs to persuade players to spend more money as they play. EA generates demand for packs with special offers that are available in limited quantities or for a limited time, and it entices players to buy packs in search of special players, such as FIFA 22's cover star, Kylian Mbappé.[6]

Packs are only available in the game through points or coins. Forcing players to purchase items through an in-game currency abstracts the price of the packs and adds a transactional layer between spending real money and buying the packs.[7] Virtual currencies are a problem in particular where children and teens are concerned, because their sense of financial literacy is still developing.[8]

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[2] Norwegian Consumer Council, *Insert Coin: How the Gaming Industry Exploits Consumers Using Loot Boxes* 3, (2022), https://fil.forbrukerradet.no/wp-content/uploads/2022/05/2022-05-31-insert-coin-publish.pdf (last visited May 31, 2022); Your guide to play FIFA 22 Ultimate Team (FUT) as a beginner, EA Help (2021), https://help.ea.com/in/help/fifa/fifa-ultimate-team-fut/#:~:text=FIFA%20Ultimate%20Team%20(FUT)%20is,your%20mark%20on%20the%20pitch. (last visited May 23, 2022).

[3] Norwegian Consumer Council, *supra* note 2, at 23-24.

[4] FIFA 22 Rating Summary, Entertainment Software Rating Board, https://www.esrb.org/ratings/37973/FIFA+22/ (last visited May 31, 2022).

[5] Kailem, *LOSING TO A 5 YEAR OLD, FIFA 19 MY FIRST GAME PLAY*, YOUTUBE (Sept. 15, 2018), https://www.youtube.com/watch?v=2Baf-Qoxtxg; Dan D, *FIFA 18 (PS4 Pro) - Fifa Kids Gaming!*, YOUTUBE (Oct. 27, 2017), https://www.youtube.com/watch?v=0MkZbjlaKsg.

[6] Norwegian Consumer Council, *supra* note 2, at 32.

[7] Norwegian Consumer Council, *supra* note 2, at 8.

[8] *Bringing Dark Patterns to Light*, Fed. Trade Comm'n Workshop (Apr. 29, 2021) (statement of Dr. Jenny Radesky, Professor, University of Michigan Medical School), https://www.ftc.gov/system/files/documents/public_events/1586943/ftc_darkpatterns_workshop_transcript.pdf ("(C)hildren don't understand virtual currencies. They start to understand money concepts, like coins and counting,

Purchasing card packs and finding good player cards confers a significant competitive advantage in competition against friends online,[9] but the chances of opening a coveted card, such as a Player of the Year, are miniscule unless a gamer spends thousands of dollars on points or plays for thousands of hours to earn coins, as demonstrated on pages 32-33 of the report.[10] The odds that EA lists for specific pack rewards are difficult for even an adult to appreciate without a sophisticated understanding of probability and statistics.[11] Further, as described on pages 29-30 of the report, these probabilities cover outcomes that are so broad they are meaningless to game players.[12]

Moreover, EA says in fine print that pack contents are "dynamically generated."[13] The game could, in theory, provide gamers with offers and rewards through an algorithm designed to maximize their interest in specific players and teams. Odds could also be manipulated based on gamer spending habits within the game.

A related concern is whether EA engages in special deals with video game streamers that make rare rewards appear more attainable to the game players watching those videos than they actually are. It is unclear whether it is an industry practice for video game companies to provide popular video game streamers better odds of receiving coveted loot box rewards in exchange for playing specific games on their channels.[14]

Ultimately, EA has made the pursuit of FIFA packs endless: It releases a new version of FIFA annually, and when a player moves from FIFA 22: Ultimate Team on to the next iteration of the game, their pack rewards from prior versions do not advance with them.[15] Instead, the entire process begins anew. The combination of constant updates to each game version, annual new versions, and the incentive to compete forces FUT game players into an endless pay-to-win cycle.

These practices raise issues that concerned organizations and professionals have highlighted in the past, and issues the Commission has studied.

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between ages three and five. But it takes years to develop the idea of value and how you exchange money for different goods.").

[9] Norwegian Consumer Council, *supra* note 2, at 28.

[10] Norwegian Consumer Council, *supra* note 2, at 32-33.

[11] Norwegian Consumer Council, *supra* note 2, at 14, 29-34.

[12] Norwegian Consumer Council, *supra* note 2, at 29-30.

[13] Norwegian Consumer Council, *supra* note 2, at 31.

[14] Jasmine Henry, *Game Publishers Offered Better Loot Box Odds to Sponsored Streamers*, Game Rant, Aug. 7, 2019, https://gamerant.com/ftc-loot-boxes-better-odds-sponsored-streamers/ (last visited May 31, 2022).

[15] Norwegian Consumer Council, *supra* note 2, at 35.

The Commission held a workshop on loot boxes in 2019. A loot box is a collection of mystery items purchased in a video game that allow a game player to change their appearance (e.g. with skins or emotes) or provide them with a strategic advantage (e.g. through special tools or characters). When game players purchase a loot box, they do not know what is inside, and the items vary in value, rarity, or both.[16] Workshop participants identified concerns specific to kids and loot boxes, including the fact that kids are more vulnerable to manipulation and social pressure.[17] In addition, Commission staff said following the workshop, "Staff advises that disclosure of loot box odds must be accurate and nonmisleading to avoid a Section 5 violation."[18] As noted above, this is a serious concern in FUT, where information about reward probabilities is limited and deliberately unclear.

Fairplay (then Campaign for a Commercial-Free Childhood) and CDD have highlighted problems with virtual currencies, loot boxes, and other manipulative design techniques in past comments submitted to the Commission on dark patterns.[19] Dark patterns exploit kids' and teens' developmental vulnerabilities, including their fear of missing out, esteem needs, and sense of social pressure. They also place young people on an endless treadmill of game play, all while obscuring game play costs with virtual currency.[20] We urge the Commission to investigate the use of dark patterns in FUT.

Finally, we are seriously concerned that FUT's packs introduce kids and teens to gambling. The packs resemble slot machines: They require a game player to stake something of value (in-game currency) on the possibility of receiving an unknown, random reward in the future, and are accompanied by bright colors and animations.[21] Research shows that there are connections between spending money on loot boxes and problem gambling in adolescents.[22] In some cases, young people who have already developed problem gambling behaviors seek out games with loot boxes; for others, loot boxes are a gateway to problem gambling.[23] EA may

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[16] FTC Video Game Loot Box Workshop Staff Perspective, (2020), https://www.ftc.gov/system/files/documents/reports/staff-perspective-paper-loot-box-workshop/loot_box_workshop_staff_perspective.pdf (last visited May 23, 2022) [hereinafter FTC Workshop Staff Perspective]; Norwegian Consumer Council, *supra* note 2, at 8.
[17] FTC Workshop Staff Perspective, *supra* note 16, at 3.
[18] FTC Workshop Staff Perspective, *supra* note 16, at 4.
[19] *See generally* Request for Comments Regarding Topics to be Discussed at Dark Patterns Workshop, FTC-2021-0019, Comments of Campaign for a Commercial-Free Childhood and Center for Digital Democracy, Comment No. 108 (May 28, 2021), https://www.regulations.gov/comment/FTC-2021-0019-0108.
[20] *Id*. at 12-15.
[21] James Close & Joanne Lloyd, *Lifting the Lid on Loot-Boxes: Chance-Based Purchases in Video Games and the Convergence of Gaming and Gambling* at 14, (2021), https://www.begambleaware.org/sites/default/files/2021-03/Gaming_and_Gambling_Report_Final.pdf; Norwegian Consumer Council, *supra* note 2, at 27.
[22] David Isaac Zendle et al., *Paying for loot boxes is linked to problem gambling, regardless of specific features such as cash-out and pay-to-win* 7-8, 17-18, (2020) https://eprints.whiterose.ac.uk/148267/.
[23] *See* Stuart Gordon Spicer et al., *Loot boxes and problem gambling: Investigating the "gateway hypothesis,"* 131 Addictive Behaviors (2022), https://doi.org/10.1016/j.addbeh.2022.107327.

insist that the majority of game players do not spend money in FUT, but the video game industry makes large amounts of money off of big-spending "whales."[24]

We are highly concerned these practices violate Section 5 of the FTC Act.[25] We urge the Commission to investigate EA and specifically, to seek answers to the following questions:

1. How many children ages 6-9 and 9-12 play FUT? How many teenagers? What steps, if any, does EA take to verify the ages of players, or to prevent children under age 13 from playing the live version of the game or purchasing loot boxes?
2. What percentage of children and teenagers playing FUT pay for points? How much revenue does EA earn from child and teenage FUT players?
3. Are the design and marketing techniques EA uses in FUT, such as its use of virtual currencies and the way it artificially generates demand by offering "special" packs, dark patterns that mislead or take unfair advantage of FUT players?
4. Does EA provide accurate statistics on FIFA player packs?
5. What does it mean that FIFA packs are "dynamically generated? Does EA use data-driven techniques to manipulate game players' odds of receiving certain player cards? Relatedly, does EA use the data it collects about young people's favorite teams and players and spending habits to market FIFA packs to individual game players? Are packs marketed more frequently and aggressively to "whales?"
6. Does EA offer popular video game streamers better odds of opening coveted rewards if they agree to stream themselves playing FUT?
7. Is marketing FUT for a cost of $50-$100 deceptive to children and teens when spending money in the game on packs is essential to compete successfully with friends?
8. Are EA's representations about FIFA packs and points likely to be misleading from the perspective of a 9-year-old? A 13-year-old? A 15-year-old? Are children at these ages likely to understand the complex statistical probability of receiving a highly coveted card? Are children at these ages likely to understand the cost of FIFA packs in real money, given EA's virtual currency system obscures the true cost?
9. Does FUT's random rewards system indoctrinate children into gambling behaviors? Does it harm children who are already more vulnerable to problem gambling behavior?
10. Has EA ever conducted or reviewed research on whether its games promote gambling to young people?

[24] Norwegian Consumer Council, *supra* note 2, at 7-8.
[25] 15 U.S.C. § 45.

We urge the Commission to read the NCC report in full and investigate EA's practices in FIFA: Ultimate Team for unfairness and deception in violation of Section 5 of the FTC Act.

Respectfully Submitted,

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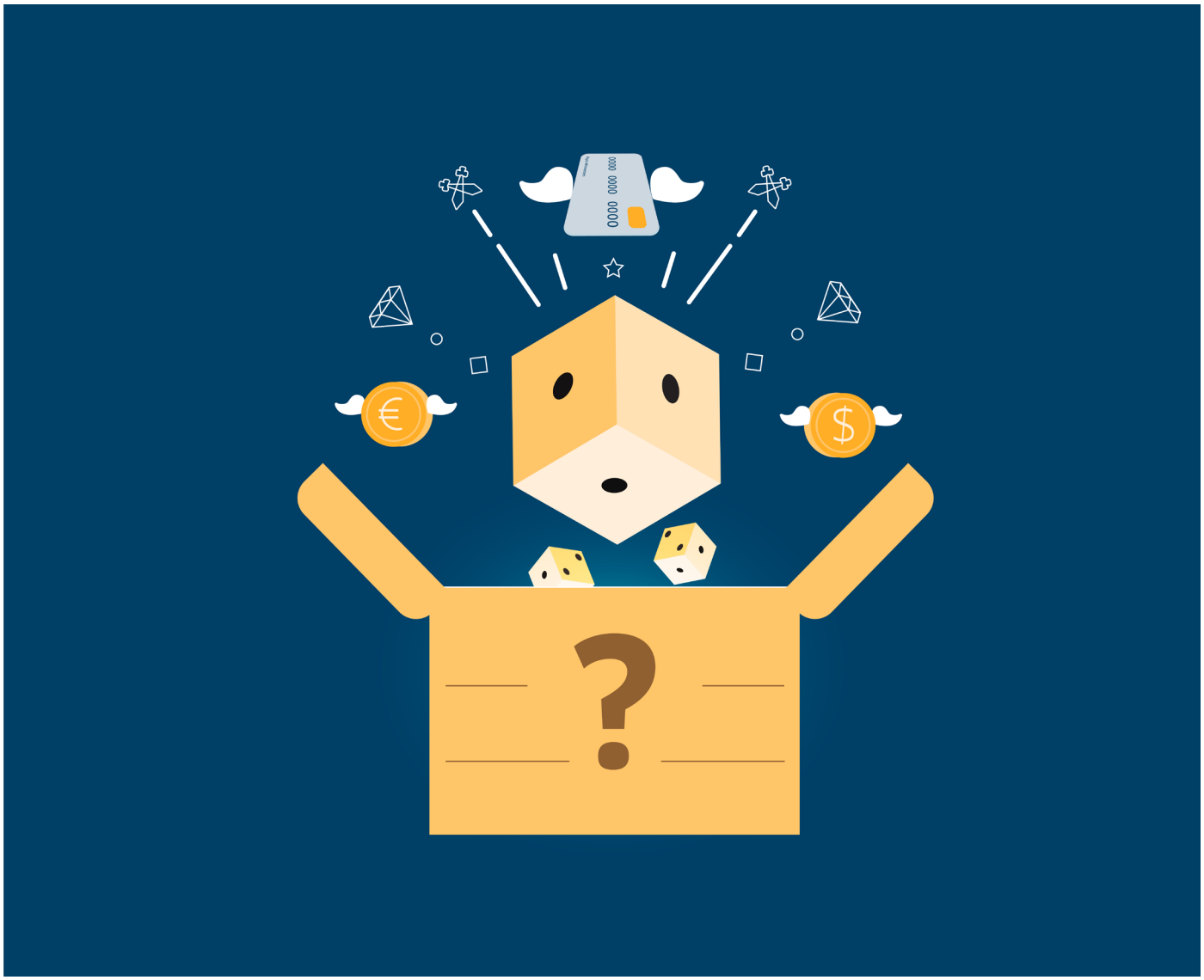
Organizations Supporting Investigation Request:

Campaign for Accountability
Children and Screens: Institute of Digital Media and Child Development
Common Sense Media
Consumer Federation of America
Electronic Privacy Information Center (EPIC)
Florida Council on Compulsive Gambling, Inc.
Massachusetts Council on Gaming and Health
National Council on Problem Gambling
Parent Coalition for Student Privacy
Public Citizen
Stop Predatory Gambling and the Campaign for Gambling-Free Kids
TINA.org (Truth in Advertising, Inc.)
U.S. PIRG



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How the gaming industry exploits consumers using loot boxes

31.05.2022

FORBRUKERRÅDET

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Executive summary

Loot boxes are “mystery packages” of digital content in video games where consumers spend real money to receive random in-game content that gives them advantages or cosmetic items for use within the context of the game. They are a form of in-game purchases[1], incentivizing gamers to spend small sums of money for a chance of receiving a desirable reward. The sale of loot boxes is highly lucrative for the video games industry, generating more than USD 15 billion globally in 2020.

Loot boxes have been the source of several controversies, with accusations often being levelled against these mechanisms of being predatory, fostering addiction, exploiting vulnerable consumer groups, and more. As discussed throughout this report, the sale and presentation of loot boxes often involve exploiting consumers by:

- Exploiting cognitive biases and vulnerabilities through deceptive design.[2]
- Using aggressive marketing practices to push sales at every opportunity.
- Meaningless or misleading transparency disclosures about the likelihood to win or lose that are difficult to assess.
- Opaque algorithms and skewed probabilities
- Using layers of virtual currencies to mask or distort real-world monetary costs.
- Very high cost of freemium and endless grinding
- Risk of losing content at any time
- Targeting loot boxes and manipulative practices at kids

In this report, we demonstrate why the presentation and sale of loot boxes are exploitative and predatory from a consumer point of view by exploring two case study, the popular video games FIFA 22 and Raid: Shadow Legends. Both games employ a wide arsenal of tricks to push consumers into spending as much time and money as possible exploiting consumers hope to receive the reward despite a miniscule chance and likelihood to do so.

[1] The term “microtransactions” is often used as a synonym for in-game purchases like this. Since these purchases no longer seems micro in any sense, we will be using “in-game purchase” consistently in this report. This term includes microtransactions as well as other transactions.

