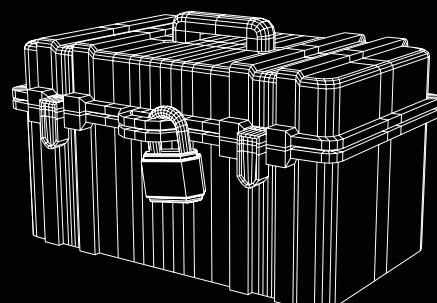
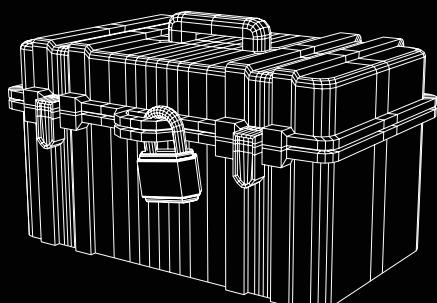
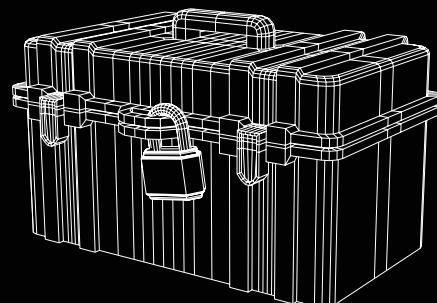
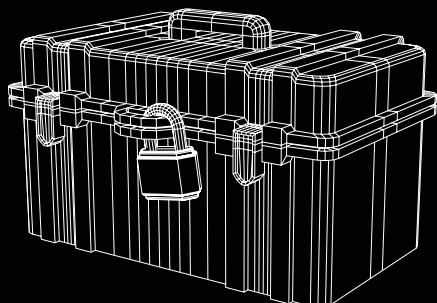
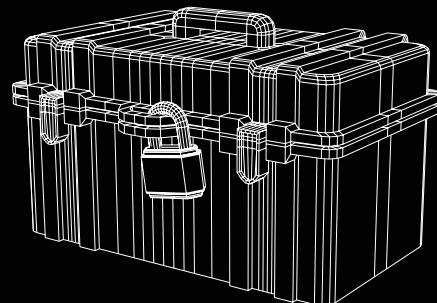


# INQUEST

Unveiling gambling mechanics in gaming monetization



N.O

🔍

loot boxes

# Editorial

Loot boxes, identified as any game-related purchase with a chance-based outcome, are a highly addictive and manipulative practice born in the early 2010s. From eastern gachas to western triple A games the implementation of this particular monetization model completely disregards any existing gambling regulations, actively targeting the most susceptible demographic and completely ignoring the wellbeing of their consumers while doing so.

KeyBanc Capital Markets analyst Evan Wingren says loot-box revenue from Electronic Arts' sports games has risen to more than \$1 billion in 2018 from \$800 million in 2016. If it makes money, companies are not going to be willing to stop doing it, so there have been a series of arguments rallied in defence of loot boxes as an unproblematic, non-gambling activity. For example, loot box controversies have been compared with earlier, unfounded videogame-related moral panics, such as links between video gaming and violence. However, these earlier controversies were based on questionable, unrepeated evidence – which contrasts markedly with the loot box evidence. Loot boxes have also been defended as 'surprise mechanics' – no different, for example, to a Kinder Egg. Such arguments, however, do not tally with well-established associations between loot boxes and problematic gambling behavior furtherly showing the double standard to which the terminology is being held by these companies, labeling their most recent games as "LOOT BOX FREE", well aware of the good PR that comes with the statement, but continuing defending the practice in their best money-horse FIFA, by merely changing the terminology to "surprise mechanics".

A further insinuation of this 'surprise mechanics' defence of loot boxes is the idea that everyone is a winner. The evidence, however, suggests otherwise. When marketplace features allow, contents of most loot boxes are traded for less than the cost of unboxing – i.e. monetary losses occur, and consumers do not always "win something." Even when there are no mechanisms for cash out, research confirmed that most gamers perceive loot box contents as generally representing a loss. Sometimes, the sought-after, "winning" items were so rare that almost every purchase was

a disappointment, often spurring another purchase. At first glance, such observations suggest that regulating all loot boxes as gambling might be a viable solution to avoid the problem of conflicted policy. It would bring all loot boxes under the umbrella of existing gambling regulation – and it is the strategy favoured by many, including over 40'000 signatories of a recent UK petition. Such an approach, however, would be a radical overhaul of gambling law – but once again, life is not so easy when it comes to legislative fine-print. Gambling regulation was not conceived for loot boxes, and it is here that we get into the thorny "square peg, round hole" problems. For example, it is unclear how developers should deal with aspects such as "return to player" and "money's worth" – a legal obligation for gambling games regulation. Similarly, there will need to be provisions for issues like rule-bending, where (for example) developers might provide "gift boxes" with every real-money purchase. Changes to gambling laws will also have unexpected ramifications. It will require, for example, clarifications of whether other types of items, such as trading card games, will now be subject to gambling controls.

Any legislative framework for loot boxes will depend on the jurisdictional context. It might involve new loot box regulation, re-framing existing gambling laws, utilising consumer protection powers, or even a simple, outright ban – all of which are currently being considered, for example, by Spain. A future framework could even include a role for industry self-regulation – but given a rather questionable track record, any corporate measures would need to be decisive, comprehensive and transparent.

INQUEST dives deep into the industry's gambling mechanics and monetization tricks, attempting to create awareness of these deplorable practices and giving you the means to recognize, evade and condemn them, while also holding the companies accountable by doing the only thing that actually makes them take action: not giving them money and calling them on their bullshit.

(and also tweeting at them with "fuck you and fuck your loot boxes.")

- The game industry is plagued.
- The name of the plague is predatory monetization.
- The plague is designed to impair your self control and willpower.
- It skews you towards immediate gratification one dopamine rush at a time.
- The habit pattern kicks in and what was fun and games becomes addiction.
- Once you get inside the loop they achieve their goal: your money.
  
- As time passes, the plague spreads and its patterns become harder to notice.
- Recognizing the symptoms is the first step towards the cure.
- INQUEST gives you the knowledge that enables your perception against these mechanics.
- Awareness is the key to achieve our goal: the eradication of gambling in gaming.
  
- We stand against predatory monetization.
- We stand against the exploitation of the unaware.
- We stand against gambling disguised as gaming.
  
- Fuck loot boxes.♦

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# It's getting worse

## VIDEOGAME MONETIZATION IS CONSTANTLY EVOLVING

Designing and programming videogames for some people could be dream jobs, but they're still works, and a fundamental part of work is making money. In fact, software houses need money to keep producing and distributing new thrilling games. However, it seems that the industry through the years has been looking for ways to capitalize on its products as much as possible, even tricking the consumers with aggressive mechanics. This article is an analysis of the evolution of videogame monetization, and starts with the definition of the different systems emerged in the last 40 years.

### /Retail price/

The classic deal - consumers pay for the game. Once they get it, they own all the content and can do whatever they want with it.

### /Expansion pack/

An expansion pack is a separate product that builds on top of an existing game to add significant new features. Expansion packs can usually be purchased at retail and installed from CD, and exist separately from their parent game. They are typically "mini games" in their own right, but rely on the content and engine of their original game for much of their content.

### /Downloadable content (DLC)/

Downloadable content (DLC) is additional content created for an already released videogame, distributed through the Internet by the game's publisher. It enables the publisher to gain additional revenue from a title after it has been purchased, often using some type of microtransaction system. DLC can range from cosmetic content, such as skins, to new in-game content such as characters, levels, modes, and larger expansions that may contain a mix of such content as a continuation of the base game.



*Octavian Husoschi  
Matt Gardner*

▼ Phases of monetization in videogames with one of the most iconic games for each mechanic

### Mechanics

#### Retail price

PacMan



Year of popularization

1972

#### Expansion pack

Half Life



1990

#### DLC

Oblivion



2005

#### Loot box

Overwatch



2010

#### Season pass

Borderlands 3



2011

## Between baseball cards and lottery

Loot boxes have been compared to baseball cards, which in the early 90's generated around \$1.2 billion at its peak of sales. Collectors would buy packs hoping it would reveal rare, limited edition cards. Loot boxes function in a similar manner in videogames, where consumers are guaranteed to get something from a loot box, though the quality or rarity is unknown. However, one major difference in this comparison is that baseball cards were tradeable in real life, which is not the case within most cases with loot boxes and the virtual goods that are obtained from opening them. In some videogames though, players can digitally trade items and in-game currency for real money in an aftermarket that is run on third party websites. Or on official player-to-player trading forums, like there is on the *Steam* platform for videogames such as *Counter Strike: Global Offensive*.