[2] The terms deceptive design, manipulative design, and dark patterns are often used synonymously both in the media and in the relevant literature. This report uses "deceptive design" consistently. (https://www.deceptive.design/)

Based on these cases and a broader overview of the industry, we present several proposals for industry, regulators, and policymakers:

1. **Video game companies must be banned from using deceptive design to exploit consumers**. When consumers engage in video games, companies must ensure that their decisions are not impacted to the detriment of the consumer, by the design and operation of game.

2. **All In-game purchases should always be denominated in real-world currency**. At the very least, real-world currency values should be provided alongside virtual currencies, where virtual currencies are used.

3. **Protection of minors:**
    a. Games likely to be accessed by minors **must not offer loot boxes**, or other randomized content in exchange for real money.
    b. Games likely to be accessed by minors **should not contain "pay-to-win" mechanisms**.
4. **More transparency:**
    a. Researchers and regulators should have **access to the algorithms and datasets** that is are involved in the loot boxes to conduct independent research in the public interest.
    b. In cases where **algorithmic decision-making** is employed to influence consumer behaviour, the **consumer must be explicitly informed**. The disclosure must include information in plain language about what algorithms are trained to achieve and which factors are used. In addition, the consumer should have the **option to use the game without algorithmically driven decision-making that aims to influence consumer behaviour**.

5. **Better and more enforcement**

    a. Consumer enforcement authorities must have the necessary resources and expertise to take enforcement actions, thus, protecting consumers in digital markets, including protecting digital ownership.

    b. Consumer protection authorities should ensure that existing and future consumer rights are enforced in the gaming industry as well.

6. If other remedies do not alleviate the problems, **consider a ban of paid loot boxes.**

Although the video games industry is amongst the largest entertainment industries, it has often eluded serious regulatory oversight. Therefore, we call for stronger regulatory action against video game companies that fail to respect consumer rights and that prey on consumer vulnerabilities.

1 Background

The video game industry is one of the largest entertainment industries on the planet, having outgrown both the sports and film industries. Although revenue in the industry has historically been generated largely from the actual sale of video games, business models in the sector have continuously evolved. Over the past two decades, in-game purchases – in-game sales of additional digital content – have become a major source of revenue for the industry, generating more than USD 15 billion in 2020.

Worldwide, more than 2.8 billion consumers reportedly play video games on a regular basis, including children, teenagers, and adults. According to the industry umbrella organization ISFE, around half of the EU population, which is about 250 million consumers, plays video games. In Norway, 86% of 9–18-year-olds play video games. In the US, three out of four consumers reportedly play video games. In other words, the video games industry is a major player that reaches a significant number of consumers worldwide. This entails enormous power, but also significant responsibilities.

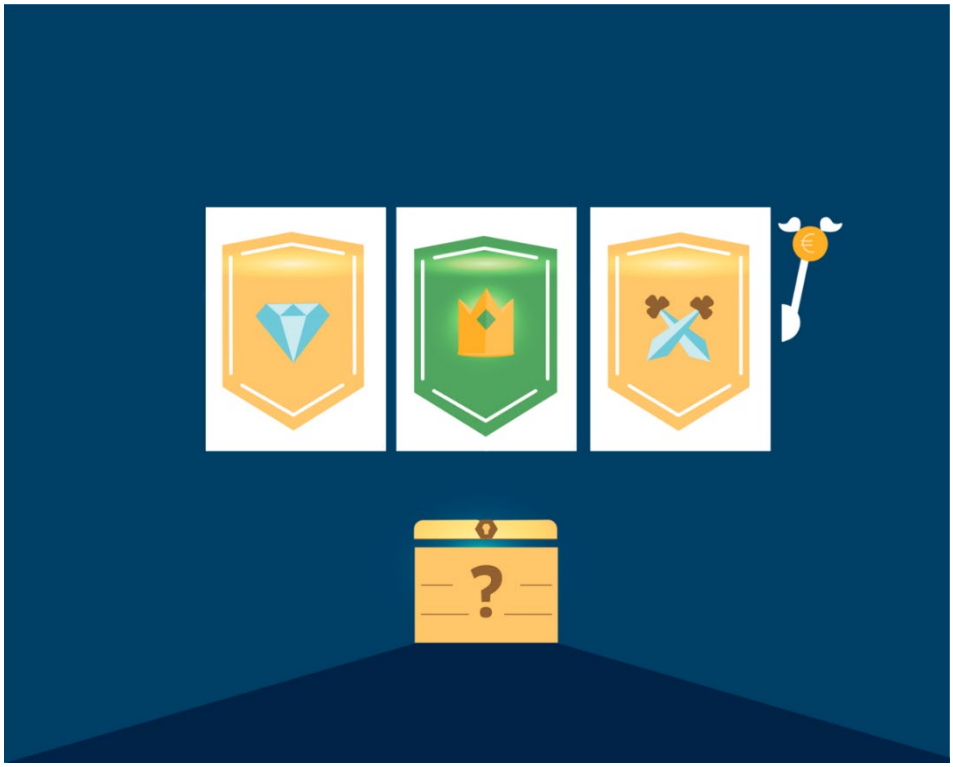

Figure 1: Loot boxes share similarities with gambling. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

1.1 Changes in business models: from game sales to in-game purchases

Since the early 2000s, the form in which video games are sold has shifted from predominantly physical discs or cartridges sold over the counter to purely digital services sold through online storefronts such as Microsoft Store, PlayStation Store, App Store and Steam. In this digital environment, the consumer pays for access to a game through the platform, which is then downloaded onto a device where it can be played. This shift has led to decreased shipping and transaction costs for companies and has laid the ground for new business models and revenue streams. One of the currently dominant business models is in-game purchases that unlock content in the video game environment.

In-game purchases have become a major business driver for the video game industry. In 2021, the industry generated revenues of USD 178 billion, with around USD 15 billion coming from the sale of **loot boxes**[3] and in-game currencies. Loot boxes are "mystery packages" of digital content in video games where consumers spend real money to receive random in-game content

Figure 2: The gaming industry generated revenues of nearly USD 180 billion i 2021. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

[3] Loot boxes are mystery packages where the player spends in-game currency to purchase a virtual crate, pack or chest containing one or more random items that are used in-game.

These sales are projected to exceed USD 20 billion by 2025, with 230 million consumers worldwide spending real money on loot boxes.[4] The global gaming industry is now worth more than USD 300 billion with an estimated compound annual growth rate (CAGR) between 2019 and 2025 of 7,2 percent.[5]

In 2021 the video game company Electronic Arts made more than USD 1.62 billion from in-game purchases in the FIFA 21 game alone, which amounted to 29% of the company's entire revenue.[6] Activision Blizzard, another major video game company, reported more than USD 1.2 billion in revenue from in-game purchases between July and September 2020.[7] In-game purchases take various forms and are briefly described below.

Games-as-a-service is a model whereby consumers access a video game for free or for a one-time fee, and then pay a recurring fee to continue accessing the game or to regularly receive new content. This model was popularized by massive multiplayer role-playing games (MMORPGs) such as World of Warcraft but has resurged in new forms with the popularity of "free to play" games such as Fortnite, where players can download and play the game for free but receive additional content in-game by paying extra for "season passes", subscription services that unlock extra content for a recurring fee.

The model popularized by Fortnite, where consumers can access and play the game at no cost but may choose to pay to receive extra content, is also called a freemium model.[8] This has become the dominant business model for mobile games. Players are introduced to a game by downloading it for free and can then pay to access extra content to gain in-game advantages, get rid of in-game advertising, skip excessive waiting times, or performing repetitive tasks to overcome roadblocks to in-game progress.[9]

Although many consumers may choose not to spend money in freemium games or to spend only small sums on in-game purchases, the industry gains large amounts of revenue from advertising and from so-called "whales", consumers

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[4] "Video Game Loot Boxes To Generate Over $20 Billion In Revenue By 2025, But Tightening Legislation Will Slow Growth", Juniper Research https://www.juniperresearch.com/press/video-game-loot-boxes-to-generate-over-$20-billion

[5] HOW MUCH IS THE GAMING INDUSTRY WORTH IN 2022? REVENUE & STATS https://earthweb.com/how-much-is-the-gaming-industry-worth/

[6] "EA's Ultimate Team raked in $3k per minute last year", Kris Holt https://www.engadget.com/ea-fifa-ultimate-team-net-revenue-2021-loot-boxes-143258804.html

[7] "Activision Blizzard Made Over $1 Billion From Microtransactions In Three Months", Jon Bitner https://www.thegamer.com/activision-blizzard-made-1-billion-microtransactions-three-months/

[8] "Freemium", Troy Segal https://www.investopedia.com/terms/f/freemium.asp

[9] The act of performing repetitive tasks to overcome roadblocks to in-game progress is called "grinding" in reference to the repetitive nature of the activity.

who spend large amounts of money in-game.[10] A large part of the industries' income is likely to stem from "problem gamblers" rather than from wealthy consumers having a good time.[11]

Although in-game purchases are essentially completed with real money, in practice the player often buys **in-game currencies** which the player then uses to buy other in-game content. In-game currencies are an abstraction of actual money, taking the form of virtual money counterparts such as coins, gems or points. In-game currencies are bought for real money, and the abstracted currency is then spent on in-game items, which adds an additional layer between the spending of real money and the purchase of in-game content.

The most controversial form of in-game purchases are **loot boxes**. Loot boxes are mystery packages where the player spends in-game currency to purchase a virtual crate, pack or chest containing one or more random items that are used in-game. Unlike other in-game purchases, the player does not know what they will receive before they pay for a loot box.[12] Although loot boxes or their contents can sometimes be earned without paying real money, for example by achieving milestones in the game, players are often incentivized or pushed to spend real money in a variety of ways which will be explored in this report.

In-game items gained from loot boxes usually exist in a closed in-game economy, meaning that no real monetary value can be extracted from the system. Most video game companies do not provide any means to sell or trade in-game content with other consumers for real money, although certain grey markets exist to facilitate such transactions, a notable exception being the digital storefront Steam, which facilitates the trading of certain in-game items between players.[13]

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[10] "What it means to be a 'whale' — and why social gamers are just gamers", Stephanie Carmichael https://venturebeat.com/2013/03/14/whales-and-why-social-gamers-are-just-gamers/

[11] Secondary analysis of loot box data: Are high-spending "whales" wealthy gamers or problem gamblers? (https://www.sciencedirect.com/science/article/abs/pii/S0306460321000368)

[12] For a more thorough review of definitions and classifications of loot boxes, see "Loot boxes in online games and their effect on consumers, in particular young consumers", Annette Cerulli-Harms et al., pages 13–16 https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf

[13] "Casinos, Cards and Counter-Strike: A Brief Overview of Skin Gambling in Canada and Abroad", Andrew C. Alleyne, Jonathan Raizenne https://www.lexology.com/library/detail.aspx?g=98400066-a64c-4ed4-814a-44f846235547

In most cases, any transactions between consumers of in-game items or currencies for real money breach the terms of service of the video game company and could potentially result in a suspension or ban from the service.

Loot boxes are particularly problematic from a consumer point of view. For the remainder of this report, we will focus on different aspects of loot boxes, using real-world cases to illustrate the practices.

2 Loot boxes exploit consumers

The sale of loot boxes has been controversial for more than a decade and has been the target of criticism from the media,[14] policymakers,[15] and from consumers.[16] Accusations often levelled at loot box systems are that they are predatory, foster addiction, lack transparency, create unfair in-game advantages, and that they introduce children and young people to mechanisms that are strongly reminiscent of gambling.[17] Despite these controversies, loot boxes remain a common feature of a large percentage of video games.[18]

Figure 3: Loot boxes are mystery packages with random content, purchased for real money in-game. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

[14] "Loot boxes have reached a new low with Forza 7's "pay to earn" option", Sam Machkovech https://arstechnica.com/gaming/2017/09/loot-boxes-have-reached-a-new-low-with-forza-7s-pay-to-earn-option/

[15] "International concern over blurred lines between gambling and video games", UK Gambling Commission https://www.gamblingcommission.gov.uk/news/article/international-concern-over-blurred-lines-between-gambling-and-video-games

[16] "Star Wars Battlefront 2's Loot Box Controversy Explained", GameSpot Staff https://www.gamespot.com/articles/star-wars-battlefront-2s-loot-box-controversy-expl/1100-6455155/

[17] For another analysis of the behavioral effects and harms connected to loot box mechanisms, see "Loot boxes in online games and their effect on consumers, in particular young consumers", Annette Cerulli-Harms et al., pages 21–30 https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf

[18] "The prevalence of loot boxes in mobile and desktop games", David Zendle, Rachel Meyer, Paul Cairns, Stuart Waters, Nick Ballou https://pubmed.ncbi.nlm.nih.gov/31957942/

Many of these issues are compounded by the fact that a significant number of gamers are minors, who make up a particularly vulnerable group that is susceptible to manipulation and exploitation. In Norway, a 2020 survey by the Norwegian Media Authority showed that 28% of surveyed 9–18-year-olds had paid money for loot boxes, with as many as 55% of boys aged 15–16 having done so.[19] A 2019 survey from the UK showed that 44% of 11–16-year-olds who were aware of loot boxes had spent money on them.[20] There are also many examples of children spending large amounts of money on loot boxes and other in-game purchases, causing real-world financial harm to the children and their parents.[21]

These issues have also been acknowledged by major industry actors.[22] Some companies have reduced or removed loot boxes entirely in response to consumer criticism.[23] However, self-regulatory schemes by the industry have been reluctant to tackle the issue, opting instead to defer to governmental bodies.[24]

Although loot boxes are a relatively recent phenomenon in video games, the basic concept is not new. The act of purchasing a mystery package for real money can be compared to various physical products, for example trading cards such as Pokémon or Magic: The Gathering, or other mystery boxes where the content is unknown before purchase. In both cases, the consumer spends a sum of money to receive a mix of items that are essentially randomized. However, there are significant differences that make loot boxes particularly problematic. We briefly outline the most pertinent of these issues below.

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[19] "Barn og Medier 2020", Medietilsynet https://www.medietilsynet.no/globalassets/publikasjoner/barn-og-medier-undersokelser/2020/201015-barn-og-medier-2020-hovedrapport-med-engelsk-summary.pdf

[20] "Young People and Gambling 2019", UK Gambling Commission https://www.gamblingcommission.gov.uk/statistics-and-research/publication/young-people-and-gambling-2019

[21] "'My son spent £3,160 in one game'", Zoe Kleinman https://www.bbc.com/news/technology-48925623

[22] "Fortnite boss says game loot boxes 'cause harm'", BBC News https://www.bbc.com/news/technology-51502592

[23] "Heroes Of The Storm will remove the ability to buy loot boxes with real money", Jay Castello https://www.rockpapershotgun.com/heroes-of-the-storm-will-remove-the-ability-to-buy-loot-boxes-with-real-money

[24] "PEGI is leaving the verdict on loot boxes up to gambling commissions", Alissa McAloon https://www.gamedeveloper.com/business/pegi-is-leaving-the-verdict-on-loot-boxes-up-to-gambling-commissions

It is important to note that the concept of randomization and rewards is entrenched in the core of video game design. Many video games are structured around completing challenges to receive increasingly more desirable rewards, which encourages extended play. Although it can be discussed whether designing a video game to have an “addictive” gameplay loop is problematic or not, it is important to distinguish loot boxes that are purchased for real money from other fundamental aspects of game design.