The purchase of loot boxes takes place within online videogames and is seen being similar to a lottery mechanism in the virtual world. Consumers purchase loot boxes or virtual keys to unlock loot boxes with microtransactions, and then receive virtual goods by opening or unlocking loot boxes and

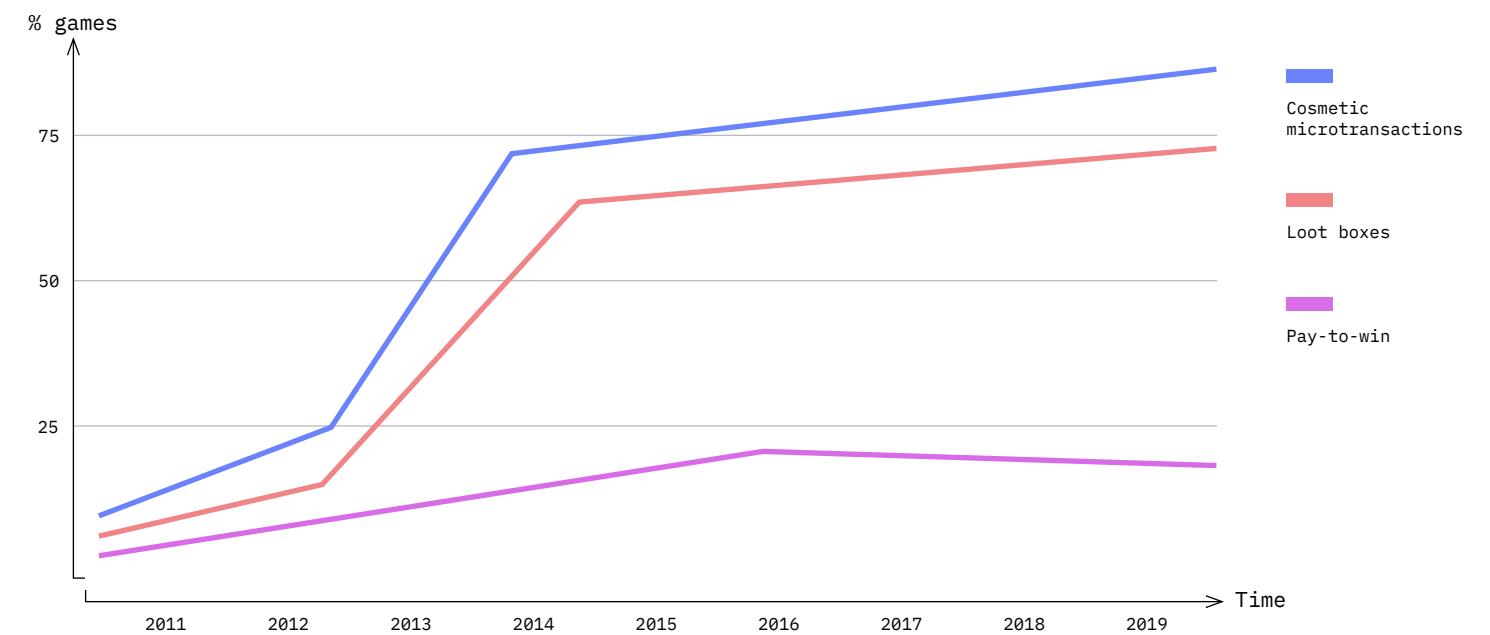
get a chance selection of available virtual items. However, loot boxes don't always have to be bought and can be won through progression milestones and game time, with different methods in different genres of videogames. These boxes also take the form of packs, crates, chests, bundles and card packs.

All players wish they can win rare items and are often encouraged to invest lots of money on microtransactions to hit the jackpot. The chance of winning such items are minimal and commonly unknown, as the developers generally do not publish the odds of winning the items that are available.

Consumers may perceive the opening of a loot box as a moment of anticipation followed by a release. Acquiring new clothes on the avatar in a videogame may be a disappointment, but it sometimes offers the emotional pleasure of getting exactly the item the consumer wanted. Consumers sometimes find what has been compared to a gambler's pull to open another loot box because that is the moment of excitement that anything is possible. That is why loot boxes have caused a controversy in some countries as it is viewed as a form of gambling and that consumers are paying for something that should already be available in the game.



△ Reaction of a youtuber during the anticipation phase



△ Percentage of games played with various monetization features, from 2010 to 2019

## Present-day facts

The first games using loot box mechanics appeared in 2010, and this monetization system had a surge between 2012 and 2015. By the middle of the decade, EA was reporting that around a third of their digital sales revenue – approximately \$660 million – was derived from their loot box style *FIFA Ultimate Team* packs.

The graph above shows the percentage of games played with various monetization features. Data is from desktop games available on the content provider, *Steam*, between 2010 and 2019. The blue and purple lines refer to all types of transactions, not just loot boxes – and establish that cosmetic transactions dwarf 'pay to win' features, the red line refers to loot boxes dynamics, and shows the surge as well as the following slowdown. Many reasons could explain that backlash, mostly related to different controversies that emerged when the industry pushed too hard. However, the percentage of games with loot boxes is still increasing, even if at a slower pace.

## Future predictions

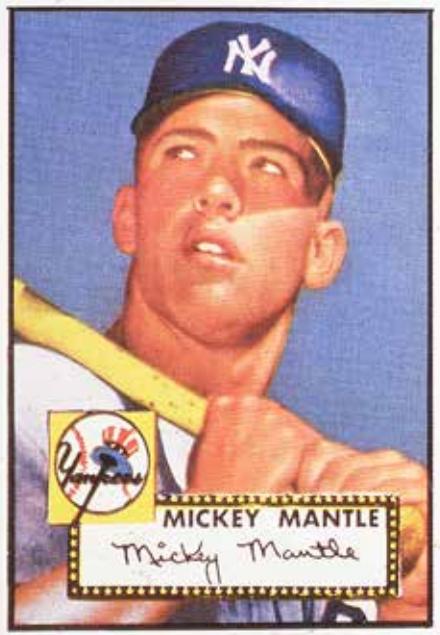
A new report by Juniper Research has found that videogame loot box revenue will reach \$20 billion by 2025. This is up by a third on last year; during 2020, an estimated \$15 billion was dropped on speculative booty. Future growth seems

all the more impressive, considering that so many people were throwing disposable income at indoor comforts due to the global pandemic.

According to Juniper, around 5% of gamers (over 230 million players) will buy loot boxes in 2025. Mobile gamers represent the majority of these speculative payments, which is unsurprising, considering that most free-to-play games on Android and iOS are monetized. However, the research also highlighted that lucrative markets are being presented by battle passes and DLC on consoles.

There are small crumbs of comfort for those railing against what is, ostensibly, a monetized bet: growth in loot box purchases will average 5% per year to 2025, which is a marked slowdown on previous years. It forecasts that Europe will continue to be the global leader in curtailing loot box use in gaming – but the continent's success still hinges on its responsiveness. Juniper explained that publishers will explore new ways to deploy loot boxes to bypass legislation, ranging from "transparent" options through to entirely altering the ways they can be bought.

Nick Hunt, the co-author of the report, explained: "Loot boxes in their traditional form are often considered exploitative, leading to increased legislative scrutiny. We expect to see game publishers reacting to this in future by changing loot box formats, in order to keep them compelling and outside the legal realms of gambling." ♦



"FOUND IN CHEWING GUM PACKS"



"FOUND IN FIFA PACKS"

# Pick your poison

## WHY DO PEOPLE BUY LOOT BOXES?

### Current panorama

Since loot box is a really widespread monetization mechanic at the present moment, it can be found in different games with various characteristics. We compared the most populars, retrieving and displaying: the nature of the loot box, the ways to obtain it, the number and type of items that can be found inside, cost, rarities with color coding and drop rates, the presence of pity.

James Close  
Joanne Lloyd

## FIFA 21



How to open: paying and playing  
Items: 1-34 | functional and cosmetic

Cost per FUT Pack.....\$0,42 - \$20,83  
(through FIFA Points)  
Keys.....none

### Rarities:

- Common.....??%
- Rare.....??%

### Pity:

None.

## Genshin Impact



How to open: paying and playing  
Items: 1 | functional

Cost per Wish.....~\$4,00  
(through Genesis Crystals)  
Keys.....none

### Rarities:

- 3-stars.....94,3%
- 4-stars.....5,1%
- 5-stars.....0,6%

### Pity:

Every 10 wishes you are sure to get a 4-star character (or weapon), every 90 a 5-star and after 180 you are ensured to get the specific banner character.

## Apex Legends



How to open: paying and playing  
Items: 3 | cosmetic  
  
Cost per Apex Pack.....~\$1,00  
(through Apex Coins)  
Keys.....none

Rarities:  
● Rare.....75,2%  
● Epic.....16,4%  
● Legendary.....7,4%

Pity - "Bad Luck Protection":  
You will earn at least one Legendary item  
within 30 pulls.

## Call of Duty: Black Ops 4



How to open: paying  
Items: 3 | functional or cosmetic  
  
Cost per Reserve Crate.....\$1,99  
(through COD Points)  
Keys.....none

Rarities:  
● Common.....??%  
● Rare.....??%  
● Epic.....??%  
● Legendary.....??%  
● Ultra.....??%

Pity - "Reserve Guarantee":  
Every 3rd Duplicate gets re-rolled into a new item  
you didn't already have.

## Halo 5: Guardians



How to open: paying and playing  
Items: 10-15 | functional and cosmetic  
  
Cost per REQ Pack.....\$1,99 - \$2,99  
(through REQ Points)  
Keys.....none

Rarities:  
● Uncommon.....??%  
● Rare.....??%  
● Ultra rare.....??%  
● Legendary.....??%

Pity:  
Unknown.

## Hearthstone



How to open: paying and playing  
Items: 5 | functional  
  
Cost per Card Pack.....\$1,49  
(through Coins)  
Keys.....none

Rarities:  
● Common.....??%  
● Rare.....??%  
● Epic.....??%  
● Legendary.....??%

Pity:  
A Legendary card is guaranteed to be in one of the first ten packs of an expansion opened. A player can't open a Legendary card that they already own.

## Counter-Strike: Global Offensive



How to open: paying  
Items: 1 | cosmetic  
  
Cost per Case.....\$0,03 - \$17'664  
Keys.....\$2,50 each

Rarities:  
● Mil-spec.....79,92%  
● Restricted.....15,98%  
● Classified.....3,2%  
● Covert.....0,64%  
● Exceedingly Rare.....0,26%

Pity:  
None.

## Dota 2



How to open: paying  
Items: 1-3 | cosmetic  
  
Cost per Treasure.....\$2,49  
Keys.....none

Rarities:  
● Regular.....100%  
● Rare.....0,05%  
● Very rare.....0,01%  
● Extremely rare.....0,001%  
● Cosmically rare.....0,0004%

Pity:  
Escalating drop chances for rarer items, meaning that the odds of obtaining them increase with the number of treasures opened.

## League of Legends



How to open: paying and playing  
Items: 1-3 | cosmetic  
  
Cost per Hextech Chests.....~\$0,90  
(through Riot Points)  
Keys.....~\$0,90 each

Rarity:  
● Other.....??%  
● Epic.....??%  
● Legendary.....??%  
● Mythic.....??%  
● Ultimate.....??%

Pity - "Bad Luck Protection":  
You can't open three chests in a row without dropping at least one skin shard.

## Overwatch



How to open: paying and playing  
Items: 4 | cosmetic  
  
Cost per Loot Crate.....~\$1,48  
Keys.....none

Rarity:  
● Common.....100%  
● Rare.....100%  
● Epic.....18,5%  
● Legendary.....7,5%

Pity:  
A rare item or above is included in every box.



## GENDER % LOOT BOX BUYERS

Female.....	13,7%
Male.....	20,8%
AGE	
18-25.....	18,9%
25-30.....	18,0%
30-35.....	15,8%
35-40.....	16,1%
40-45.....	16,6%
45-50.....	13,5%
50-55.....	12,2%
55-60.....	9,8%
60-65.....	9,4%

▼ Percentage of active loot box purchasers from 13'000 UK gamers, according to demographic profile

## Loot boxes buyers

The previous comparison shows how drop rates, probabilities and mechanisms make it wildly hard to obtain the character or skin desired. Anyway, people keep playing to games based on loot boxes. The graphs above refers to percentages of loot box purchasers, by demographics, from thirteen thousand UK gamers. It shows how loot box buyers are demographically quite varied. However, it is possible to identify demographic variables that might be associated with increased loot box engagement – first of all, younger age, and then lower educational attainment and unemployment.

The skew in loot box purchasers – particularly towards those who are younger – is particularly concerning when framed alongside the discovery that high spending loot box whales tend to be problem gamers, rather than wealthy individuals. These demographic trends are likely to overlap with psychical drivers, such as impulsivity and gambling-related cognitions. This relationship could result in disproportionate risks for specific groups and cohorts of gamers.

## Gamers' opinion

But what do gamers think about loot boxes? On the forum website Reddit there are a lot of comments from players that discuss the theme. On a subreddit called *r/OutOfTheLoop*,

in parcticular, there was a discussion on what loot boxes are and why everyone is referring to them as gambling.

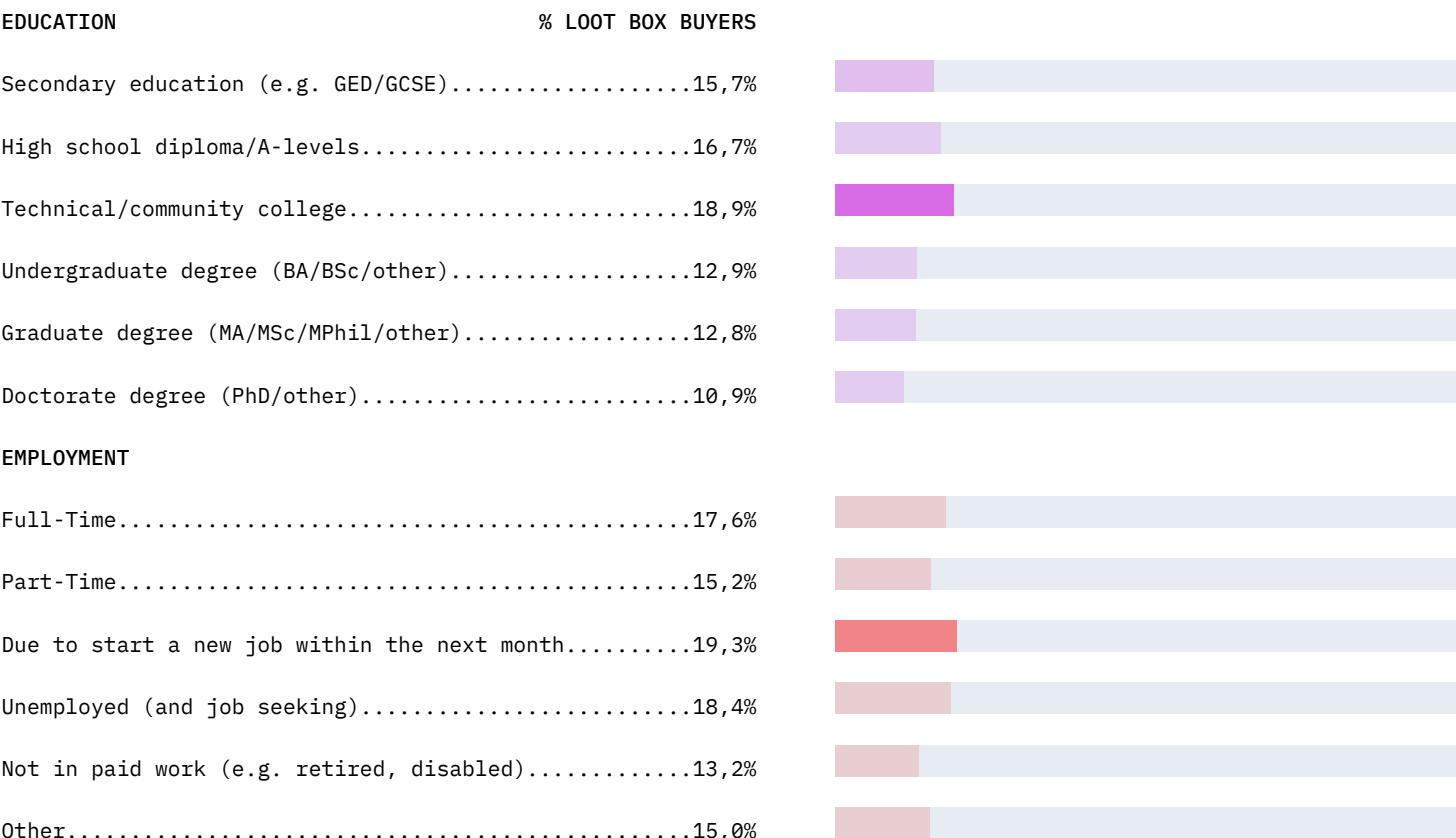
In that thread, one commenter with the username ForOhForError (2017) said that the loot box model had "[...] lost a lot of goodwill for being included in full-price games as it's seen as greedy at that point."

Rainbowbloodunicorn (2017) responded by saying he/she thought that the way *Overwatch* does loot boxes was acceptable since he/she did not find them intrusive.

Tianoccio (2017) responded, saying that *Overwatch* was just a Skinner box, meaning it was designed as an operant conditioning chamber for the express purpose of making players want more loot boxes.

One other commenter with the username soulreaverdan (2017) said: "You're not paying for a specific item or pack of items, you're paying for a chance at an item, without being guaranteed of getting what you want. [...] And while some argue this is okay for free-to-play games, as this is how they tend to make their money back, the fact that it's being included in AAA-tier \$60+ dollar games is leaving a really bad taste in some players' mouths."

On another thread in the *r/OutOfTheLoop* subreddit, users discussed why loot boxes became so hated in recent years. User MrCapitalismWildRide (2018) says that *Overwatch* is the reason



because it was the first fully priced videogame at \$60 that had fully integrated loot boxes into the gameplay loop, which other videogame developers and publishers took notice of.

Another user comments that one thing he/she feels that what is contributing to the hatred of the loot box model is that it seems videogame developers and videogame publishers show no sign of stopping if there is no serious sales decrease or new law to restrict the implementation of loot boxes (OvertOperation, 2018).

Other comments were similar in nature, and more often than not expressing their dissatisfaction with the loot box model. Two points are regularly mentioned as a reason for the dissatisfaction. One being the fact that loot boxes only give a random chance at getting specific virtual goods, and the other being that loot boxes are sometimes implemented in videogames that have already been purchased at a premium price. Though some do not concern themselves with loot boxes, so long as they do not feel them to be intrusive.

## Overlapping triggers

A crucial part of the puzzle, however, is understanding why people buy loot boxes in the first place. What attracts them to it? What do they get out of it? Why do some people do it over and over, whilst others can take it or leave it?

A research based on a survey about reasons for buying (441 answers) and 28 in-depth interviews with a diverse sample of regular loot box purchasers, identified eight different motivations, displayed onto the next page, and the analysis highlights that there is no single dominating motivation. There are personal differences: an array of multiple, personal, overlapping factors that contribute to loot box engagement. Motivations often interact in a complex relationship with game design, which deploys a sophisticated choice architecture. Players become psychologically invested in competitive or social gameplay factors before a range of incentives and nudges push players toward purchase. This sometimes includes some subtle traditional gambling-like strategies such as revealing near-misses.

Despite personal difference and nuances, there was one perception that unified all our participants: notions of value. This was consistently linked with item rarity. This concept of value, however, extends beyond the classic legal "money's worth" definition. Items won through loot boxes can hold considerable social or psychological capital. It could be argued that the prized contents of loot boxes are equivalent to the latest pair of trainers, or a high-spec bike – but for many young people, these digital assets are now more relevant than those traditional real world status symbols. They often hold a more sophisticated allure than a simple cash prize. And just because the winner decides to keep the prize, rather than sell onwards, that does not render the prize as having no money's worth. ♣

**"A crucial part of the puzzle, however, is understanding why people buy loot boxes in the first place."**

## 1. Value of box contents

### Financial

"If you got a good player, like, a rare player, it was just, like, it was, like, ultimately winning virtual currency, because you could sell that player for virtual currency, so that's what it was all about."

### Aesthetic/cosmetic

"It's just an opportunity for you to buy the skin and buy something that you think looks good. You want to compete with the other players, not just in-game, but with your skin."

### Functional

"Obviously if you've got a more powerful character [from a loot box] you've got a higher chance of winning."

## 2. Emotive/impulsive motivations

### Urge, temptation

"I was more focused on buying the loot boxes in school. I wasn't concentrating a lot and that affected my mental ability... and I was very disrespectful. It was very difficult to resist the temptation."

### Boredom or escapism

"Sometimes you sit there, and you think, 'well, hold on, I'm a little bit bored, I don't want to watch TV, I know, I'll open some FIFA packs'."

### Hard to verbalise

"I don't know, really - it's a bit embarrassing in a group of 20-year-olds... sitting there putting hundreds of pounds into what is a football game on Xbox."

## 3. Game-related elements

### Progression

"The game offers so much fun... if only you could get over this little speed bump [through box contents] ... where the game is really, really hard and there's things you want to do and... progress onto."

### Skip the grind

"You can either spend a lot of time grinding it for free or you can, like, cheat. Well, not cheat, but shortcut your way in by just spending money [on a loot box] and just getting the content as well."

### Pay to play

"If you don't buy packs or you don't grind the game for hours and hours it's just not possible to be competitive."