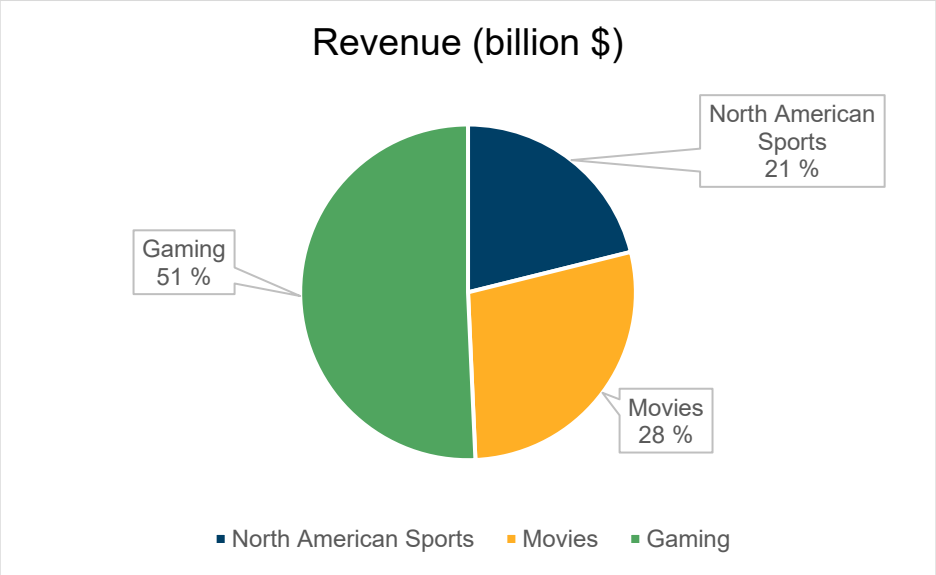

Figure 4: The gaming industry seen in comparison to industries we intuitively grasp as large. Illustration: (Illustration: Norwegian Consumer Council)

2.1 Deceptive design

Since loot boxes can usually be bought and opened with the click of a button, the friction of making an in-game purchase is almost non-existent. Physical mystery boxes require consumers to go to the store and purchase the items or to buy them online and wait for the order to arrive, which reduces the chances of impulse buying. What is more, an online purchase benefits from a 14-days cool-down period in the EU. However, this safeguard is non-existent with in-game purchases where the right of withdrawal does not apply.

Figure 5: Mock-up of deceptive design, where both a "fear of missing out"-timer (FOMO), small "skip"-button and large "buy"-button is present. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

Virtual environments make it possible for video game companies to employ a large variety of deceptive design, tricks that exploit cognitive or behavioral biases and vulnerabilities to incentivize spending. This may include compelling or confusing visuals, in-game currencies that have multiple exchange rates and obscure the real costs of purchases, and entire aspects of game design.

New research examining manipulative designs in children's mobile games shows that navigation constraints - for example, pages that prompt purchases between every level of a game and are difficult to minimize, or store pages that automatically show the most expensive items first - may subtly nudge users

towards purchases. Games also fabricate time pressure to influence decision-making or use trusted characters to encourage purchases.[25]

These techniques are ubiquitous and can essentially manipulate or deceive consumers into making choices they otherwise would not have made.

Some cognitive biases are more commonly exploited than others in the design of loot boxes. The "**fear of missing out**" (FOMO) involves making consumers feel that they must engage in spending before a unique opportunity is gone forever, which is often tied to serving limited offers, countdown timers, and similar mechanisms.

The "**sunk cost fallacy**" happens when we are focused on our past investments instead of our present and future costs and benefits, meaning that we commit ourselves to decisions that are no longer in our best interests. This fallacy is often exploited by having consumers invest significant time and effort in a game before the push to spend money ramps up. This increases the chance that the consumer will start paying, since they are already invested.

Next is the **"survivorship bias"**, which is a cognitive shortcut that occurs when a visible successful subgroup is mistaken as an entire group, due to the failure subgroup not being visible. With loot boxes this happens when the small group of loot box winners (and often influencers and game streamers) get screen time, promoting their success. The larger group of players who received bad draws, is not represented.

Finally, the "**gambler's fallacy**" describes our belief that the probability of a random event occurring in the future is influenced by previous instances of that type of event. This often results in people misunderstanding statistical probabilities. Even if the consumer is faced with a miniscule probability of receiving the reward they want from a loot box, the gambler's fallacy is a belief that an unlucky streak means that the desired reward must be right around the corner, even though statistically the chance is the same with or without the streak.

[25] Radesky JS, Hiniker A, McLaren C, Ekgun E, Schaller A, Weeks H, Campbell S, Gearhardt A. Prevalence and correlates of manipulative design in apps played by young children. JAMA Open. In press.

Figure 6: The probability to win in loot boxes may be diminishingly small. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

The randomness and design of loot box mechanisms have raised accusations of **being comparable to virtual casinos**.[26] Consumers, who may be very young, are continuously enticed to spend in-game currencies to purchase loot boxes in order to have a chance of receiving an attractive reward. The most coveted rewards are usually put on prominent display in-game, while the actual probability of achieving these rewards may be diminishingly small.

The aesthetics surrounding purchasing and opening loot boxes often include bright colors, pleasing sounds, and other mechanisms designed to trigger a dopamine release. The design of loot boxes and the experience of opening them are the result of **careful design decisions based on behavioral psychology, player feedback and user data**.[27]

The digital nature of video games allows developers to **continuously monitor and measure the responses to various techniques, and to adjust the mechanisms based on behavioral data to maximize consumer spending**. This may include the design of the choice architecture for purchasing loot boxes, the

[26] "Lifting the Lid on Loot-Boxes Chance-Based Purchases in Video Games and the Convergence of Gaming and Gambling", James Close & Joanne Lloyd https://www.begambleaware.org/sites/default/files/2021-07/Gaming_and_Gambling_Report_Final_0.pdf

[27] "Behind the addictive psychology and seductive art of loot boxes", Alex Wiltshire https://www.pcgamer.com/behind-the-addictive-psychology-and-seductive-art-of-loot-boxes/

time and place that the loot box is advertised to the player in-game or even by placing players in game sessions together with other players who are high spenders to influence a purchasing decision.[28]

Although the prevalence of these kinds of tailored mechanisms is impossible to prove without insight into the algorithms at play, there are several patents that cover various forms of personalization designed to maximize spending on in-game purchases.[29]

All these factors mean that consumers are enticed to spend more time and money in the game and thus maximize revenue for the video game companies. Meanwhile, the use of certain casino-like mechanisms may accustom consumers, including young children, to habits that closely resemble gambling addictions.[30] Whereas casinos normally have strict age restrictions (and are banned in several jurisdictions), many video games that include loot boxes are sold to and played by young children, making this particularly problematic. **Research has shown links between the purchasing of loot boxes and developing gambling addiction, which may cause significant harm, particularly to minors.**[31]

2.2 Opaque algorithms and skewed probabilities

The virtual nature of loot boxes provides several unique possibilities for the seller to manipulate consumer choices. Since the markets where loot boxes are purchased, opened, and used are purely digital, the content and probability of any given loot box can be changed in real time and personalized. Industry actors tout the use of machine learning to **personalize games based on behavioral data in order to maximize spending**, signaling that these practices will only increase.[32]This means that the rarity of various items can change from day to

[28] EA states that "user data does not influence the contents of FUT Packs or influence the probabilities of a user receiving particular items." https://www.frc.ch/jeux-video-le-porte-monnaie-dicte-trop-la-donne/#ea

[29] "Unfair play? Video games as exploitative monetized services: An examination of game patents from a consumer protection perspective", Daniel L. King, Paul H. Delfabbro, Sally M. Gainsbury, Michael Dreier, Nancy Greer, Joël Billieux https://www.sciencedirect.com/science/article/pii/S0747563219302602

[30] "Behind the addictive psychology and seductive art of loot boxes", Alex Wiltshire https://www.pcgamer.com/behind-the-addictive-psychology-and-seductive-art-of-loot-boxes/

[31] "Lifting the Lid on Loot-Boxes Chance-Based Purchases in Video Games and the Convergence of Gaming and Gambling", James Close & Joanne Lloyd https://www.begambleaware.org/sites/default/files/2021-03/Gaming_and_Gambling_Report_Final.pdf

[32] "Jump-Data Driven Intelligence and Digital Legends innovate in gaming monetization through artificial intelligence assets.", Digital Legends press release https://www.gamespress.com/en-US/Jump-Data-Driven-Intelligence-and-Digital-Legends-innovate-in-gaming-m

day and that **probabilities can be altered based on user data**. Certain groups or individuals may have different probabilities to receive certain items based on inferred behavior, such as likelihood to spend money. The extent of these practices in the video game industry is not known because the companies generally do not share data about how loot box probabilities are calculated or how their algorithms function.

The vast troves of player data may also **pose significant privacy risks**. Collecting behavioral data, such as inferences about a user's biometric identity, age and gender, emotions, skills, interests, consumption habits, and personality traits, from millions of players may be used to create extensive user profiles that can be used for manipulative and discriminatory purposes.[33]

Data breaches, where personal data about individual consumers is leaked, may also lead to significant security risks, as seen from countless of data breaches from companies collecting large sets of consumer data in the gaming industry[34] and more generally[35]

There is also a **general lack of transparency** in the underlying systems that calculate the probabilities of many loot box mechanisms. Since the algorithms calculate and determine outcomes, loot boxes are usually kept under wraps, making it impossible for consumers, researchers or other third parties to access raw data about the techniques used, how probabilities are calculated, the exploitation of user data, and so on.

Although some video game publishers and **platforms have added certain information about the probabilities at play when opening a loot box[36], these efforts have generally been lackluster.** Researchers attempting to determine the actual probability of receiving certain sought-after items have resorted to mystery shopping or empirical studies consisting of opening a large volume of loot boxes[37] [38], and the algorithms used to determine outcomes have not, as far as we are aware, been subject to regulatory scrutiny. However, there have been

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[33] "Surveilling the Gamers: Privacy Impacts of the Video Game Industry", Jacob Leon Kröger, Philip Raschke, Jessica Percy Campbell, Stefan Ullrich https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3881279

[34] " 5 Unfortunate Cyber Attacks Against Gaming Companies", 17/08/2021: https://gamingbolt.com/5-unfortunate-cyber-attacks-against-gaming-companies

[35] " Companies lose your data and then nothing happens", 21/04/2022: https://www.vox.com/the-goods/23031858/data-breach-data-loss-personal-consequences

[36] "Microsoft, Sony, Nintendo won't allow loot boxes on consoles unless publishers disclose drop rates", Matt Wales https://www.eurogamer.net/articles/2019-08-07-microsoft-sony-nintendo-wont-allow-loot-boxes-on-consoles-unless-publishers-disclose-drop-rates

[37] Mentzoni, Rune: "Blurred Lines: Loot Boxes in Video Games" (2019) https://youthgambling.mcgill.ca/en/PDF/Newsletter/Fall2019.pdf

[38] Mentzoni, Rune: The complete FUT-dataset (2019) https://www.reddit.com/r/FIFA/comments/8nj3z6/fut_pack_opening_research_project_3800_later/

cases where video game companies have been shown to increase probabilities or supply desirable in-game items for high-profile influencers, indicating that the probabilities are not random.[39]

2.3 Aggressive marketing

The use of loot boxes is often promoted by **advertising the possible rewards**, both within and outside the game, to push consumers to spend more money in the hope of obtaining the rewards. This may include advertising campaigns showing rare in-game content that can be earned from loot boxes, by placing consumers in online games together with other players who use items from loot boxes, displaying prominent banners and pop-ups in-game **that push consumers to purchase loot boxes**, and various other techniques.

Many games advertise "special" in-game items that can be obtained from loot boxes for only a limited time. These may include seasonal events such as Halloween promotions, where players may only have a week or two to obtain certain content before it becomes unobtainable. Such limited offers serve to trigger the fear of missing out and spur more impulse buying.

Consumers that see a giant in-game banner every time they enter a game, showing attractive rewards that are available from loot boxes, may think that they will receive these rewards if they spend a little money. However, the probabilities are often so diminishingly low that they might as well be non-existent. Some of this marketing, like ambiguous odds, may be considered outright deceptive or misleading due to omitting important information that could affect the purchasing decision.

[39] "Game Publishers Offered Better Loot Box Odds to Sponsored Streamers" Jasmine, Henry https://gamerant.com/ftc-loot-boxes-better-odds-sponsored-streamers/

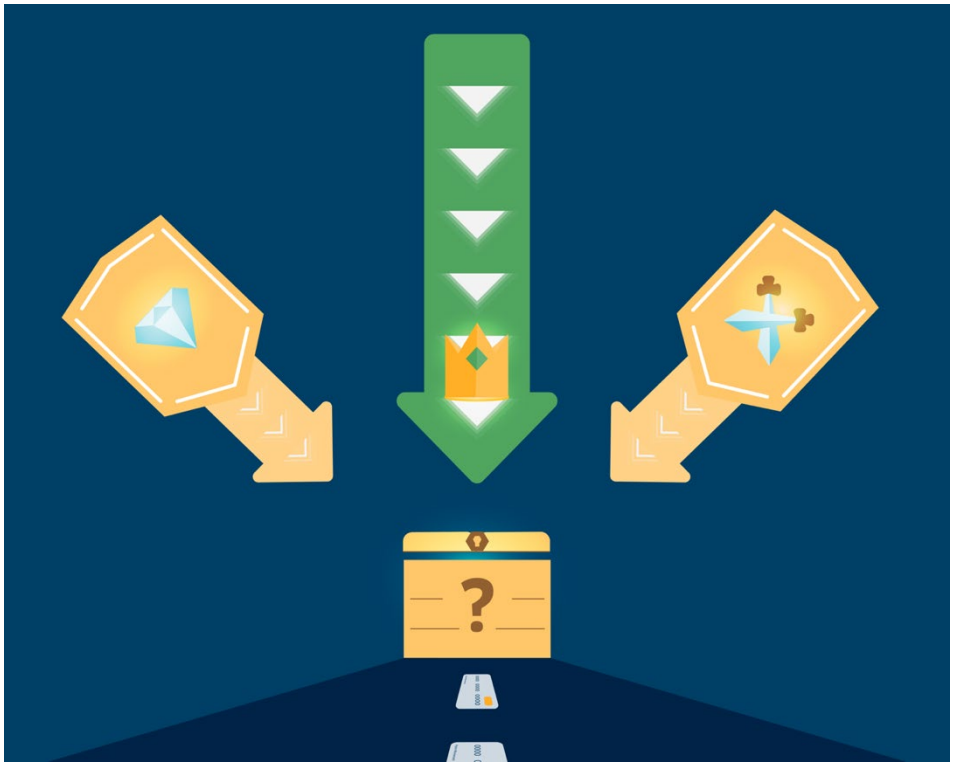

Figure 7: Many games are designed to make you want to spend extra money on content, with persistent and aggressive advertisements in persuasive design. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

The socially networked aspect of many video games also adds a strong social element that encourages more spending. Consumers will constantly be exposed to other players who may have spent money on loot boxes and have "gotten lucky". Furthermore, paid influencer and streamer and other celebrities regularly post videos of loot boxes being opened, often in partnership with video game companies, garnering millions of viewers.[40]

2.4 In-game currencies and hidden pricing

Loot boxes are rarely purchased directly for real money. Instead, the consumer purchases some form of in-game currency for real money, which can then be traded in for loot boxes and other in-game content. Some games even operate with many kinds of virtual currencies, each of which may be priced differently.

The use of in-game currencies constitutes an extra transaction layer that abstracts the real-world cost of the virtual item. Furthermore, consumers generally can neither refund purchased in-game currency nor trade it back into actual money.[41] As an example, if a consumer purchase 200 units of an in-game

[40] "FTC Investigation Reveals Streamers Are Paid to Open Loot Boxes, Joshua Duckworth https://gamerant.com/ftc-investigation-streamers-paid-open-loot-boxes/
[41] "Lawsuit claims Fortnite's random loot boxes were 'deceptive'", Jay Castello https://www.rockpapershotgun.com/lawsuit-claims-fortnites-random-loot-boxes-were-deceptive

currency and spends 150 of this currency on a loot box, there is usually no way to refund or renumerate the 50 remaining units of virtual currency.

Figure 8: Virtual currencies, several layers of pricing and in-game design elements obscure the real cost of many in-game purchases. (Illustration: Norwegian Consumer Council /Hanne Fossaa Eriksen)

2.5 Very high cost of freemium and endless grinding

Although many games featuring in-game purchases are advertised as free to play, this often comes with a major caveat. It is not uncommon for new players to receive a starting reward of significant in-game value, ensuring smooth and fun gameplay for the first hours or days of playing. **This serves two purposes: to get the player hooked by investing time and effort, and to give the impression that generous in-game content will be rewarded simply by playing the game**.

After the honeymoon period of these freemium games is over, it is often time to start extracting revenue from the player. The frictionless progress of the first hours comes to a halt, and gradually the player must spend more time waiting between actions or invest significant effort into grinding, i.e., performing repetitive and often deliberately boring actions before progressing.[42] **By this**

[42] "Video game giant EA steering players into loot-box option in popular soccer game, insider says", Erica Johnson, Kimberly Ivany https://www.cbc.ca/news/gopublic/fifa21-loot-boxes-electronic-arts-1.5996912

point, the player is already invested in the game, making it more difficult to walk away, i.e., the sunk cost fallacy.