### Enhanced game experience

"These load outs from the loot box were affecting the gameplay, giving me new weapons, making my characters more stronger, and that made it a lot more fun."

### Pay to win

"... just wanting to be able to do better, so, in the games where it gives you items, and, so, you get that special item that will help you out or... beat that last boss, or help beat more people online."

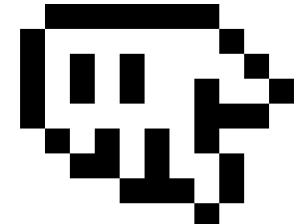
### Investing in games

"Most of these games that offer them are free to play, so... some people justify the purchase, saying, like, this game gives me entertainment, so I'm going to pay for it."

## 4. Fear of missing out

### F.O.M.O

"Fear of missing out, that's what people are most vulnerable to... they think, 'oh wow, I want to really get into this and do well in this game especially when they put a time limited event"



▼ Summary of motivations for loot box purchase with illustrative quotations

## 5. Opening experience

### Box related factors

"It's not just you click a button and then there you go you've got it - there's a lot of, like, animation that comes with it and that's quite, like, exciting and thrilling for me."

### Opener-related factors

"Just like a rush of, like, I don't know, like, excitement, a rush of excitement, or, like, just pleasure, it was like a hit, do you know what I mean?"

## 6. Triggers/facilitators

### Promotions

"They would give you, like, 20% extra free if you spent £80 straight up, as opposed to just £20, or they give you, like, a better pack with more chance of getting a good player if you spent more money on the game, so more money on the pack."

### Special (time-limited) events

"They would have this time-limited event going on, which brought the rate up and a lot of people... would end up resorting to buying, like, additional tickets to try and, like, roll for the unit they want."

### Ease of purchase

"It doesn't feel like you're spending money 'cause you're just buying packs 'cause your card's stored in there... It's just so easy... It's so, so quick, like, I could spend £500 in five seconds."

## 7. Social influences

### Status and esteem

"You could brag to the lads at work like: I just packed so and so in a pack last night... it was kinda like a status thing, I guess... if you could display these skins... There's that power that comes behind with it."

### To support good causes

"They do charity events a couple of times a year, where it says like 'spend £10 and you will get this rideable mount' and you just move around on it, and it looks special, and all the money will go to charity."

### Influence of streamers

"The reactions on YouTube, if you pull a good player, people go absolutely crazy... because you pulled that amazing item... if there wasn't influence, I don't think there would be more sales of loot boxes..."

### Influence of friends/others

"I'm then comparing myself to him, because he's got it and I don't, so I want to get something... a sort of jealousy, almost."

### Socializing

"I'd be out with my friends, a few of us would all normally play FIFA and we'd be like, 'Oh, actually shall we all just throw like a tenner on some packs?'"

Hit that  
shot till you  
see what's  
in#ide

“I KNOW THIS IS THE ONE”



IT WASN'T :(

# Endless possibilities

Alex Wiltshire

## WHY ARE LOOT BOXES SO ADDICTIVE?

### Anticipation and release

Loot boxes are everywhere. You may feel an almost violent antipathy to the very idea of them, but you've probably also opened a fair few. The appeal isn't hard to grasp. Opening a loot box is a rush: a moment of anticipation followed by release. That colourful animated flurry is often accompanied by disappointment, but is sometimes with the joy of getting exactly the item that you wanted. Then you feel the gambler's pull to open another, pushing you back into the game to grind or digging into your wallet to earn or buy your next one. "It's that moment of excitement that anything's possible," Ben Thompson, art director on *Hearthstone* from 2009 to 2019, says. "In that moment I could be getting the cards I've been looking for twenty packs. That anticipation has always been a key point in games in general; successful games build on anticipation and release, whether a set of effects or in gameplay."

### Animations

*Overwatch*'s loot box is a masterpiece of audio-visual design. "It's all about building the anticipation. When the box is there you're excited at the possibilities of what could be inside," says senior game designer Jeremy Craig. Click the "open loot box" button and the box bursts open, sending four disks into the sky. Their rarity is indicated by coloured streaks to further build the suspense. "Seeing purple or gold you start to think about what specific legendary or epic you've unlocked. This all happens so fast, but it was those discrete steps that we felt maximized excitement and anticipation."

*Hearthstone*'s opening animation is likewise engineered to trigger anticipation, and also to make the cards desirable objects and to imbue them with a sense of value. From the start it was important that they'd evoke real collectible cards. As Thompson says: "Ripping that foil pack and feeling it give, that moment of excitement that anything's possible." Rather than hitting a button and watching, as you do when opening most loot boxes, from *Battlefield 1* to *Overwatch*, you have to drag a pack over to what Blizzard calls the Altar. There's a brief moment as blue magical power builds, and then, in the case of the classic packs, the cards suddenly burst out in a shower of glitter and gold. With Journey to *Un'goro* packs, they emerge in a crackle of lightning (which echoes its evolve mechanic), and a shattering

“It’s that moment of excitement that anything’s possible”

Ben Thompson, art director on *Hearthstone*

▼ Light showing off at the start of the opening animation in *Overwatch*





△ Hearthstone's pack opening animation

of ice in the *Knights of the Frozen Throne* packs. The challenge was to design a sequence that would feel special to those opening a single pack while not wearying those opening 50 in a row. "If you buy that many you don't want to spend half your day opening them, you want to get them open and start building decks and experience the real focus of the game," says Thompson. "As much ceremony as we want to put into the pack opening, we need to keep it concise." The sweet spot, it turns out, is about two seconds.

As *Overwatch*, *Hearthstone* indicates the rarity level of the cards you'll be getting before the cards are actually revealed. Mouse over their backs and you'll see a colored glow on rare, epic or legendaries. "We don't immediately flip them, we let player agency take a seat in the sense of controlling what order they flip them, how they flip them, the time between each flip."

#### Variable rate reinforcement

But the excitement-based design of the opening experience isn't the only reason loot boxes provide such a dark compulsion. Psychologists call the principle by which they work on the human mind variable rate reinforcement. "The player is basically working for reward by making a series of responses, but the rewards are delivered unpredictably," says Dr Luke Clark, director at the *Center for Gambling Research* at the University of British Columbia. "We know that the dopamine system, which is targeted by drugs of abuse, is also very interested in unpredictable rewards. Dopamine cells are most active when there is maximum uncertainty, and the dopamine system responds more to an uncertain reward than the same reward delivered on a predictable basis."

What's more, the effect of variable rate reinforcement is very persistent. Psychologist B.F. Skinner conducted trials during the early 1930s in which he conditioned animals to respond to certain stimuli in closed chambers that became known as Skinner Boxes, and showed that even when the rewards were removed, the subject would continue responding for sometimes hundreds of trials, trying to recreate every circumstance in which it got its reward before.

#### Collectibles

Loot boxes are almost always filled with collectibles. Collecting baseball caps is freeform collection because you can accrue them indefinitely. But games present a very structured form of collection, tapping into several powerful motivational principles. You're working towards a clear and achievable goal and you can see your progress towards it. During matches you get to show it off to others who are also immersed in collecting the same items, a chance to feel both kinship and bask in the status your collection confers. And there are lots of systems of scarcity, driving value towards certain items. But managing them is a delicate art.



△ Some collectibles with different rarities from an Overwatch loot box

"We use rarity levels primarily to control the frequency of getting our most exciting content," says *Overwatch* principal designer Heiberg. Thompson continues: "We don't want players getting frustrated because they're earning none of the best rewards. We also don't want players getting bored because they earned all of the best rewards at once. Rarity levels give us some control over the pace of these rewards."

Both *Overwatch* and *Hearthstone*'s designers are careful not to dictate value. "We learned that the value of our cosmetic content varies widely from player to player, and that no distribution of rarities was likely to really jive with everyone," Heiberg continues. "Some players are super excited about that rare card and the legendary doesn't mean so much, and similarly you'll have someone trying to build an all-Murloc deck and they're going to be more excited about a common Murloc as opposed to a legendary of a class they're not after. We let those moments be fun at every level and not focusing on legendary cards being awesome and how you should get all of them, but rather let the player get excited about any aspect of the opening."

#### Maladaptive purchase decisions

In addition to loot boxes' link with problem gambling and their potential abuse of the variable-ratio schedule of reinforcement,

loot boxes may also be predatory because they present and abuse experimentally demonstrable decisionmaking cognitive biases and fallacies of the player, and thereby cause players to make irrational, maladaptive purchasing decisions.

For example, ignoring any house rules, the popular game of 38-pocket American roulette has an expected value of -5.26%, thus a bet of \$1 is expected to, in the long-term, on average, lose \$0.0526. Playing roulette in these circumstances is irrational. Nonetheless, gamblers continue willingly to make the decision of betting on roulette and participating in other gambling games, and losing their money because they are influenced by decision-making fallacies which cause them to make irrational decisions.

A clear example of irrational bias that loot boxes may abuse is the near-miss effect. A near-miss occurs when "an unsuccessful outcome is proximal to the designated win, such as when a chosen horse finishes in second place or when two cherries are displayed on the slot machine payline." The near-miss effect refers to how the presentation of a losing situation as a near-miss encourages players to make further attempts, as psychologist Luke Clark has said, "A moderate frequency of near-misses encourages prolonged gambling. Problem gamblers often interpret near-misses as evidence that they are mastering the game and that a win is on the way."