If the player does not want to wait six hours in order to continue playing or spend days grinding, they must start doing in-game purchases to skip ahead. This tendency to add "busywork" for which players are encouraged to pay real money to skip has received criticism from consumers, not only of freemium games but also of major video games selling at full price up front to which this practice has been extended.[43]

2.6 Risk of losing content at any time

Since loot boxes are digital content, consumers do not "own" the loot boxes or any in-game content obtained from them in the traditional sense of the word. Ownership of any in-game content is regulated by complicated licensing agreements, and the video game company often grants itself, via the terms and conditions to use the video game, the power to change or revoke any in-game content at its own discretion.

This means that consumers may be left with few possibilities for recourse if content they have paid for is revoked. For example, in November 2021 the company Niantic announced that they would shut down the mobile game Harry Potter: Wizards Unite. The announcement stated that consumers would not be able to refund or otherwise keep any in-game content, even though this was purchased for real money.[44]

Consumers can also lose access to content they have paid for if their accounts are suspended. There are numerous examples of players discovering that their digital content has been revoked because their in-game or platform-wide accounts were banned from the service, often with no explanation given.[45] There are various reasons why an account may be banned. For example, some algorithms designed to flag cheating players can sometimes mark regular players who were simply in proximity to a cheater or who received in-game benefits from such cheats. This becomes particularly problematic if paid content is revoked with no explanation or recourse.

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[43] "Assassin's Creed Odyssey has a huge grinding and microtransaction problem", Ben Kuchera https://www.polygon.com/2018/10/3/17931920/assassins-creed-odyssey-level-grinding-microtransaction-problem
[44] "Harry Potter Wizards Unite" https://www.harrypotterwizardsunite.com
[45] "This is what happens when your Nintendo Switch account gets banned", Sean Buckley https://www.cnet.com/tech/gaming/this-is-what-happens-when-your-nintendo-switch-account-gets-banned-fortnite/

Such contractual clauses allowing video game producers to unilaterally change the scope of the contract without valid reasons, and without bearing any responsibility towards consumers are likely to be in breach of the fair business practice, in more than one legal system.[46]

[46] It is noteworthy that similar terms have already been declared unfair by the CPC network in its Common Position of national authorities within the CPC-Network concerning the protection of consumers on social networks.

3 Case studies: Loot boxes in the field

Loot boxes are featured in a wide range of video games across different gaming systems. Loot box mechanisms also take a variety of forms, with variations in design, marketing, content, and more. Some may be more transparent or less manipulative in their design, while others are more opaque or otherwise overtly problematic.

Below, we describe the loot box mechanisms of two popular video games: FIFA 22[47] and Raid: Shadow Legends. The former is a football game that is available on PC, Xbox and PlayStation systems. The latter is a freemium mobile game available on Android and iOS devices. The games were selected based on their popularity, visibility in the market, revenue, and target audiences.

The screenshots used throughout this chapter were taken in November 2021 (Raid: Shadow Legends) and January 2022 (FIFA 22). Examples from FIFA 22 were taken on a PC running the platform EA Origin but are representative of the game across platforms. The screenshots from Raid: Shadow Legends were taken on a mobile phone running Android.

3.1 FIFA 22

FIFA is a football game franchise that has existed for decades and that is published by the major video game company Electronic Arts (EA). Since 1993, a new game in the FIFA franchise has been released on an annual basis. FIFA is the world's best-selling sports video game, and one of the most popular video game franchises, having sold more than 325 million copies across games.[48] FIFA 22 was released on 1 October 2021 and is the latest iteration of the game. The game has a recommended age (PEGI-rating[49]) of 3+ years. Unlike many other games featuring in-game purchases, FIFA games are sold at full retail price.

With FIFA, kids under 13 years cannot use their own accounts to play. Their EA accounts have to show they are over 13 years.[50] Younger kids either have to lie

[47] The developer of the game FIFA, EA Sports announced that after FIFA 23, the game will change its name to EA Sports FC. https://www.ea.com/nb-no/news/ea-sports-fc
[48] "As FIFA Game Passes Sales Milestone, EA Sports Seeks New Markets And To Clear Up Image Rights 'Misunderstanding'", Robert Kidd https://www.forbes.com/sites/robertkidd/2021/02/02/as-fifa-game-passes-sales-milestone-ea-sports-seeks-new-markets-and-to-clear-up-image-rights-misunderstanding/
[49] PEGI provides age classifications for video games in 38 European countries. The age rating confirms that the game is appropriate for players of certain age. PEGI considers the age suitability of a game, not the level of difficulty. https://pegi.info/
[50] EUs answers HQ: https://answers.ea.com/t5/Other-FIFA-Games/FIFA-Ultimate-Team-for-children/td-p/5644768

or use their parent's or older siblings' accounts. It is known that even the youngest kids are playing FIFA.[51]

Some safety experts have found that most parents and carers have little to no concerns about the child in their care playing FIFA. All games can present risks to children and young people.[52]

3.1.1 FIFA Ultimate Team

In 2008, EA introduced FIFA Ultimate Team (FUT) as a new online game mode that FIFA players could access. In the years since its initial release, FUT has grown into the most popular of the FIFA games and has become one of EA's main sources of revenue.[53] In 2021, internal documents showed that EA designs the FIFA games to drive players toward the FUT game mode at every opportunity, as this is where the company generates post-sale revenue.[54]

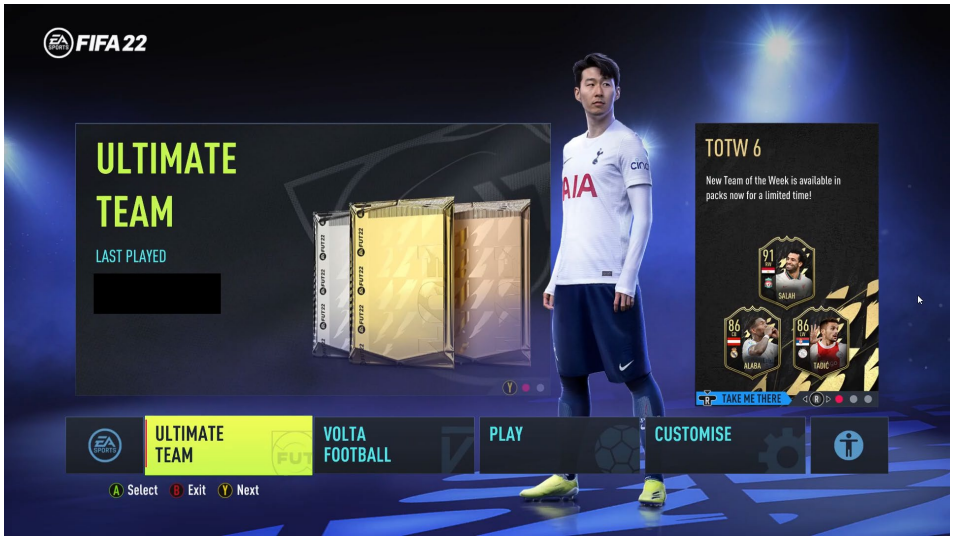

Figure 9: The FIFA 22 main menu. (Illustration: Screenshot from FIFA 2022)

The FUT game mode is a competitive online game where players build their "ultimate team" by opening virtual "FIFA packs" containing a random assortment of in-game items. These packs are essentially loot boxes and may

[51] Losing to a 5 year-old on Fifa: https://www.youtube.com/watch?v=2Baf-Qoxtxg
Fifa Kids Gaming: https://www.youtube.com/watch?v=0MkZbjlaKsg
[52] The FIFA Playbook – A Guide for Parents and Carers https://oursaferschools.co.uk/2021/10/15/fifa22/
[53] "EA made $1.62bn from Ultimate Team in its last financial year", Wesley Yin-Poole https://www.eurogamer.net/articles/2021-05-27-ea-made-usd1-62bn-from-ultimate-team-in-its-last-financial-year
[54] "Video game giant EA steering players into loot-box option in popular soccer game, insider says", Erica Johnson, Kimberly Ivany https://www.cbc.ca/news/gopublic/fifa21-loot-boxes-electronic-arts-1.5996912

contain avatars of real-life football players ("cards"), cosmetics such as team kits and badges, and other in-game content. After obtaining cards from a pack, they are used to put together teams which players can then use to play virtual games of football against other players.

3.1.2 Packs and currencies

Throughout the FIFA game cycle, FUT players are continuously incentivized to open packs to upgrade their team. Packs are either obtained from reaching milestones in the game or by purchasing them using one of the two in-game currencies, "FIFA Points" or "Coins".

FIFA Points is the premium currency of the game and can only be purchased using real money in the in-game store. Coins are earned through playing the game or through the in-game "transfer market", an auction system where players can buy and sell cards from and to other players.

Packs that are earned through normal gameplay instead of being purchased from the in-game store usually contain "untradable" cards that cannot be sold on the in-game transfer market. Packs that are purchased using Coins or FIFA Points in the in-game store are "tradable", which means they can be traded with other players for in-game Coins. Of course, the quickest way of obtaining packs and Coins is by purchasing and spending FIFA Points.[55]

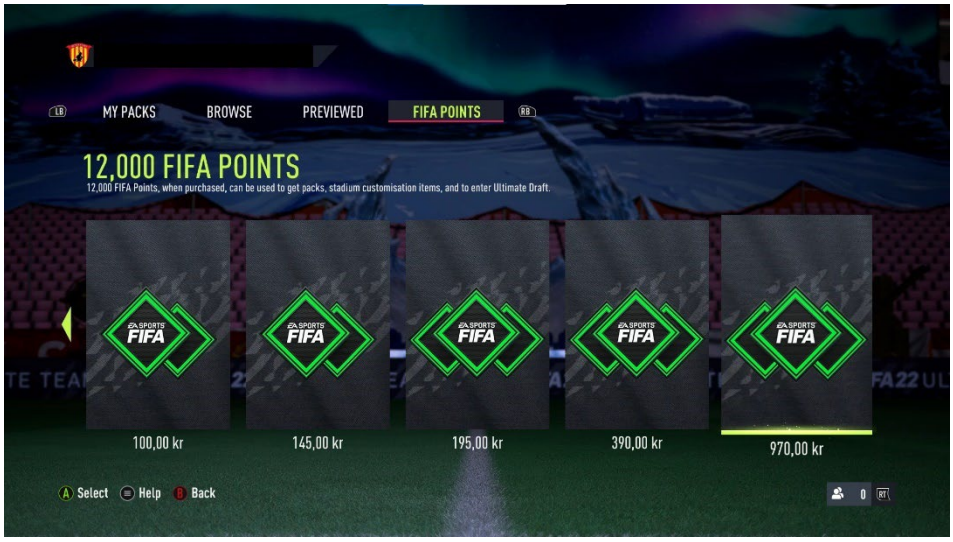

Figure 10: The FIFA Points Store. (Illustration: Screenshot from FIFA 2022)

[55] According to players in the FIFA community, obtaining the highest value players through regular gameplay may take thousands of hours. https://www.reddit.com/r/FIFA/comments/huv04o/how_many_hours_of_grinding_would_it_take_to_earn/

The price of FIFA Points varies somewhat by currency but costs around EUR 1 for 100 Points. Points can be purchased in amounts of between 100 and 12 000 for prices ranging from EUR 1 to EUR 100 respectively.

The packs that can be purchased from the in-game store vary day by day as packs rotate in and out of the storefront. The most valuable types of packs in the store are "Promo Packs", which cost more but promise a greater chance of desirable rewards. **These packs are usually only available for 24 hours, which triggers a fear of missing out and spurs players into making a purchase before it is too late**.

During certain in-game promo events, the game also features "lightning rounds", in which a limited number of high-cost packs are made available for a short time. This can include certain packs being limited to 100 000 purchases worldwide, with a visible counter tracking the number of packs left in real-time. **These artificial limitations also serve to trigger a fear of missing out, and to spur purchases before the timer runs out.**

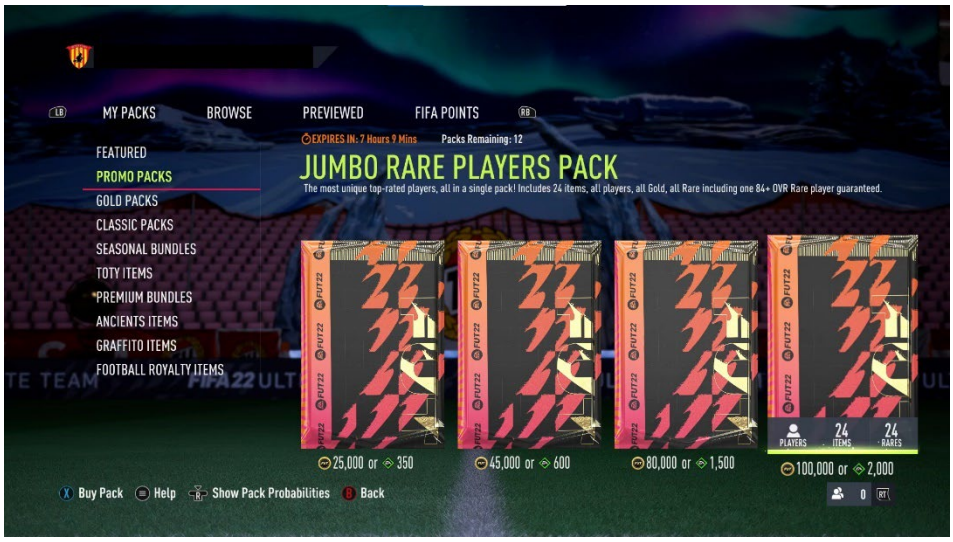

Figure 11: The Promo Packs Store. (Illustration: Screenshot from FIFA 2022)

In FIFA 21, EA introduced the concept of "Preview Packs", which allowed players to see the content of certain Packs before deciding to spend Coins or FIFA Points to purchase the pack. However, as FIFA 22 was released, this feature was generally relegated to low-value packs, while the high-end promo packs did not include the option to preview its contents. Similar transparency

mechanisms had previously been introduced in the popular freemium game Fortnite.[56]

These transparency mechanisms have few benefits for consumers, since they simply move the unknown factor one purchase forward. The player still must purchase a pack to get the next one.

The act of opening a pack in FUT is accompanied by colorful animations and triumphant music. Visual elements change according to the rarity of the cards that are packed; rarer cards are usually accompanied by different colors and visual elements and graphics such as confetti and fireworks. Higher rated cards are revealed with a "walk-out" animation, featuring the virtual player walking onto the screen and dancing or posing. **These design elements contribute to a sense of anticipation and reward and are presumably designed to trigger dopamine releases that keep the player opening packs**.

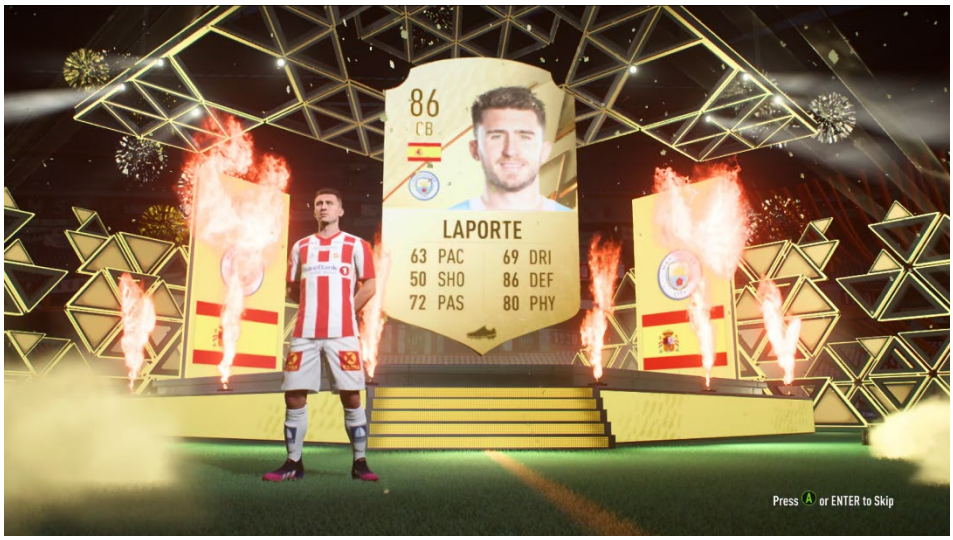

Figure 12: Graphics when opening a FIFA Pack. (Illustration: Screenshot from FIFA 2022)

3.1.3 Promo events and power creep

In addition to containing "basic" card versions of real-life football players, FUT regularly features "promo events" that may coincide with seasonal events such as holidays or with real-world football events such as the UEFA Champions League. During these events, various boosted versions of certain cards are available in packs for a limited time. The promo events are advertised throughout the game by showing the available boosted players, for example on loading screens when entering FUT and in the in-game menus.

[56] "Fortnite loot box llamas go 'see-through'", BBC https://www.bbc.com/news/technology-47028992

Figure 13: FUT loading screen featuring a promo event. (Illustration: Screenshot from FIFA 2022)

In gameplay terms, promo events mean that FUT introduces significant power creep as time goes on. Power creep is a process whereby cards that are considered rare, good, or otherwise desirable become outdated or outpowered as upgraded versions are released. Since the game is competitive in nature, **players will often be matched up with opponents who have better cards, which puts them at an in-game disadvantage that can halt their progress in the game**.

When two even players compete, the psychological effect of regularly losing makes the player wish for a slightly better team. It is impossible to archive, since the game automatically matches the player against other players who are at least at their level.

In practice, **the power creep over the FIFA gameplay cycle means that a card that is valuable and/or desirable today usually diminishes in value as time goes on**. Although the in-game properties of a certain card will not change (except for certain types of cards), the card is depreciated as other better cards are released. This is reflected in the in-game transfer market, where cards that are sold for millions of Coins at one point in time will be traded for less than 1/10 of the number of Coins later in the game cycle.[57]

[57] For example, at the launch of FIFA 21 in November 2020, the 'basic' version of the Cristiano Ronaldo card was being traded for around 2 million Coins. By around February 2021, this value had halved, and by May 2021 the card was selling for less than 150 000 Coins. https://www.futbin.com/21/player/542/cristiano-ronaldo

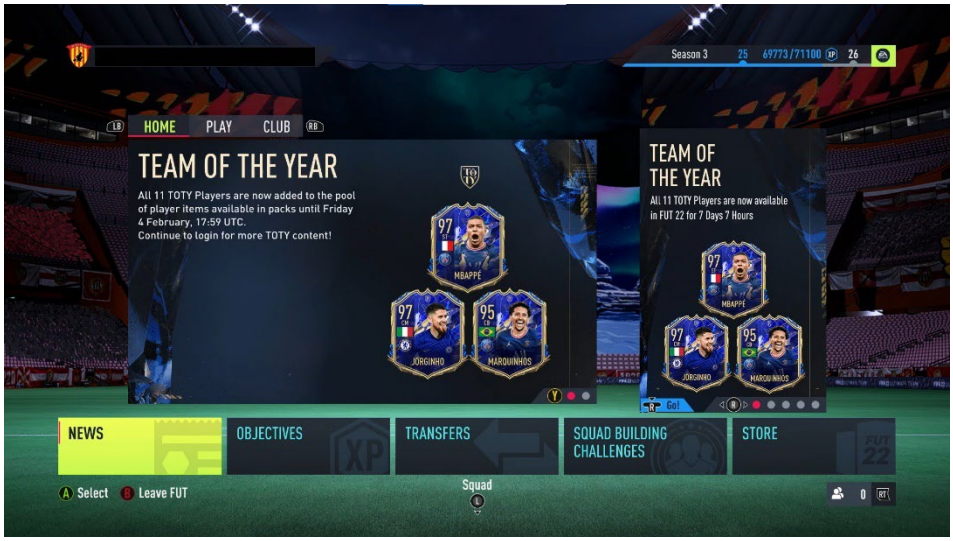

Figure 14: Cards from the Team of the Year promo being advertised in the FUT menu. (Illustration: Screenshot from FIFA 2022)

This creates a **continuous gameplay loop, where players are continuously encouraged to open packs in the hope of obtaining upgraded cards to keep up with other players**. Simply put, the regular introduction of new promo events means that a FUT player will always be enticed to open packs for a slim chance of obtaining better cards. Furthermore, since a new FIFA game is released annually, **the release of a new game in the franchise requires players to start from scratch, and apart from unspent FIFA Points, no in-game content carries over between games**.

3.1.4 Meaningless probability disclaimers

In 2019, EA introduced the option to view the probability of packing certain types of cards from different packs, which was purportedly meant to increase transparency for players.[58] However, this feature has serious limitations.

Figure 15: The reported probabilities of a Jumbo Rare Players Promo Pack and a Prime Gold Players Pack. (Illustration: Screenshot from FIFA 2022)

[58] "EA says FIFA 19 will disclose Ultimate Team pack odds", Wesley Yin-Poole https://www.eurogamer.net/articles/2018-06-29-ea-says-fifa-19-will-disclose-pack-odds

In FUT, the cards featuring football players are assigned a certain numerical rating which roughly indicates how good the player is in real life and in the game. The most valuable cards in FUT are usually rated 90 or above, and the in-game value difference between an 87-rated card and a 94-rated card may be huge. As shown in the screenshot above, a stated probability of an 8.8% chance of receiving an 87+ rated card does not tell the potential buyer anything about the probability of receiving a 90+ rated card.

For example, in October 2021, the card in the game selling for the highest price, the 94-rated Ronaldo Luís Nazário de Lima, was valued in-game at around 12 million Coins.[59] The lowest valued 87-rated card was selling for less than 12 thousand Coins. Although the highest valued 87+ rated card is worth more than 1 000 times the lowest valued one in game, the **stated probability does not give players any information about whether the odds of receiving an 87-rated card is lower than for a 94-rated card**.

Similarly, **the cards featured in promo events usually have a significant in-game price gap between the least and most valuable cards**. For example, while the "Team of the Year" (TOTY) promo event was being advertised in-game, the least valuable card of the event was priced at around 200 000 Coins on the in-game transfer market, while the most valuable one was priced at 6 200 000 Coins.[60]

Again, it is impossible for the player to know whether the stated probability of a 1.3% chance of receiving a TOTY card means that the odds are evenly distributed between TOTY cards or are heavily weighted toward the less valuable cards.

Some empirical evidence exists proving that the probabilities are not evenly distributed within their category.[61] This means that in a category of 11 cards, there will not be an even 1/11 chance of getting each card. This is contrary to what one might expect, given that most people are used to unbiased probabilities.[62]

It makes even less sense in the example of the Prime Gold Players Pack, with a stated probability of <1%. **The stated probability becomes at best meaningless,**

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[59] FutBin https://www.futbin.com/22/player/267/ronaldo
[60] FutBin https://www.futbin.com/22/players?page=1&version=toty&sort=pc_price&order=desc
[61] Mentzoni, Rune (2019) https://www.reddit.com/r/FIFA/comments/8nj3z6/fut_pack_opening_research_project_3800_later/
[62] What is a fair coin? https://en.wikipedia.org/wiki/Fair_coin

and at worst outright deceptive to a player spending money on FIFA Points hoping to obtain a high-value card.

3.1.5 Against all odds

As stated in a tiny disclaimer when inspecting FIFA pack probabilities, the "contents of packs are dynamically generated". This is vaguely worded but implies that probabilities may change in real time. The enormous amount of real-time user data that is available to the developers means that probabilities can potentially be manipulated in real time based on any number of factors, all with the objective of incentivizing and maximizing spending.[63]

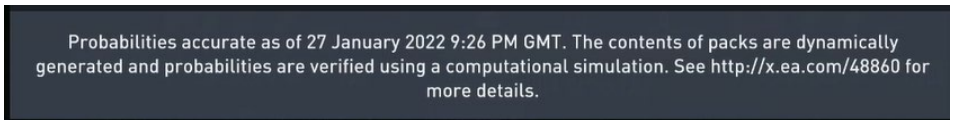

Figure 16: FUT disclaimer about pack probabilities. (Illustration: Screenshot from FIFA 2022)

For example, a low-spending player may receive a valuable card to push them toward spending more money, or a player who is on the verge of quitting the game due to poor luck may receive a high-value card to draw them back to the game. However, it is impossible for anyone outside of EA to know whether or how these probabilities are manipulated behind the scenes, as there is no transparency in how the algorithms behind the packs work.

The closest a curious player can get to gaining any insight into how the algorithms operate is through the in-game disclaimer about pack probabilities, which links to an article on the EA website with more details. According to the website, EA calculates pack probabilities by running simulations of pack openings:

> *"Pack probabilities in FIFA are calculated by simulating the opening of a very large number of each pack type in the FUT Store. The number of packs opened in a simulation varies based on the content within those packs, but it will always be enough to be statistically valid. We then re-run this process with every content update."* [64]

This implies that the probability rating of any given FIFA Pack is not controlled by EA in any way, and that the company can only simulate pack openings to attempt to figure out the probabilities on behalf of the players. Although there

[63] EA states that this is not the case for FIFA Ultimate Team. https://www.frc.ch/jeux-video-le-porte-monnaie-dicte-trop-la-donne/#ea
[64] "Pack Probability in FIFA Ultimate Team", Electronic Arts https://www.ea.com/games/fifa/news/fifa-pack-probabilities

is no further information about how this works in practice, it seems very unlikely that EA has no control over the algorithms that decide the probabilities.

The diminishingly small chances of obtaining TOTY Kylian Mbappe

To illustrate the diminishingly small probabilities at play when opening a FIFA pack, we provide a *hypothetical example* using the information provided by EA and some assumptions need to make the calculations.

A FUT player looking to pack the Team of the Year promo card of the cover star of the game, Kylian Mbappe, had less than two weeks to do so before the promo ended, and the card would no longer be available in packs. The TOTY Mbappe card was prominently featured in the menus and on loading screens in-game. The pack with the highest probability of obtaining a card from the TOTY promo, the Jumbo Rare Players Pack, featured a 1.3% probability to receive a TOTY promo card, and cost 2 000 FIFA Points, equivalent to around EUR 20.

FIFA points are purchased in bulks of 2200. This means that a player always has 200 points left or that after buying 10 FIFA point packs and subsequently 10 Jumbo Rare Players Packs, the player has enough points left over to buy an additional pack of cards.

If the player is to obtain an TOTY card, they must beat a 1.3% probability. This means opening on average 77 Jumbo Rare Player Packs, which would cost roughly 150 000 FIFA Points, or around EUR 1 400.

There were 11 different TOTY cards available from the pack. If the probability of packing a specific TOTY card is evenly distributed across these 11 cards, the probability of obtaining TOTY Mbappe from one Jumbo Rare Player Pack is 0.11%.

This means that, on average, the player would have to purchase a grand total of 847 Jumbo Rare Player Packs to get a specific TOTY card. To do so, the player would have to spend nearly 1.7 million FIFA Points, or roughly EUR 13 500.

We note that this example is based on average probability and unbiased distributions. For the player to be more certain of receiving TOTY Mbappe, several thousand Jumbo Rare Player Packs would have to be opened.[65]

[65] The average probability of getting heads in a fair coin toss is 50%. If you throw the coin 10 times, you might get four heads and six tails. Since fair probability deals in averages, the coin flipper has no way of knowing how many tosses it would take to be guaranteed at least one head. The same applies in FUT, but with far smaller odds and potentially biased draws. It would therefore be unfeasible to perform a binomial

Seasoned FUT players will argue that it is possible to make an initial investment and then trade players to make your team, but that would be both uncertain and unreasonably time consuming.

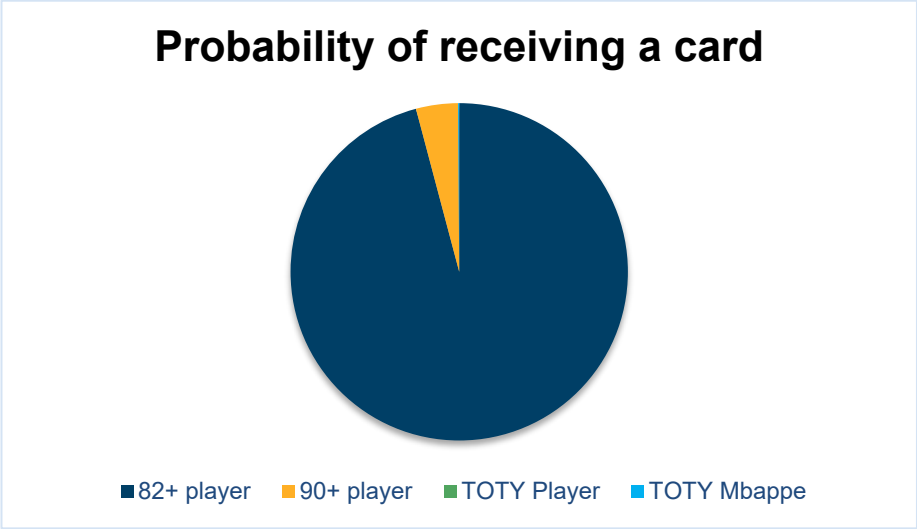

Figure 17: In this diagram showing the probability of receiving a TOTY card or TOTY Mbappe. The sectors indicating TOTY Player and TOTY Mbappe is too small and is not visible at all. (Illustration: Norwegian Consumer Council)

However, this estimate is further complicated by two factors. First, the Jumbo Rare Gold Player Pack has a purchase limit of 12 packs within 24 hours. After having purchased 12 packs, the player would have to resort to purchasing other packs with a lower probability, such as the Prime Gold Player Pack, which has less than 1% probability of a TOTY card. Second, there is no available data to suggest that the probability of obtaining the TOTY Mbappe card is equal to the probability of packing a lower-value TOTY card. On the contrary, research indicates that probabilities in FUT packs are heavily weighted toward lower-value players. [66]

In short, an estimate of having to spend EUR 13 500 to obtain this specific card is a very conservative estimate, and the actual probability is in fact much lower. Leaving aside cognitive biases and other factors, it is impossible for the player to know the actual probability of packing the TOTY Mbappe card, even if they are highly educated in mathematics and statistics.

calculation, since the uncertainty of the factors is too great. There are no guarantee that the distribution of cards in packs in video games conform to the Gaussian distribution, with the consequence that predictions will be inherently faulty.

[66] "FUT pack opening research project: €3800 later", Rune Mentzoni https://www.reddit.com/r/FIFA/comments/8nj3z6/fut_pack_opening_research_project_3800_later/

Although the probability of receiving a high-value reward from a given FIFA Pack is diminishingly low, this is difficult for regular consumers to understand. **The gambler's fallacy – the cognitive bias and false belief that makes people think that every opened Pack increases the chance to get lucky – means that transparency is not a panacea for these issues**.

3.1.6 Spend money or spend years grinding

Even though EA has claimed that all cards in the game are available without paying for FIFA Points, the actual numbers tell a different story.[67] As an illustration, a player earns about 500–800 Coins for each game played, which takes between 12 and 15 minutes. A Jumbo Rare Gold Player Pack costs 100 000 Coins. Players would have to play around 150 games to afford a single Jumbo Rare Gold Player Pack, which would take more than 2 000 minutes, or 35 hours.

The hours needed have to be nuanced somewhat by the fact that a player can qualify for events that pay more Coins and by earning rewards. The point is that the average player can never earn enough just by playing to get the best cards.

To reach the average probability of receiving a TOTY card by only playing the game, the player would have to play more than 12 000 games, spending around 2 500 hours or roughly one-third of a year of continuous gameplay. The next FIFA game would be out before the player was done trying to obtain a single TOTY card, and of course the window of opportunity to receive these cards is only around a week. **If the player wanted to aim for TOTY Mbappe in the same way, the player would have to play continually for over three years to earn enough points to buy the average number of packs needed**. Although there are ways of obtaining cards other than purchasing packs in the store, such as purchasing them from the in-game market, these numbers reveal a significant "pay to win" aspect in the FIFA games.

Even though these numbers are rough calculations, the fact remains that the only hope for the average player of getting a TOTY Mbappe is to win the card pack lottery against impossible odds.