▼ Deep character customization and collectibles in Battlefront II



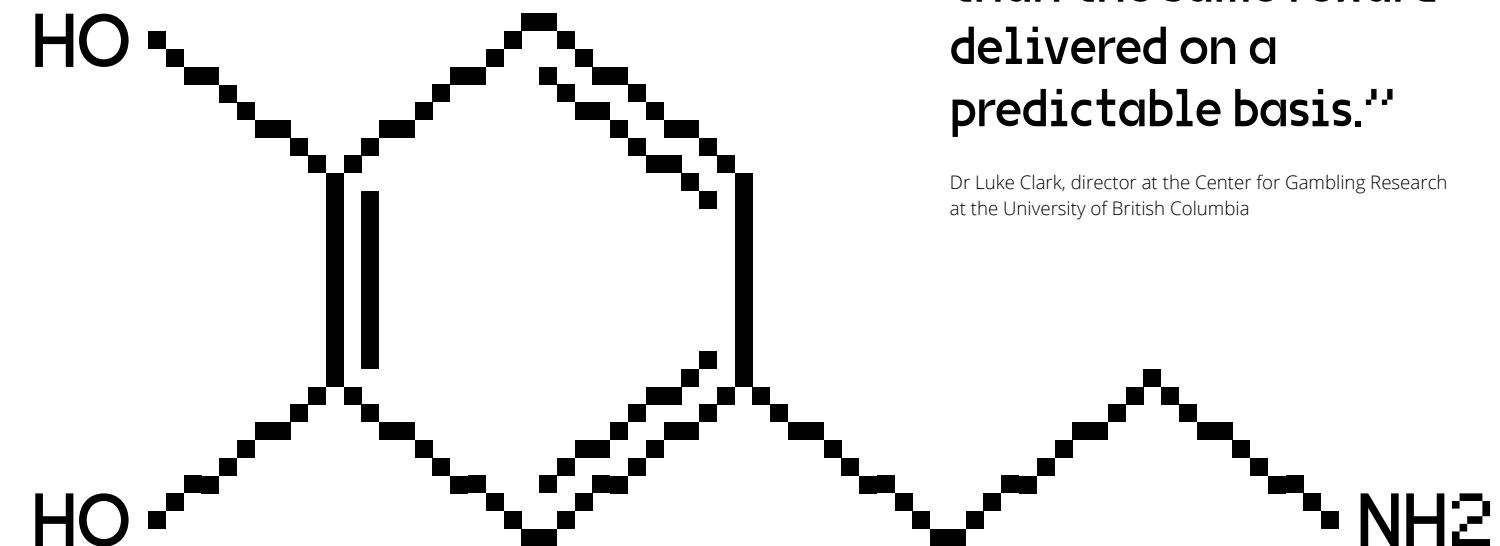
**"We use rarity levels primarily to control the frequency of getting our most exciting content"**

Michael Heiberg, Overwatch principal designer

#### Gambling and gaming

Although researchers contend that there are parallels between loot box purchases and gambling, little is known about how players hedonically and motivationally respond to these types of rewards at the psychological, physiological and behavioural level. Specifically, in the gambling literature, research has demonstrated that physiological arousal triggered during gameplay is the primary reinforcer of gambling behaviour, and is tightly linked to one's urge to gamble. Importantly, physiological arousal (e.g., triggered by gambling wins) is associated with both the onset and maintenance of gambling behaviours and has been shown to promote the urge to gamble. These dynamics are widely found in loot box openings, and can be measured in many different behaviours of the player.

For example, if players had to press a mouse to continue to see more loot-box openings, the force exerted on the mouse would be titrated to the rarity of the items in the loot box that was just viewed. Similarly, physiological arousal during slots



play can be measured using the force one exerts on the spin button: Dixon et al. demonstrated that slots players would exert greater force on the spin button to initiate the next spin following large wins. Additionally, the force applied following wins was titrated to the win-size.

Than, post-reinforcement pauses (PRPs) are another means of gauging the reward value of slots outcomes (Dixon et al.). PRPs are a measure of time between the outcome delivery and the initiation of the next spin. In slots, when players spin and lose, they tend to initiate the next spin right away, but when they spin and win, they tend to pause before spinning again. As mentioned, the length of this post-reinforcement pause tends to be titrated to the size of the win - the bigger the win, the longer the pause. Players appear to pause to internally celebrate the rewarding events, which exerts a momentary inhibition of further reward-seeking behaviour. One more time, players opening loot boxes behave just the same way, pausing to enjoy the win when they get a super rare item from the box.♦

**"The dopamine system responds more to an uncertain reward than the same reward delivered on a predictable basis."**

Dr Luke Clark, director at the Center for Gambling Research at the University of British Columbia

# Do you guys have any things you do before opening a pack that increases your luck?

Answers collected from the "Pack opening superstition" thread of the Hearthstone forum hearthpwn.com

I listen to "eye of the tiger" and do hand stretches before every pack.

Discover the cards very slowly, you don't want to scare the legendaries.

Just a bit ago I literally got on my knees and prayed to god and I'm not even religious...

Always open packs when you're really drunk and have your credit card with you.

I drag the packs several times in a circle before letting go of them.

# Problem gam(bl)ing

Catherine Myers  
David Zendle  
Paul Cairns

## DO COMPULSIVE GAMBLERS LIKE LOOT BOXES?

### Direct proportionality

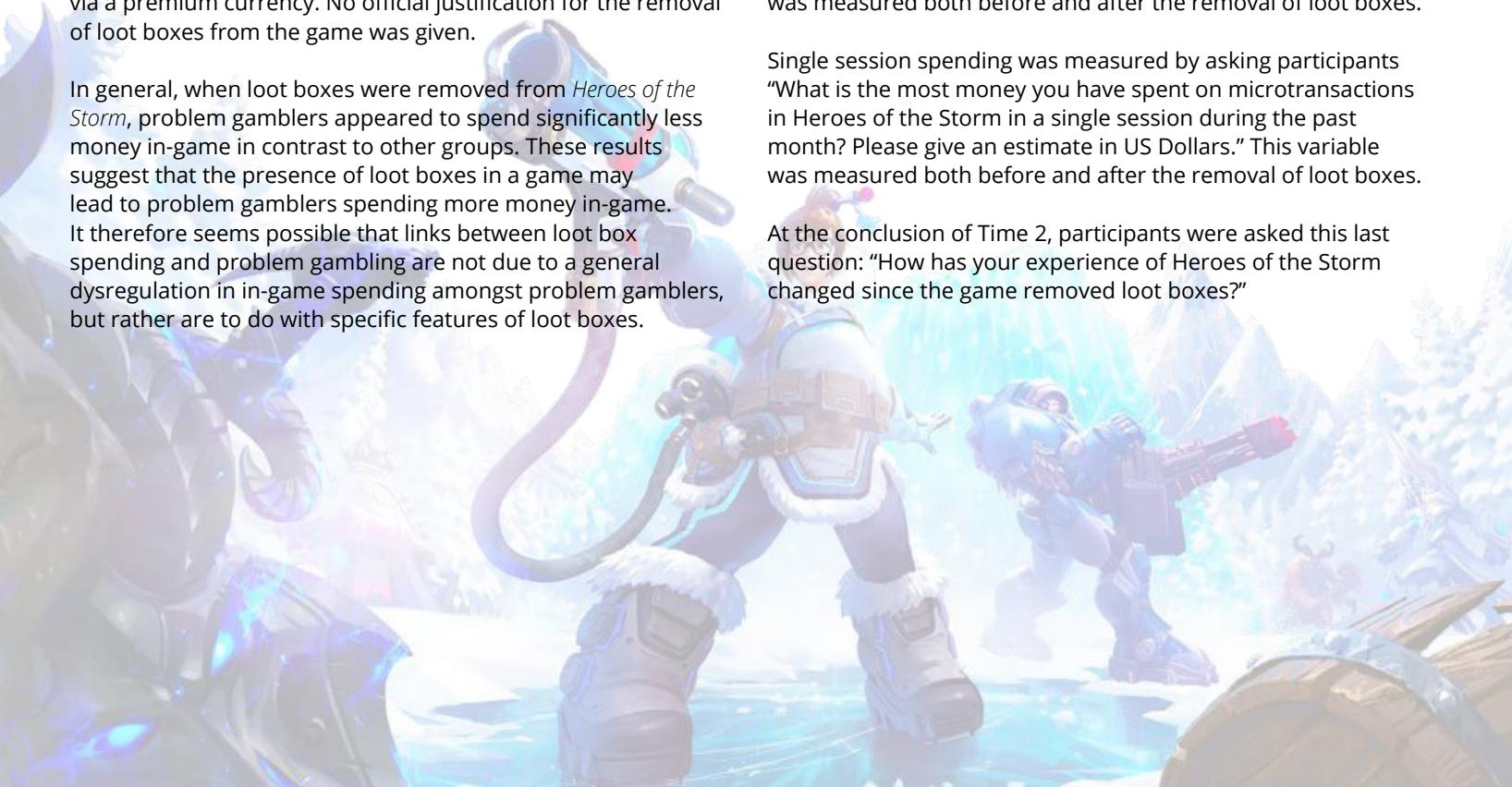
The more money gamers spend on loot boxes, the more severe their problem gambling tends to be. However, it is unclear whether this link represents:

- a case in which loot box spending directly causes problem gambling;
- a case in which the gambling-like nature of loot boxes cause problem gamblers to spend more money;
- a case in which there is a general dysregulation in in-game spending amongst problem gamblers, nonspecific to loot boxes.

### Heroes of the Storm

The multiplayer videogame *Heroes of the Storm* recently removed loot boxes. After 24th March 2019, loot boxes were no longer available: they could still be obtained in-game by completing specific objectives but could no longer be bought via a premium currency. No official justification for the removal of loot boxes from the game was given.

In general, when loot boxes were removed from *Heroes of the Storm*, problem gamblers appeared to spend significantly less money in-game in contrast to other groups. These results suggest that the presence of loot boxes in a game may lead to problem gamblers spending more money in-game. It therefore seems possible that links between loot box spending and problem gambling are not due to a general dysregulation in in-game spending amongst problem gamblers, but rather are to do with specific features of loot boxes.



### The surveys

Two online surveys with a sample of 112 players of *Heroes of the Storm* aged 18 or older were conducted. The first of these surveys took place between March 21st and March 24th 2019 (Time 1, before the removal of loot boxes); the second survey took place between May 24th and June 3rd 2019 (Time 2, after the removal of loot boxes).

Problem gambling was measured using the Problem Gambling Severity Index (PGSI) (Ferris & Wynne, 2001). Problem gambling was only measured at Time 1. Its questions involve "thinking about the last 12 months" and therefore would not have shown significant variation at Time 2, which occurred only two months after Time 1.

In-game spending was measured by asking participants "Approximately how much money have you spent on microtransactions in *Heroes of the Storm* during the past month? Please give an estimate in US Dollars." This variable was measured both before and after the removal of loot boxes.

Single session spending was measured by asking participants "What is the most money you have spent on microtransactions in *Heroes of the Storm* in a single session during the past month? Please give an estimate in US Dollars." This variable was measured both before and after the removal of loot boxes.

At the conclusion of Time 2, participants were asked this last question: "How has your experience of *Heroes of the Storm* changed since the game removed loot boxes?"

### ▼ Problem Gambling Severity Index (PGSI)

1. Have you bet more than you could really afford to lose?  
[ ] Never.....score: 0  
[ ] Sometimes.....score: 1  
[ ] Most of the time.....score: 2  
[ ] Almost always.....score: 3
2. Have you needed to gamble with larger amounts of money to get the same feeling of excitement?  
...
3. Have you gone back on another day to try to win back the money you lost?  
...
4. Have you borrowed money or sold anything to gamble?  
...
5. Have you felt that you might have a problem with gambling?  
...
6. Have people criticised your betting or told you that you had a gambling problem, whether or not you thought it was true?  
...
7. Have you felt guilty about the way you gamble or what happens when you gamble?  
...
8. Has gambling caused you any health problems, including stress or anxiety?  
...
9. Has your gambling caused any financial problems for you or your household?  
...

TOTAL SCORE 0.....Non-problem gamblers  
TOTAL SCORE 1-4.....Low-risk gamblers  
TOTAL SCORE 5-7.....Moderate-risk gamblers  
TOTAL SCORE 8+.....Problem gamblers

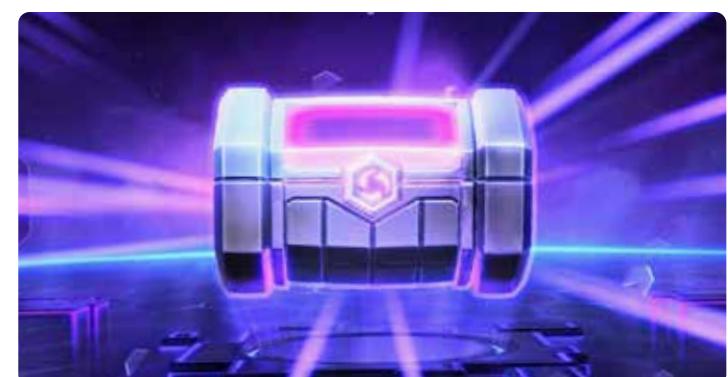
### Conclusions

The results do not support arguments that links between loot box spending and problem gambling are simply a consequence of general dysregulation in in-game spending amongst problem gamblers. When loot boxes were removed from *Heroes of the Storm*, problem gamblers spent significantly less money in-game. Furthermore, exploratory analyses revealed that there was a significant link between problem gambling severity and percentile reduction in spending when loot boxes were removed from a game: the more severe an individual's problem gambling, the more their spending was reduced when loot boxes were removed from a game.

What are the real-world implications of this research? Problem gamblers are characterised by their disordered and excessive spending on gambling activities. This research may suggest that the presence of loot boxes in a game specifically causes problem gamblers to spend more money on that game. It seems possible that this is due to the gambling-like nature of loot boxes: as noted in Zendle & Cairns (2018), excessive and disordered spending on gambling activities may transfer to loot boxes due to formal similarities between themselves and gambling.

Loot boxes may have generated as much as \$30 billion for the videogame industry in 2018 alone (Juniper Research, 2018). These results suggest that this revenue may have been driven, at least in part, by gambling problems amongst gamers.

### ▼ One of *Heroes of the Storm* loot boxes



## Different surveys

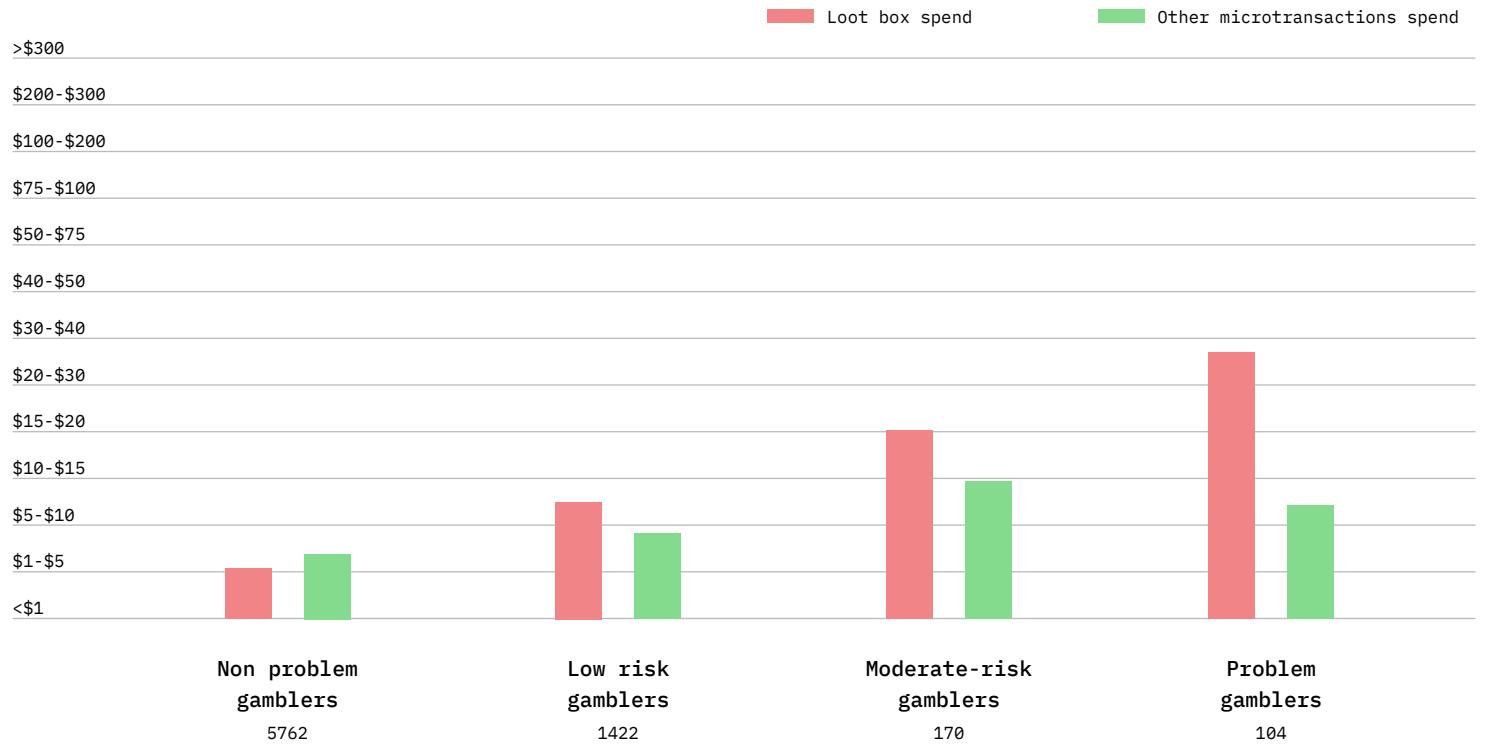
Further details about the links between purchasing loot boxes and problem gambling were investigated in the following survey, conducted on a self-selected international sample of 7422 gamers.

Demographic details about participants were collected, as were quantitative measures of problem gambling, loot box spending, and other microtransaction spending. Problem gambling was measured again using the Problem Gambling Severity Index (PGSI).

Loot box spend was measured using a series of two questions. Participants were first asked "Have you ever bought a loot box in a videogame?" (Yes/No). If they indicated that they had bought a loot box, they were asked "Approximately how much money in US dollars would you say that you spend on loot boxes each month?". This question had 13 possible responses, from "less than \$1" to "Greater than \$300".

**"How much money would you say that you spend on loot boxes each month?"**

▼ Comparison between loot box spend and other microtransaction spend and their relations with problem gambling



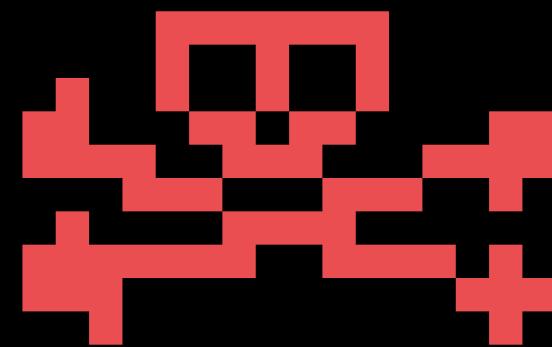
Other in-game microtransaction spend was measured to check whether any observed relationship between loot box spend and problem gambling was due to the specific features of loot boxes, and not due to individuals who were problem gamblers spending more money in general. This variable was measured in a similar way to loot box spend. Participants were first asked "Have you ever bought any other item or product in a game using real-world money? (Excluding loot boxes)" (Yes/No). If they indicated that they had bought an item which was not a loot box, they were then asked "Approximately how much money in US dollars would you say that you spend on these items per month? (Excluding loot boxes)". The question had no date range specified. This question had the same 13 possible responses as the measure of loot box use.