3.1.7 Summary

FIFA Ultimate Team players are continuously playing and opening packs to improve their team. The most desirable cards change on a monthly or weekly basis through the introduction of promo events featuring boosted versions of cards. These events are constantly advertised in the game through loading screens and in-game prompts, and by matching players with opponents who

[67] "Putting EA's claim "you can acquire all items without spending money" in FIFA Ultimate Team to the test", Wesley Yin-Poole
https://www.eurogamer.net/articles/2021-03-19-putting-eas-claim-you-can-acquire-all-items-without-spending-money-in-fifa-ultimate-team-to-the-test

have obtained promo cards. The quickest way of obtaining these cards, and to avoid tens of thousands of hours of grinding, is by spending money on FIFA points and using the FIFA points to buy promo packs. The probability of obtaining high-value cards is exceedingly low, and it is impossible for the player to know how much money they would need to spend to obtain certain cards.

The competitive nature of FUT means that players who do not purchase packs are at a significant disadvantage against opponents who do. This creates a continuous gameplay loop that constantly incentivizes players to spend money on FIFA Points as new promos are released to keep up with the power curve of the game. Finally, when the new annual version of FIFA is released, the player base moves on to the new game, where no cards or Coins obtained carry over, and the cycle begins anew.

3.2 Raid: Shadow Legends

Launched in 2019 by the developer Plarium, Raid: Shadow Legends is a freemium mobile game that features battles with fantasy avatars called "Champions".[68] It has a recommended age (PEGI rating) of 12+ years.

Despite being released only a few years ago, Raid: Shadow Legends has already generated nearly 48 million downloads and more than USD 569 million in lifetime revenue. In 2020 alone, the game brought in USD 303 million.[69]

The objective of Raid: Shadow Legends is to collect champions to use in battles with monsters and other champions. These champions are predominately obtained from "shards", the game's version of loot boxes, which are gained from playing the game or by purchasing them for real money.

3.2.1 A "gacha" game

As a freemium game, the revenue from Raid: Shadow Legends does not come from selling the game itself. However, unlike many other freemium mobile games, Raid: Shadow Legends does not feature third-party ads within the game. Instead, the game seemingly generates all its revenue from in-game purchases, which it heavily advertises throughout the game.

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[68] "Raid: Shadow Legends" on the Google Play Store https://play.google.com/store/apps/details?id=com.plarium.raidlegends

[69] "Mobile powerhouse Raid: Shadow Legends arrives on the Microsoft Store", Sam Desatoff https://gamedaily.biz/article/2026/mobile-powerhouse-raid-shadow-legends-arrives-on-the-microsoft-store

Raid: Shadow legends has been described as a "gacha" game[70], which is a genre of video games designed around mechanisms inspired by toy vending machines and similar concepts. **Mirroring the mechanisms behind loot boxes, gacha games continuously encourage and push players to spend money and/or in-game currency to receive random virtual items**.

As a gacha game, the actual gameplay of **Raid: Shadow Legends is clearly structured to maximize player spending**. Players need many champions to progress in the game, both higher tiers to serve as main characters and lower tiers to act as fodder for enhancing existing characters.

In addition to the gacha mechanisms, **Raid: Shadow Legends frequently exposes players to aggressive forms of in-game marketing, deceptive design**. From the very start of the game, after the player chooses a starting champion, the game bombards the player with pop-up advertisements for in-game items and "shards", which are loot boxes containing random champions.

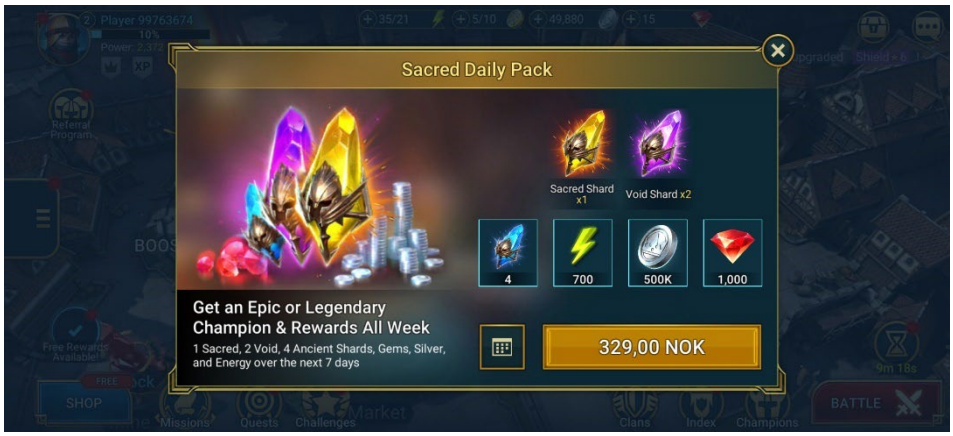


Figure 18: Example of a "Sacred daily pack" containing shards and various in-game currencies, costing around EUR 33. (Illustration: Screenshot from Raid: Shadow Legends)

To play through the game's campaign or competitive modes, players must gather a team of champions. As the game goes on, it becomes increasingly clear to the player that they will only be able to progress in the game by unlocking more powerful champions. **These champions can only be obtained by investing a lot of money in shards and other in-game items.** Of course, by the time the player reaches this point in the Raid: Shadow Legends, they may already have invested significant time and money in the game, and thus, may fallen susceptible to **the sunk cost fallacy cognitive bias.**

[70] "Raid: Shadow Legends" on Wikipedia
https://en.wikipedia.org/wiki/Raid:_Shadow_Legends

3.2.2 Confusing in-game currency

The loot boxes in Raid: Shadow Legends, “shards”, are presented as jewelry-bound crystals in several colors and varieties. By opening a shard, players receive one random champion to use in the game. There are four different tiers of shards: Mystery, Ancient, Void, and Sacred. The latter two, which have the highest probability of obtaining a high-value champion, can be obtained by paying real money. The player will sporadically receive shards as the game progresses.

When a shard is opened, it starts flashing and dramatically blows apart. A shadow forms, and the silhouette of the champion is shown together with colors indicating the rarity. Then the champion appears as upbeat music plays in the background.

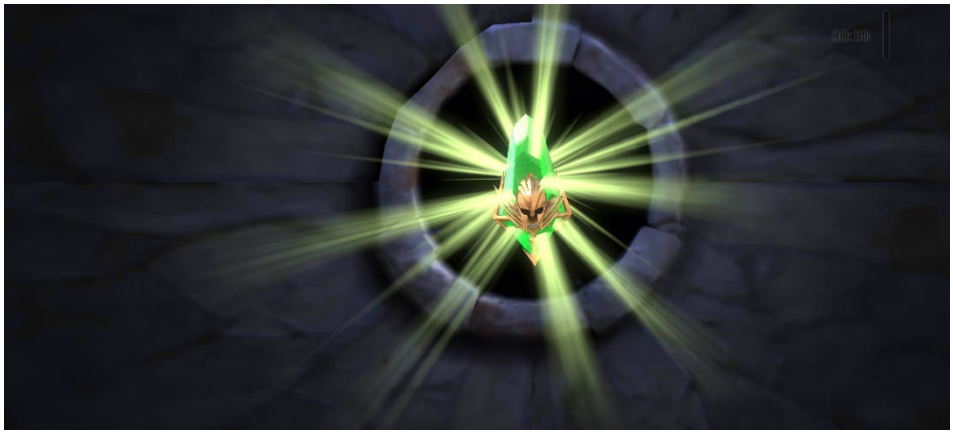


Figure 19: Animation while opening a loot box in Raid. (Illustration: Screenshot from Raid: Shadow Legends)

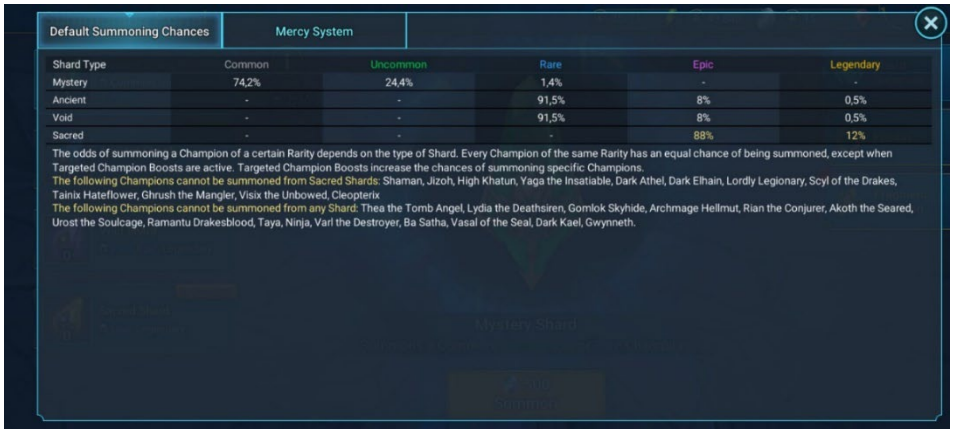
Lower-tier shards can be purchased by using the in-game currency “gems” and are often rewards for completing in-game objectives. **Gems are the premium currency of the game and are either purchased for real money or earned in measly amounts during regular gameplay.** Players also need the in-game currency “silver” to open shards. **Silver can only be bought for gems or earned during gameplay.**

Figure 20: Shards are opened, or "summoned", by paying an in-game currency. (Illustration: Screenshot from Raid: Shadow Legends)

As shown in the screenshot above, new players receive a "Boosted Summons" bonus to enable "better odds of getting the strongest Champions", which is enabled for a limited time to incentivize spending right from the start and serves to trigger a fear of missing out.

The champions that can be obtained from shards vary widely in rarity and utility, and each type of shard has a probability keyed to the rarity of the champion the player might receive.[71] There are five different tiers of champions: Common, Uncommon, Rare, Epic, and Legendary.

Before opening a shard, players can inspect the probability of receiving various champions from the different shards. As shown in the screenshot below, the probability of receiving a high tier "Legendary" champion from an "Ancient" or "Void" shard is set at 0.5%. **Each opening of a shard is an independent event, meaning that the probabilities are not cumulative, although the gambler's fallacy means that people will tend to think that probability increases for each opened shard**.



Default Summoning Chances | Mercy System

Shard Type	Common	Uncommon	Rare	Epic	Legendary
Mystery	74,2%	24,4%	1,4%	-	-
Ancient	-	-	91,5%	8%	0,5%
Void	-	-	91,5%	8%	0,5%
Sacred	-	-	-	88%	12%

The odds of summoning a Champion of a certain Rarity depends on the type of Shard. Every Champion of the same Rarity has an equal chance of being summoned, except when Targeted Champion Boosts are active. Targeted Champion Boosts increase the chances of summoning specific Champions.
The following Champions cannot be summoned from Sacred Shards: Shaman, Jizoh, High Khatun, Yaga the Insatiable, Dark Athel, Dark Elhain, Lordly Legionary, Scyl of the Drakes, Tainix Hateflower, Ghrush the Mangler, Visix the Unbowed, Cleopterix
The following Champions cannot be summoned from any Shard: Thea the Tomb Angel, Lydia the Deathsiren, Gomlok Skyhide, Archmage Hellmut, Rian the Conjurer, Akoth the Seared, Urost the Soulcage, Ramantu Drakesblood, Taya, Ninja, Varl the Destroyer, Ba Satha, Vasal of the Seal, Dark Kael, Gwynneth.

Figure 21: In-game information about probabilities. (Illustration: Screenshot from Raid: Shadow Legends)

It should be noted that although the probability for each category of champion is given, the **developer does not disclose the internal probability in each character class in the given categories**. The highest tier of champion has significant variations in how much impact each champion has in the game. This difference has resulted in several lists in game media, ranking the champions from top to bottom, within their categories.[72] **It is likely, but not proven, that the best characters with the largest impact on gameplay have the lowest internal probability**. Only the developer Plarium can know for sure how the probabilities are calculated.

3.2.3 Aggressive in-game advertising

Although Raid: Shadow Legends does not contain third-party advertising, the game has an exceedingly aggressive way of marketing different types of in-game purchases.

The term “microtransactions” are frequently uses about in-game purchases. When the product advertised are priced similarly to a fully-fledged high-budget video game, there is nothing micro about the transaction.

[72] “Raid Shadow Legends Tier List – Best Champions 2022”, Phil James https://gamertweak.com/raid-shadow-legends-tier-list/

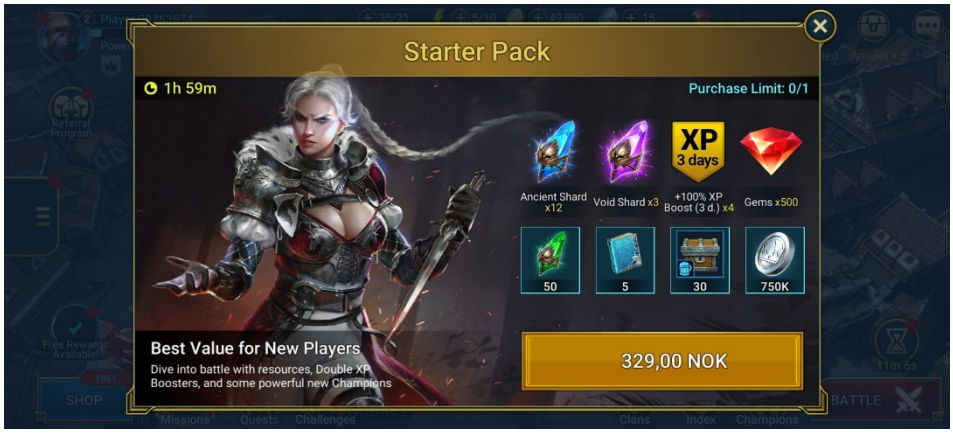


Figure 22: Limited time offer for a Starter Pack for new players, priced at around EUR 33. (Illustration: Screenshot from Raid: Shadow Legends)

After starting up Raid for the first time and playing through a tutorial segment, the consumer is presented with an advertisement for purchasing a "Starter Pack" for NOK 329, which is equivalent to around EUR 33. **Although the game is marketed as "free to play", there is clearly a major push to spend money to proceed**.

This advertisement is displayed before the player has had the chance to play the game beyond the barebones tutorial. Consequently, the **player has no way to assess whether the goods that are being sold are worth purchasing or whether the price is fair**.

As the player proceeds through the game, **the in-game advertising becomes increasingly obtrusive**. The marketing is excessive in both volume and variety, especially when the consumer restarts the game after taking a break. In several attempts, over several days, the game presented up to eight different advertisements for in-game content in succession, where each individual ad had to be manually closed before proceeding with the game.[73]

[73] During several hours of play, an average of 2-5 ads popped up when entering the game's home screen. At moste we enxountered 8-9 in sucession.

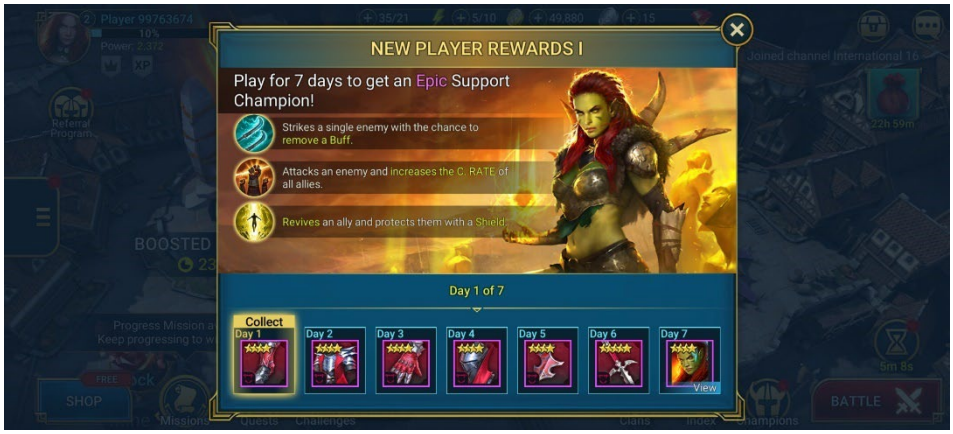


Figure 23: Advertising to keep playing to receive more rewards. (Illustration: Screenshot from Raid: Shadow Legends)

Almost every time the player returns to the game's home screen or "base", several more advertisements for in-game purchases pop up.

3.2.4 Pay (a lot) to win

To obtain the most desirable champions in Raid: Shadow Legends, the player must spend large amounts of money and time. **As demonstrated below, it would cost around EUR 7 050 to be almost guaranteed one of these champions**. Time restrictions on in-game purchases means it would take more than six months to do so.

Players of Raid: Shadow Legends earn lower-tier loot boxes through playing the game regularly. However, higher-tier loot boxes can only be obtained consistently by spending real money in the in-game store. As shown in the preceding subsections, purchasing an Ancient or Void shard gives the player an 8% chance of receiving an Epic champion and a 0.5% chance of receiving a Legendary champion.

Other ways of obtaining Void shards include time-based login awards. This includes daily awards and monthly awards to entice the player to keep logging in, and small rewards for staying in the game for various intervals. Other in-game events may reward you a Void shard, but they are mainly rare and random in-game events[74] with no provided probability. The random events do not give out shards in any meaningful amount.[75]

[74] Called random "drops" in the gaming jargon
[75] "How to get Void Shards in Raid Shadow Legends", Hellhades https://hellhades.com/how-to-get-void-shards-in-raid-shadow-legends/

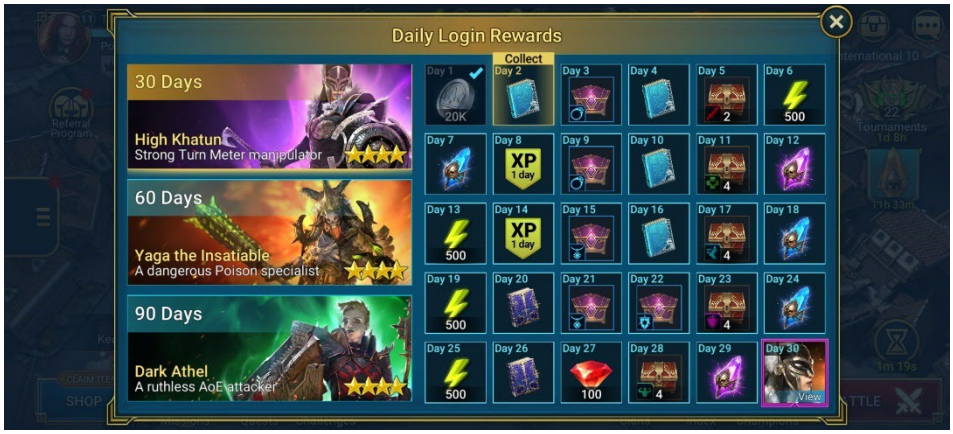


Figure 24: Daily Login Rewards. (Illustration: Screenshot from Raid: Shadow Legends)

The average consumer is poorly versed in understanding probabilities, and is highly susceptible to confirmation bias[76] and to the gambler's fallacy when odds or other probabilities are involved. An 8% chance of receiving an Epic champion does not mean that 10–12 draws guarantee a win, it is only the statistical average. **The random element means that even after purchasing 50 or 60 loot boxes, you are not guaranteed an Epic champion, if the odds are fair and unbiased.**

There is a 0.5% probability of receiving a Legendary champion from an Ancient or Void shard. **Players would have to open 200 loot boxes to reach the statistical average for getting a Legendary champion.** As with FUT above, for the player to be more certain of getting a specific champion, thousands of loot boxes would have to be opened.[77]

However, the game raises these probabilities slightly through a "Mercy system" built into its loot box mechanism.

[76] Confirmation bias is the tendency to search for, interpret, favor, and recall information in a way that confirms or supports one's prior beliefs or values.
[77] Binominal distribution of at least one successful draw within n-draws with a given probability.

Default Summoning Chances | Mercy System

The Mercy System activates after you summon a certain number of Shards without getting a Champion of a specific Rarity.

Once activated, the Mercy System increases your odds of summoning Champions of a specific Rarity with every consecutive Shard you summon of that Type. For example, after summoning 20 Void Shards without getting an Epic Champion, your chance of getting an Epic Champion from Void Shards will increase by 2% with every Shard - until you get an Epic Champion, at which point the odds will reset back to the default chances for that Rarity.

Mercy System Summoning Chances

Shard Type	Rarity	Mercy System Activation	Chance Increase (per Shard)
Ancient, Void	Epic	After 20 Summons without Epic	+2%
Ancient, Void	Legendary	After 200 Summons without Legendary	+5%
Sacred	Legendary	After 12 Summons without Legendary	+2%

- Your Mercy counters are tracked individually for each Type of Shard - meaning even if you Summon a Legendary Champion from a Sacred Shard, it won't affect your Mercy counter for Ancient Shards.
- After you successfully summon either an Epic or Legendary Champion, your Mercy counter will reset for that Rarity from that Type of Shard and your chances will reset to those displayed in the Default Summoning Chances table.
- For Ancient and Void Shards, the Mercy counters for both Epic and Legendary Champions are tracked individually. This means even if you get a Legendary Champion, it won't reset your Mercy counter for Epic Champions if you've already gone 20+ Shards without summoning an Epic.
- The chance increases are additive, not multiplicative (meaning an increase of 2% to an 8% chance will take it to 10%).

Figure 25: The "Mercy System" of increasing probabilities. (Illustration: Screenshot from Raid: Shadow Legends)

After opening 200 consecutive loot boxes without obtaining a Legendary champion, the probability increases by 5 percentage points. For a Legendary result, the new probability increased to 5.5% if the player did not obtain one after opening 200 loot boxes. This means that a player with 200 consecutive openings without a Legendary reward would need to open a further 19 loot boxes to reach the statistical average.

The only sure and effective way of obtaining enough Void shards is to purchase them through the in-game store in exchange for real money. The game also places limits on how many of these loot boxes can be bought per month. One "Void shard" is priced at around EUR 25. **The player may purchase a total of 55 "Void shard" loot boxes per month, for a running total of around EUR 1 375**.

To reach the statistical average, the player would have to open 220 loot boxes. This incorporates the "Mercy" mechanism, which increases the probability after opening 200 loot boxes without obtaining a Legendary reward. **To purchase 220 Void shards, the player must pay around EUR 5 500, and the process would take roughly five months**.

3.2.5 Manipulative techniques

With such low probability of receiving premium champions, one might think it trivial for consumers to decide not to purchase loot boxes when playing Raid: Shadow Legends. However, there are several mechanisms at play designed to incentivize spending despite what might seem rational.

One example of such mechanisms is the in-game "messaging" system. Raid: Shadow Legends has a global messaging system where players are constantly updated whenever another player obtains a rare champion from a loot box.

Figure 26: In-game messages are displayed whenever another player obtains a high-tier champion. (Illustration: Screenshot from Raid: Shadow Legends)

In the above screenshot, it is shown that another player just obtained a "Legendary Void 5-star" champion from a shard. **This reinforces the player's belief that they might be similarly lucky, through what is known as the "bandwagon effect"**. As the player proceeds through the game, they are constantly bombarded with such messages of other players receiving rare rewards.

Given the number of players and the number of loot boxes opened each day, even events with small chances of happening will conform to the average probability given enough attempts. In Raid: Shadow Legends, **those rare events are used as marketing tools and reinforce the already strong confirmation bias that is inherent to human behavior**.

While playing Raid: Shadow Legends, players are also continuously drip-fed smaller rewards for, for example, logging in to the game daily or for playing for a set number of minutes. These rewards are comparatively tiny compared to the advertised purchasable packages but provide an incentive to keep playing.

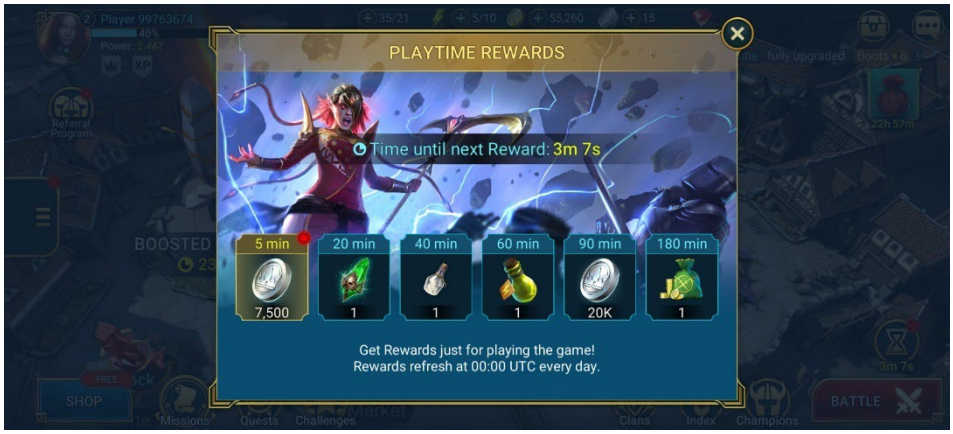


Figure 27: In-game advertising for playtime rewards. (Illustration: Screenshot from Raid: Shadow Legends)

To grow the player base, the game also rewards players with free shards for referring friends to join the game. **This is a form of "growth hacking" that may serve to inflate the number of downloads of the game, but it also enlists players as advertisers on behalf of the game**.

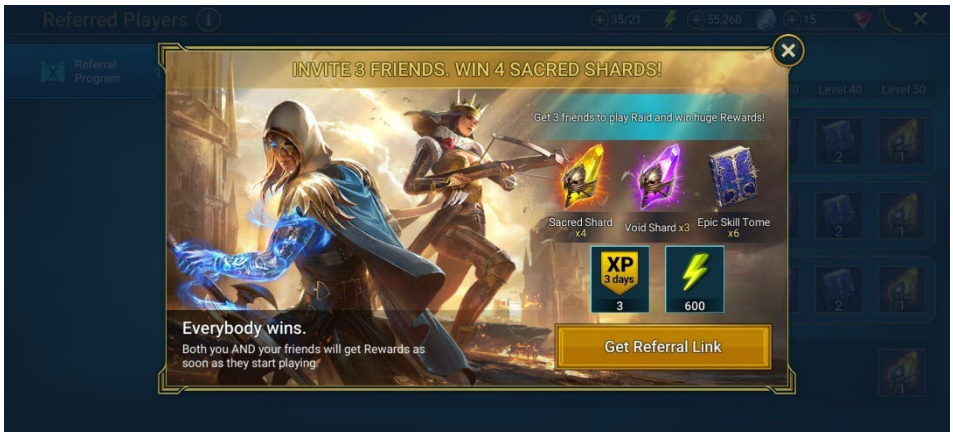


Figure 28: In-game advertising encouraging players to invite others to receive free shards.

3.2.6 Summary

The game Raid: Shadow Legends is built around opaque loot box mechanics with miniscule odds that demand an in-depth knowledge of probabilities and statistics to properly understand. To reach the higher levels of the game, both in player-versus-player (PvP) mode and in the campaign, players must buy large amounts of loot boxes.

The marketing in Raid is aggressive, and several elements are designed to build on already prevalent cognitive biases, including confirmation bias, bandwagon effects, and more.

Raid: Shadow Legends is basically a money-making machine for the video game company Plarium, disguised as a functioning game. Stripped of the loot box mechanism, the gameplay that remains wins no prizes. It can be questioned whether games such as Raid: Shadow Legends should be allowed to market themselves as "free", since the games are designed with major roadblocks which players must pay to circumvent. The actual "free to play" part of Raid amounts to little more than a platform for in-game purchases.

3.3 The problem of probability disclosures

Both FIFA 22 and Raid: Shadow Legends provide a certain amount of transparency by allowing players to see the probabilities of obtaining certain types of rewards from loot boxes. However, as documented above, this information is at best confusing, and at worst deceptively misleading.

The form of probability disclosure used by both games is problematic because the average consumer will not understand the inner workings of the stated probabilities. When several packs are opened, the probability is not cumulative, meaning that each pack opening is a separate event. This may be counter-intuitive to many players who, due to the gambler's fallacy, may be misled into believing that the probabilities add up as more packs are opened.

For example, players who are not savvy in statistical probabilities may be led to believe that a 1.3% chance of receiving a Team of the Year card from a FIFA loot box means that they will get lucky at least once if they open 100 packs. In fact, to archive near-statistical certainty the player would need to open hundreds more.

When the probability is not evenly distributed between the possible rewards, the actual chance of receiving an obtainable reward from any given loot box is effectively impossible to know or understand.

As an analogy, consider a traditional lottery. If the seller provided information that there was a 5% chance to win a sum of money between EUR 10 and EUR 100 000, consumers may be led to believe that the chance to win EUR 100 000 was within reach if they purchased more than 20 tickets. However, if the actual probability of winning EUR 100 000 was less than 0.0001%, this would likely be considered deceptive or misleading advertising.

3.4 Summary of observed problematic practices in the examples

As demonstrated in section 4, both FIFA 22 and Raid: Shadow Legends employ several problematic mechanisms tied to selling in-game loot boxes.

Impossible probabilities

Both games provide a system where players can see the probabilities of obtaining certain content from the various loot boxes. However, closer inspection shows that these probabilities are deceptive due to how rewards are

structured and categorized within the games. Through prominent in-game advertising, players are led to believe that the probability of receiving something worthwhile is within the realms of possibility, but the actual statistics behind it show that these possibilities are miniscule. Even with expert knowledge of statistical probabilities, it is impossible to know the actual inner workings of the algorithms doling out rewards.

In-game currencies

In both FIFA 22 and Raid: Shadow Legends, loot boxes can be purchased using various in-game currencies. Since these currencies cannot be refunded or converted into real money, they add an additional transaction layer that obscures the cost of the loot boxes. Non-linear conversion rates and bulk orders further contribute to the obfuscation.

Deceptive design

There is a continuous drip of lower-value loot boxes in both games, which gives players a taste of possible rewards. Opening a loot box is designed as a small victory, with ample use of triumphant music, bright colors, and satisfying animations, all of which are designed to trigger dopamine release and a feeling of achievement.

To progress through the games, or to stay competitive against opponents, players are continuously nudged and lured into purchasing loot boxes. In FIFA 22, the continuous introduction of promo events ensures that players will never have their “ultimate team” and will often be matched against other players who have obtained rare cards. Limited offers and cards are the lifeblood of the game, which means that players are constantly in fear of missing out.

In Raid: Shadow Legends, in-game progress grinds to a halt at a certain point unless the player shells out large amounts of money for loot boxes in the hope of obtaining better champions. Furthermore, a constant stream of in-game messages demonstrates how other players are receiving high-tier rewards, and the player must click through several pages of ads for in-game purchases every time they open the game.

All these practices add up to an experience that has been carefully designed to maximize spending. In the case of Raid: Shadow Legends, the entire game can be described as a fancy skinner box; take away the loot boxes and there is not much left. FIFA 22 contains an actual game where players can play virtual football, but that game comes at a retail price of EUR 60 before in-game purchases are added into the mix.

It appears obvious that the design and mechanisms driving in-game purchases in these games are predatory, manipulative, and exceedingly aggressive, targeting consumer vulnerabilities at every opportunity. The fact that the games are targeted at minors – 3+ in the case of FIFA 22 and 12+ in the case of Raid: Shadow legends – exacerbates the problem. Even though the cascade of deceptive designs and predatory practices in both games are exploitative when targeting adults, minors have fewer natural defenses against these tricks and warrant strong protections – something these games fail to provide.

4 Loot boxes and the law

Although the market for loot boxes is enormous and is projected to generate USD 20.3 million by 2025[78], regulatory scrutiny has been slow and fragmented. Below, we outline some possible avenues for regulatory action, both within existing European law and in forthcoming regulation.

Although this report does not contain a detailed legal assessment of loot boxes, we will point to possible directions within the existing and upcoming European legal framework.

4.1 Gambling legislation

To date, most regulatory initiatives to curb the harmful effects of loot boxes have focused on whether they should be regulated as gambling, citing the gambling-like mechanisms involved. There have been legislative initiatives in the United States to ban loot boxes, focused on shielding children from gambling-like mechanisms.[79] In the UK, discussions are also ongoing about whether loot boxes should be regulated as gambling.[80]

In Europe, gambling is regulated at national level, resulting in a fragmented regulatory environment. While some countries, such as Belgium[81] and the Netherlands, have decided that loot boxes constitute gambling and have regulated them accordingly, others have not.