## Same conclusions

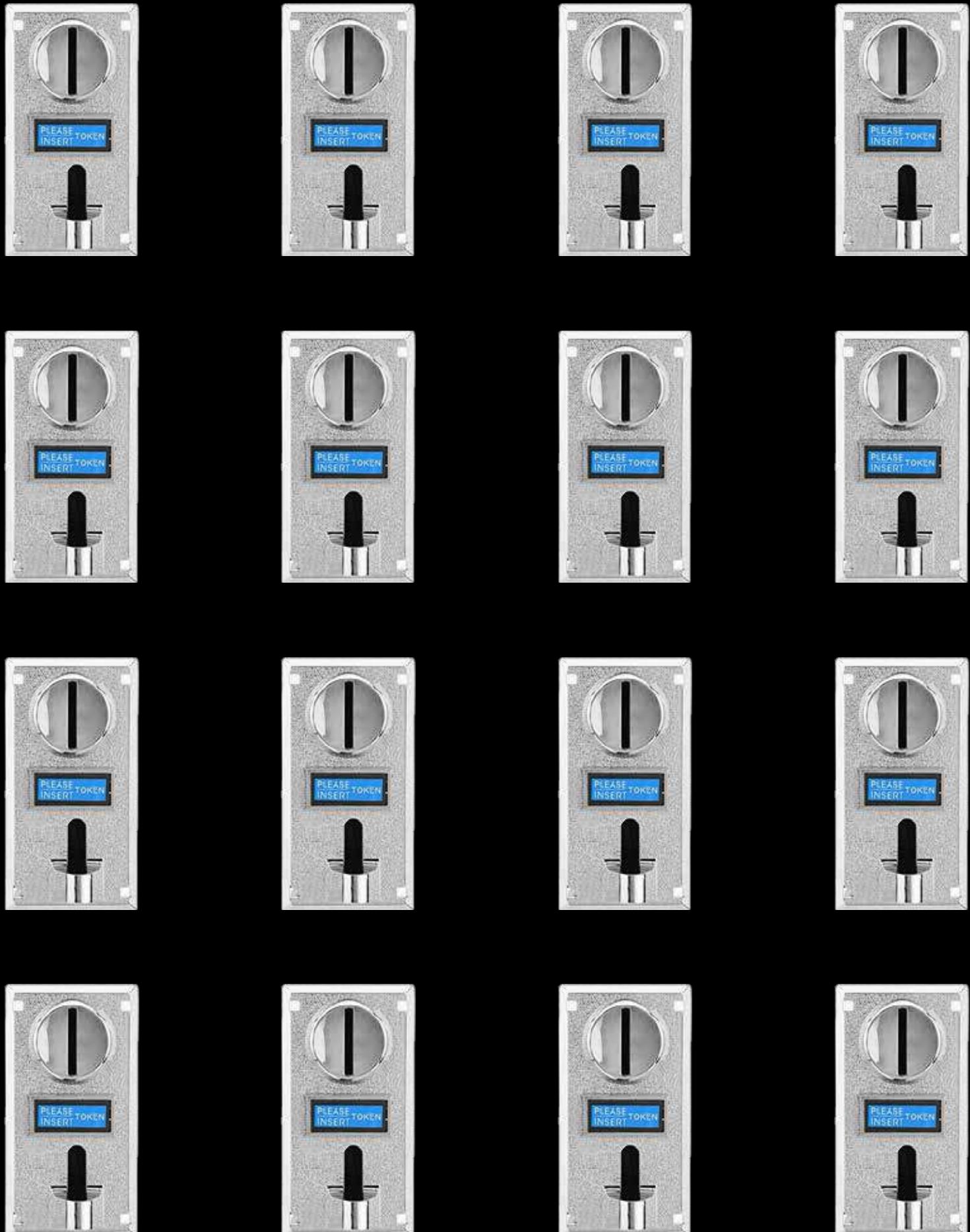
The results of this study suggest that there is an important relationship between problem gambling and the use of loot boxes. The more severe that participants' problem gambling was, the more money they spent on loot boxes. Non problem gamblers spent the least amount of money on loot boxes, low-risk gamblers spent more, moderate-risk gamblers spent yet more and problem gamblers spent the most of all on loot boxes.

This is not a weak or unimportant relationship. Effects of this magnitude commonly bear practical, as well as statistical significance. Indeed, the relationship observed here is stronger than the relationship between problem gambling and several common risk factors in the gambling literature.♦





# Game Over



# Four gloves one thousand cases

MIL-SPEC  
(blue)RESTRICTED  
(purple)CLASSIFIED  
(pink)COVERT  
(red)EXCEEDINGLY RARE  
(yellow)

THIS IS WHY YOU SHOULDN'T  
OPEN CS:GO CASES

## CS:GO

*Counter-Strike: Global Offensive* (CS:GO) is a multiplayer first-person shooter developed by Valve, the software house that developed and currently owns Steam, one of the best-known game launchers. CS:GO has drawn in an estimated 11 million players per month, and remains one of the most played games on Steam. In December 2018, Valve transitioned the game to a free-to-play model, focusing on revenue from cosmetic items, in the same year its worldwide revenues rose from 392 millions of euros to 475 millions of euros. Nevertheless, its first case appeared in 2013, and in the next years CS:GO has been developing one of the most structured systems of loot boxes in videogames, with 34 different cases containing thousands of weapons skins. But how do CS:GO cases work?

Weapon cases are items that are obtained through random timed drops or given as *Operation Mission* rewards during gameplay. The cases are locked, and can only be opened with a Key. Keys can be purchased directly from the ingame store and the Steam Market with a base steam cost of €2,50, or can be obtained by trading with other players.

When opened, a case will drop a randomly selected item from its drop list of skins for handgun, rifles, knives or soldier's gloves. All the items have just an aesthetic purpose, and do not implement new in-game functionalities or powerups. As the potential loot from a case varies in rarity, there is not an equal chance of dropping each item. All weapons obtained from cases are at least of the Mil-Spec (or Rare) grade,

with the coveted Knives being the rarest. Each rarity level is related to a specific color - a visual strategy quite common for in-game items and also adopted for loot boxes and skins.

## Rarities

The item will also have a condition assigned to it - Factory New, Field-Tested, Minimal Wear, Well-Worn, or Battle-Scarred. The rarity and condition of the weapon you receive will determine how much it will sell for on the *Community Market*; with a Factory New, gold weapon being the most expensive. Minimal Wear is also sought after, as the light scratches can make an interesting effect on the weapon's skin. Finally, a weapon also has the ability to have Steam's StatTrak brand attached to it, which is simply a screen on the side of the weapons that counts how many kills you have achieved, and can also bump up the value of the item - since it makes the item ten times less likely to be found in a case.

Users can trade those skins in the *Steam Community Market*, where all cosmetic items from the thousands of games are available to be bought and downloaded, sometimes for hundreds, or even thousands of euros. When it comes to the *Community Market*, Valve is the winner as it will always take a small fee of around 20% of what you sold the weapon for. The rest of the money is deducted from the buyer's Steam Wallet or bank account, depending on the payment method; and the funds are transferred into the seller's *Steam Wallet*. This benefits Valve as the money that goes into the seller's Wallet is only able to be spent on the *Steam* platform, meaning the money



will go straight back into Valve's pocket, regardless of what it's used for.

What Valve is essentially doing is coding an infinite money source into their game, and the company only has to design and code a handful of new skins into the game every couple of months to keep the market exciting.

## Opening 1000 cases

CS:GO cases are widely used as a way to create entertainment on platforms such as YouTube or Twitch: there's plenty of content creators gaining money on case opening videos and streams, making it a popular format online with tons of views.

Ludwig "Ludde" Amadeus Lagerstedt, better known by his online alias *Anomaly*, is a Swedish-Finnish Youtuber, streamer, and internet personality known for his videos in which he mainly opens lots of cases speaking fast and loudly always



ANOMALY

Only CS:GO videos  
and case openings

Since.....03/21/2007

Videos.....522  
Subscribers.....3'020'000  
Total views....944'393'180



ANOMALY 3

Mainly pack opening  
of many TGCs

Since.....02/02/2018

Videos.....34  
Subscribers.....243'000  
Total views....141'088'554

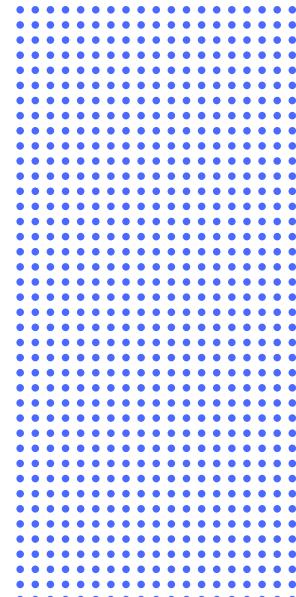


Cost:  
price of the  
cases and the  
corresponding  
keys.

### 798 Mil-spec skins

Value..... €145,04  
Cost..... €2154,60

Profit..... -€2009,56



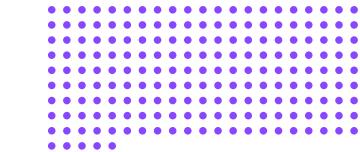
• = 1 skin

Value:  
current SCM  
price of the  
items.

### 165 Restricted skins

Value..... €224,93  
Cost..... €445,50

Profit..... -€220,57



### 31 Classified skins

Value..... €293,78  
Cost..... €83,70

Profit..... +€210,08



### 2 Covert skins

Value..... €48,14  
Cost..... €5,40

Profit..... +€42,74

..

### 4 Exceedingly rare skins

Value..... €919,78  
Cost..... €10,80

Profit..... +€908,98

..

### 1000 Total skins

Value..... €1631,87  
Cost..... €2700,00

Profit..... -€1068,13

### Data analysis

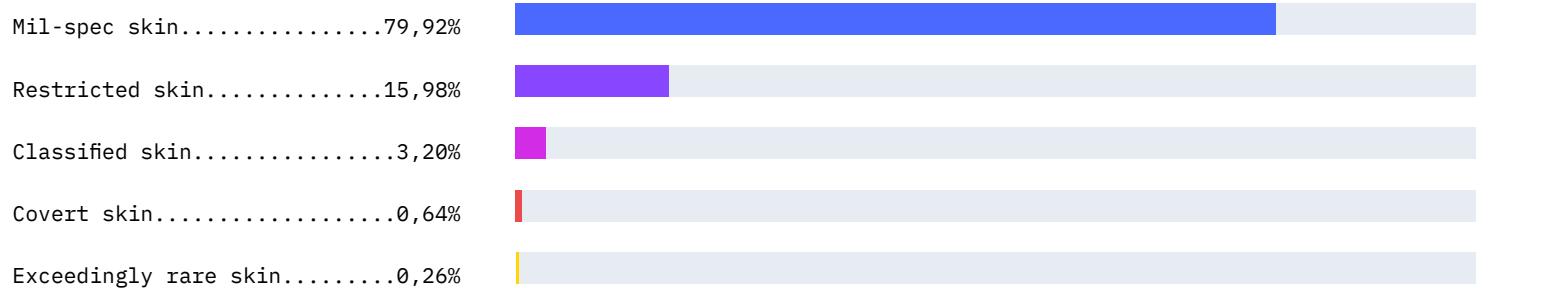
Here you can see the specs of all the skins found in the one thousand case opening. The most part of the skins found are Mil-spec, and that means they're worth quite nothing. Only four out of one thousand skins are exceedingly rare, nevertheless their value is more than half of the total value of all the skins. At the end of the openings, €2700 have been spent for a total value of just €1631,87: the total loss is even more than €1000.