In several jurisdictions, this stems from the fact that most loot box mechanisms do not award players with content that has monetary value, since it cannot be sold for or converted into real money.[82]

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[78] "Video Game Loot Boxes To Generate Over $20 Billion In Revenue By 2025, But Tightening Legislation Will Slow Growth", Juniper Research https://www.juniperresearch.com/press/video-game-loot-boxes-to-generate-over-$20-billion

[79] "U.S. Senator Introduces Bill To Ban Loot Boxes And Pay-To-Win Microtransactions", Jason Schreier https://kotaku.com/u-s-senator-introduces-bill-to-ban-loot-boxes-and-pay-1834612226

[80] "Loot boxes in video games", John Woodhouse https://commonslibrary.parliament.uk/research-briefings/cbp-8498/

[81] "EA buckles in Belgium, stops selling FIFA Points following loot box gambling pressure", Wesley Yin-Poole https://www.eurogamer.net/articles/2019-01-29-ea-buckles-in-belgium-stops-selling-fifa-points-following-loot-box-gambling-pressure

[82] The nuances of national differences in gambling legislation across European countries is covered in "Loot boxes in online games and their effect on consumers, in particular young consumers", Annette Cerulli-Harms et al., pages 34–36 https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf

In 2019, the District Court of The Hague ruled in favor of the Dutch Gambling Regulator (KSA), stating that the regulator correctly identified loot boxes as "games of chance".

In a surprising judgment, however, Dutch highest administrative court overturned the decision of the District Court and ruled that the use of loot boxes in FIFA games cannot be considered a game of chance.[83]

According to this decision, it seems that loot boxes are not subject to Dutch gambling laws if the game is competitive, loot boxes can be obtained by playing the game, are opened in the digital environment. Lastly, most of loot boxes must be earned by playing the game.[84]

Due to the cross-border nature of the internet and digital content, it is arguable whether a fragmented, nationally regulated market is the best way forward for consumers. Players who purchase loot boxes play against opponents in different countries, and any transactions within or outside of the game (for example through the FUT transfer market in FIFA) happens across borders. Furthermore, gambling laws often mandate an 18-year age limit, which is exceedingly difficult to enforce when most video games are sold through digital storefronts.

4.2 The current consumer protection framework

The coverage of consumer protection is comprehensive and covers the video game market in general. However, when it comes to matters of digital services, deceptive design and algorithmic decision-making the currents framework is not wholly sufficient to ensure consumer protection.

In this part of the report, we explore the current consumer protection framework from a European and American perspective.

4.2.1 The European consumer protection

In the EU, legislation is passed down from the Commission and Parliament and is transposed into the legal systems of its member states. The way the legislation is transposed varies somewhat, but the central principles of consumer protection remain the same.

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[83] https://www.lexology.com/library/detail.aspx?g=b7336333-71ac-47d4-b33d-77f5bf54ebfe

[84] René Otto breaks down the Dutch State Council's decision that FIFA card packs should not be regulated under gambling laws (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)

The Unfair Contract Terms Directive (UCTD) addresses the imbalances in the rights and obligations of consumers and those of sellers when a contract between two parties is concluded. It is an important piece of EU legislation to protect consumers. The directive lists examples of terms that may be regarded as unfair, and which are therefore not binding for consumers. However, as developed above[85], examples exist underlining some video game producers' practices to grant themselves unilateral powers to modify or cancel loot boxes features from their video games at any time, without valid grounds to do so, and without allowing consumers to be reimbursed of the paid loot boxes. Such clauses are likely to be in breach of the UCTD.

The Unfair Commercial Practices Directive (UCPD) constitutes consumer protection in marketing and other commercial practices in the EU. This directive covers all forms of marketing and other commercial practices when applied to consumers. Unfair commercial practices are prohibited under European law and are enforced by EU member states.

The UCPD targets commercial practices which, contrary to professional diligence, distort or are likely to distort the economic behavior regarding the product of an average consumer, or the average consumer to whom it is addressed, including vulnerable consumers (Article 5). Specific prohibition applies also to practices which are misleading (Articles 6 and 7) and aggressive (Articles 8 and 9).

In the case of loot boxes, the combined marketing pressure, use of behavioral biases or manipulative elements relating to, e.g. the timing of offers within the gameplay, (e.g. offering micro-transactions during critical moments in the game), pervasive nagging or the use of visual and acoustic effects to put undue pressure on the player that consumers are experiencing when interacting with loot boxes, as demonstrated in section 4 of this report, may well be a case of unfair commercial practice prohibited under the UCPD. The existence of a 'likely' impairment of an average consumer's freedom of choice or conduct is sufficient to meet the criteria to qualify as an aggressive practice under Articles 8 and 9 UCPD. [86]

When children or other vulnerable consumers are targeted, the unfairness threshold is lowered. Even though many games with loot boxes are not

[85] See section 3.6 of the report.

[86] Commission notice - Commission Notice – Guidance on the interpretation and application of Directive 2005/29/EC of the European Parliament and of the Council concerning unfair business-to-consumer commercial practices in the internal market, C/2021/9320 https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52021XC1229%2805%29&qid=1640961745514. See also Helberger, Micklitz et al. (2021) EU Consumer Protection 2.0 - Structural asymmetries in digital consumer markets, p. 70 et seq. ('**UCPD Guidance**') sec. 4.2.9.

specifically targeted at children, they are still exposed to the marketing within the games.

Children have a reduced ability to exert self-control and have more difficulty understanding valuation and probabilities in games.[87] This makes children more vulnerable to unfair game design than adults, and to marketing that obscures information or manipulates the player into making a purchasing decision.

The Consumer Rights Directive (CRD) gives consumers the same strong rights across the EU. For example, it aligns and harmonizes national consumer rules regarding the information to be provided to consumers prior to the purchase of goods, services or digital content.

Several practices mentioned in this report may contravene to the pre-contractual information requirements for distance contracts. For example, the probabilities to win loot boxes which, as demonstrated above clearly lack of transparency for consumers and contain misleading and unclear information about the real consumers chances. Such practices are, in our view, likely to influence consumers decision to buy or not a loot box may amount to a breach of pre-contractual information requirements (Article 6(1) CRD) but also of material information under the Article 7(4) UCPD. However, it needs to be underlined that the European Commission in its recently updated UCPD guidelines clarifies that[88] "*The sale of loot boxes in games must comply with the information obligations under the CRD and UCPD concerning the price and main characteristics of the product*."

4.2.2 Consumer protection in the United States

In the United States there are a variety of local, state and federal consumer protection laws. In this case, the Federal Trade Commission could take action under Section 5 of the Federal Trade Commission Act, which prohibits unfair and deceptive practices by businesses. All 50 states have similar laws, referred to as UDAP statutes, which state attorneys general enforce.

UDAP statutes protect consumers from practices such as misleading advertising, misrepresentations, and omission of key information that may impact a consumer's decision-making process.

To meet the threshold for unfairness under Section 5, a practice must result in consumer injury that is reasonably unavoidable, and the net effects of which are not outweighed by benefits to other consumers or competition. A practice

[87] "Loot boxes in online games and their effect on consumers, in particular young consumers", Annette Cerulli-Harms et al., pages 21–30 https://www.europarl.europa.eu/RegData/etudes/STUD/2020/652727/IPOL_STU(2020)652727_EN.pdf

[88] UCPD Guidance, sec. 4.2.9.

may be considered deceptive if it is likely to mislead consumers and affect their decisions to purchase or use a product.

We believe that the practices described in this report may violate Section 5 of the FTC Act as well as state UDAP statutes.

Unfairness: Lootboxes could potentially trigger unfairness enforcement actions as they can result in significant monetary injury to high-spending players ("whales"), or a smaller amount of injury across a large number of players. The extent to which players must purchase lootboxes to be able to play a game competitively is withheld from them when they are initially deciding whether to download a game, and once they do, they are subjected to undue influence and aggressive tactics to increase the likelihood they will buy lootboxes.

Deceptiveness: Lootboxes could potentially trigger deceptiveness enforcement actions. Games employing lootboxes rely heavily on the exploitation of cognitive biases, misleading consumers about the probability of success when purchasing a lootbox. "Freemium" games also use misleading pricing schemes, obscuring the true costs of downloading a game until the player is hooked and more willing to pay for in-game content. As in Europe, the vulnerability of consumers may also be taken into account; in this case, the fact that children make up such a large part of the audience for games featuring lootboxes.

4.3 Upcoming regulatory actions in the EU

4.3.1 The EU Fitness check: a timely opportunity to address the challenges posed by loot boxes

The European Commission has announced in its 2020[89] Consumer Agenda that it will analyze whether additional action is needed to ensure an equal level of fairness online and offline.

In March 2022, it also announced that a "fitness check" (evaluation) [90] will be conducted to determine if:

- the Unfair Commercial Practices Directive 2005/29/EC
- the Consumer Rights Directive 2011/83/EU

[89] Communication from the Commission to the European Parliament and the Council - New Consumer Agenda Strengthening consumer resilience for sustainable recovery - COM/2020/696 final; https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52020DC0696

[90] Digital fairness – fitness check on EU consumer law", European Commission; https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13413-Digital-fairness-fitness-check-on-EU-consumer-law_en

- the Unfair Contract Terms Directive 93/13/EEC, still ensure a high level of protection in the digital environment:

This evaluation will lead to the preparation of an Impact Assessment and may be followed by a legislative proposal with regulatory changes to the consumer law *acquis* in 2024. The evaluation will include the analysis of several key concepts particularly relevant for the protection of consumer in the video games area, such as the concept of vulnerability, deceptive design, price personalization.

It will be an opportunity for the Commission to analyze and propose solutions to the problems described in this report, faced by thousands of consumers (including vulnerable ones) in the EU, when playing video games.

For instance, unfair commercial practices and deceptive design in the video game market is an ideal example in the upcoming evaluation. The video game market has evolved without close scrutiny from regulators.

The upcoming evaluation should include how the video games exploit consumers into spending money for uncertain rewards.

The upcoming European AI Act[91], which is meant to regulate the use of artificial intelligence, could also play a role in protecting consumers in the video games market. Probabilities and outcomes of loot boxes are predominately decided by opaque algorithms that dynamically alter probabilities without the consumer's knowledge.

These systems can be used to trigger deep-seated responses, preying on innate consumer vulnerabilities. This may lead to both financial and psychological harm. The AI Act should address how algorithms are used in video games to affect consumer behaviors in potentially harmful ways and should introduce restrictions on some of these practices.

Legislators should assess current consumer laws in the light of digital business models and marketplaces and consider whether changes need to be made to ensure robust consumer protection in the context of video games and beyond.[92] Children merit special protection, and regulators may want to go

[91] https://digital-strategy.ec.europa.eu/en/policies/european-approach-artificial-intelligence

[92] For a comprehensive overview of dark patterns and consumer law, including concrete suggestions for EU policymakers, see BEUC, "Dark Patterns and the EU Consumer Law Acquis - Recommendations for better enforcement and reform" https://www.beuc.eu/publications/beuc-x-2022-013_dark_patters_paper.pdf

further in restricting the use of deceptive design in video games targeted at children.[93]

To secure sufficient consumer protection, it is paramount that regulators carefully assess questionable practices to ensure targeted remedies. Forthcoming regulation should consider the particularly problematic aspects of loot boxes as they relate to financial harm to consumers.

As with any other regulatory schemes, enforcement is crucial to enact significant change. With that in mind, we recommend that relevant authorities across Europe conduct "sweeps"[94] of the practices of major video game companies, particularly concerning the sale of loot boxes, how they are marketed, and how consumers can exercise their rights. If necessary, we recommend the Consumer protection authorities (CPC-Authorities) to launch coordinated enforcement actions in case of reasonable suspicion that widespread violation of EU consumer law is taking place, to ensure that the rights of European consumers are guaranteed in the video game sector.

In addition to regulatory intervention and enforcement of consumer law, industry actors should ensure that they do not design or employ predatory mechanisms in their products and services. Codes of conduct such as *Age Appropriate Design Code* from the UK Information Commissioner's Office[95] and *Guidelines on the protection of the online consumer* by the Netherlands Authority for Consumers and Markets[96] can serve as starting points, although industry specific codes of conduct may be needed. However, due to the clear financial incentives at play, voluntary codes or guidelines will not be sufficient to solve the problematic aspects of loot boxes.

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[93] See for example "Response to Request for Public Comment on the Federal Trade Commission's Request for Comments Regarding Topics to be Discussed at Dark Patterns Workshop", Campaign for a Commercial-Free Childhood, The Center for Digital Democracy https://www.democraticmedia.org/sites/default/files/field/public-files/2021/ccfc-cdd_dark_patterns_comments_05-28-2021.pdf

[94] Article 3(16) of the Regulation (EU) 2017/2394 on cooperation between national authorities responsible for the enforcement of consumer protection laws, «Sweep» means concerted investigations of consumer markets through simultaneous coordinated control actions to check compliance with, or to detect infringements of, Union laws that protect consumers' interests.

[95] "Age appropriate design: a code of practice for online services", Information Commissioner's Office https://ico.org.uk/for-organisations/guide-to-data-protection/ico-codes-of-practice/age-appropriate-design-a-code-of-practice-for-online-services/

[96] "Guidelines on the protection of the online consumer", Netherlands Authority for Consumers and Markets https://www.acm.nl/en/publications/guidelines-protection-online-consumer

5 Conclusion

Despite being a major industry, the video game sector has largely evaded regulatory scrutiny. This might be because of the prevailing business models being technically complex or somewhat novel or because video games are still considered a niche entertainment market by many authorities. In any case, the sheer size of the market and the number of affected consumers make it clear that regulatory investigations and possible interventions should be high on the agenda for authorities at national level and in the EU.

As the issues surrounding loot boxes are multifaceted and cross-sectoral, it is crucial that experts from different regulatory authorities cooperate to exchange information and resources when looking into the video game industry. Relevant authorities include those responsible for sectors such as gambling, consumer rights and competition, as well as audio-visual regulators.

Although there have been several initiatives to self-regulate or to increase transparency in loot box mechanisms, these have proven less than satisfactory. The combination of deceptive design, randomized rewards, virtual currencies, and exploitation of cognitive biases is too powerful to enable consumer education or transparency-increasing measures to ameliorate the harm caused by these practices.

Based on these cases and a broader overview of the industry, we present several proposals for industry, regulators, and policymakers:

7. **Video game companies must be banned from using deceptive design to exploit consumers**. When consumers engage in video games, companies must ensure that their decisions are not impacted to the detriment of the consumer, by the design and operation of game.
8. **All In-game purchases should always be denominated in real-world currency**. At the very least, real-world currency values should be provided alongside virtual currencies, where virtual currencies are used.
9. **Protection of minors:**
    a. Games likely to be accessed by minors **must not offer loot boxes**, or other randomized content in exchange for real money.
    b. Games likely to be accessed by minors **should not contain "pay-to-win" mechanisms**.
10. **More transparency:**

a. Researchers and regulators should have **access to the algorithms and datasets** that is are involved in the loot boxes to conduct independent research in the public interest.
b. In cases where **algorithmic decision-making** is employed to influence consumer behaviour, the **consumer must be explicitly informed**. The disclosure must include information in plain language about what algorithms are trained to achieve and which factors are used. In addition, the consumer should have the **option to use the game without algorithmically driven decision-making that aims to influence consumer behaviour**.

11. **Better and more enforcement**

    a. Consumer enforcement authorities must have the necessary resources and expertise to take enforcement actions, thus, protecting consumers in digital markets, including against video game companies.

    b. Consumer protection authorities should ensure that existing and future consumer rights are enforced in the gaming industry as well.[97]

12. If other remedies do not alleviate the problems, **consider a ban of paid loot boxes.**

Although the video games industry is amongst the largest entertainment industries, it has often eluded serious regulatory oversight. Therefore, we call for stronger regulatory action against video game companies that fail to respect consumer rights and that prey on consumer vulnerabilities.

[97] Provisions against aggressive and manipulative choice distortion practises (the Digital Services Act and, the Consumer Rights Directive, the Unfair Contract Terms Directive, the Unfair Commercial Practises Directive, the Digital Content Directive among others)

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