### Average skins value



Data relative to the opening of 1000 CS:GO operation broken fang cases by Anomaly, in the video "This is why you shouldn't open CS:GO cases".

#### ▼ Percentage probabilities of skins rarities



## Theory and practice

Due to the loot crate law from *China's Ministry of Culture* earlier in 2016, game publishers were asked to display loot crates content and its relative odds.

"Dear CS:GO players:

Due to ministry of culture's online gaming operating regulations and supervising requests, to publicly display CS:GO randomized lootrates as follows:

If you manage to get an ultra rare tier item (yellow), its relative ratio to Covert item (red), is 2:5. Covert item (red) to each adjacent lowered tier (pink), and so on, its relative ratio is 1:5. Same quality but variant item has same chances of outcome. Any items that has Stat-trak variant, its relative chance for Stat-trak is 1/10 (not 1:10). Real time in-game rewards

are announced in the following link:  
<http://www.csgo.com.cn/hd/1707/lotteryrecords/index.html>.

Currently, all CS:GO randomized loot crates fulfill the above, and we will contact you if there is any further changes. Thank you for your support."

these data are compared to *Anomaly*'s one thousand openings, it is possible to see that he was way luckier than you might say: he found four exceedingly rare items, while basing on these probabilities he should have found just two or, at most, three. He was lucky indeed, by losing just €1000!

and as a pinned comment under the first channel "one thousand cases opening" video, nevertheless the latter gained almost 500'000 views more than the other.

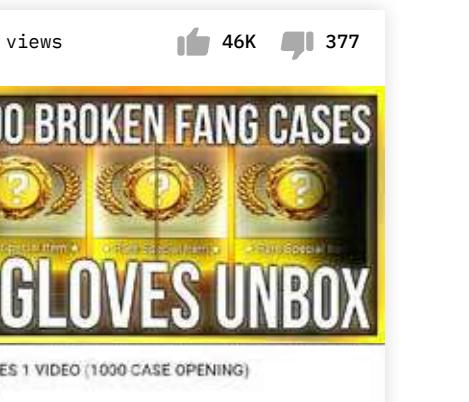
"This is why you shouldn't open CS:GO cases" seems like an anomaly in *Anomaly* videos, but not a too radical one: could

right and dark sides

This video brings a lot of consciousness around the problems in loot boxes monetization and aims to warn

s about the real possibility  
revenues from this practice.  
a really informative and useful  
nt, but *Anomaly* didn't upload it  
first channel, fairly more popular  
the other two. He used his third  
el, which has barely 1/12 of the  
options of the main one. He put  
k to this video in the description  
a pinned comment under the  
channel "one thousand cases  
ng" video, nevertheless the latter  
almost 500'000 views more than  
er.

why you shouldn't open CS:GO seems like an anomaly in *Anomaly*, but not a too radical one: could single video, shared in such a shy change peoples perception? Could enough to shake the routine of s' feed full of clickbaiting previews in all caps titles, a smiling face and best item? ☺



A photograph showing a large stack of gold-colored cases, likely for the video game Counter-Strike: Global Offensive (CS:GO). The cases are arranged in several layers, filling most of the frame. The lighting creates strong highlights and shadows on the metallic surfaces of the cases.

Valve  
is not  
your friend,  
and Steam  
is not  
healthy  
for gaming.



# Fifteen seconds of thrill

Chanel J. Larke  
Katrina Chini  
Christopher Lee  
Mike J. Dixon  
Myra Fernandes



ANIMATIONS ARE KEY ELEMENTS IN OVERWATCH LOOT BOX SYSTEM

## Outcome and arousal

In games like *Overwatch*, when a loot box is obtained, there is a brief anticipatory period in the moments leading up to the reveal of the items. In addition to arousal effects triggered after the outcomes are revealed, loot boxes may also trigger arousal prior to the outcome. Increased arousal is highly associated with anticipation of risk, but importantly also with reward.

In *Overwatch*, animations show the loot box shaking for a period of approximately 2s prior to showing the items exploding out of the box. Hence, arousal might be expected to increase even before the reveal of the specific loot items. Thus, loot boxes may be particularly alluring outcomes because they may trigger a buildup of arousal prior to the outcome, followed by a further increase in arousal if the items revealed are ones coveted by the player.

▼ Skin rarities in Overwatch



COMMON  
(white)



RARE  
(blue)



EPIC  
(purple)

Participants viewed 49 videos of actual *Overwatch* loot box openings. Each video was a total of 15 s in length. In the first 2 s of each video, the loot box would appear to shake, at about 2 s the loot box would release four coloured coins representing each item into the air. The full reveal of the four loot box items occurred 5 s into the video. The video trial presentations appeared in randomized order for all participants.

## Objective value

To calculate the objective value of each loot box, we used the objective cumulative worth of all the items based on their individual credit worth in the game. Individual items belong to one of four possible classes based on its rarity in the game, signified by the colour of the coin shown during the Coin Reveal. The coins then become the platform beneath each item once they are

revealed during the Item Reveal phase. The four classes in order of increasing rarity are as follows: common, rare, epic and legendary. However, by the game's standards, each loot box guarantees at least one "rare" tier item, allowing for the classification of boxes into three categories. These "rare", "epic" and "legendary" demarcations are used by the game designers and are familiar to avid players. Thus, we used the same classification system to categorize our stimulus set.

Each class corresponds to a particular value of in-game credits. Furthermore, each class is associated with a specific colour highlighting the in-game value of the received items to players. For instance, the "rare" tier consisted of boxes containing at least one "blue" item and no epic (i.e., magenta) or legendary (i.e., gold) items, conferring a value range of 150 to 225 credits.

The finalized stimulus set consisted of 29 rare boxes, 15 epic boxes and 5 legendary boxes. These frequencies correspond with the actual probabilities of loot boxes of these values in the game, given that the stimuli were derived from a player's single loot box opening session.

## Subjective responses

Subjective responses were analyzed by comparing the different tiers of the loot boxes to which participants were exposed and evaluating their reactions.

Subjective ratings of arousal and valence were measured using Self-Assessment Manikins (SAM; Bradley and Lang 1994).



containing more common items falling into the "rare" and "epic" tiers). Moreover, players also gave larger ratings of arousal, valence and urge as the reward value of the loot box increased.

As expected, subjective ratings of arousal were greatest for legendary tier loots and lowest for rare tier loots. Ratings of arousal for legendary tier loots were significantly greater than epic tier loots and significantly greater than rare tier loots. Further, arousal ratings for epic tier loots were significantly greater than rare tier loots.

## Need for regulation

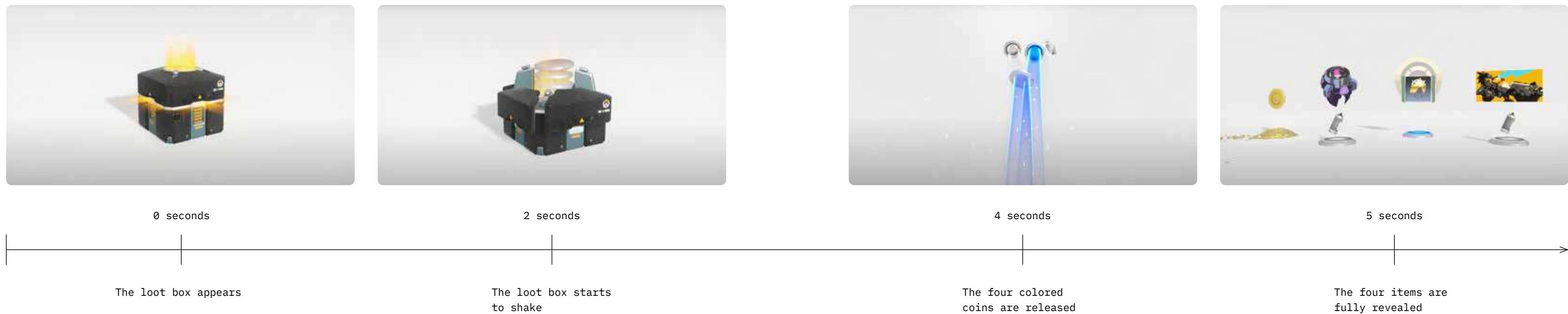
The current research aimed to characterize how loot box users respond to loot box rewards of varying value. We reasoned that if responses were similar to that reported for slot players reacting to varying sizes of monetary wins at the hedonic and motivational level, then it would indicate a need for loot boxes to be similarly regulated to prevent or reduce problematic usage.

Our data provide strong evidence for the allure of these non-monetary reward items, and the motivational impact such rewards have on players.



LEGENDARY  
(orange)

▼ Phases of Overwatch's loot box opening animation



In contrasting players subjective value with the objective value of the loots, we showed that participants found loots containing items of greater rarity to be more valuable both at the group level (e.g., the means) and the individual level (e.g., correlations). Specifically, at the group level, the magnitude of the ratings of subjective value were titrated to the magnitude of the rarity across the three designated reward tiers. Similarly, correlations revealed that players' ratings of subjective loot box value corresponded with the objective loot box values. This finding is an important confirmation of our assumption that loot boxes containing items of greater rarity would be more valuable to participants than more common items.

#### Reward responses

Similar to the indisputable, rewarding feeling of winning money, we show that obtaining in-game items within a loot box appear to activate the same reward responses as money in a slot machine.

Our PRP (post-reinforcement pauses) results mimicked participants subjective "value" ratings for loots over the different reward tiers, such that there was a monotonic increase in pause length with increasing reward tier value. Specifically, loots in the legendary tier elicited longer pauses than the more common, lowest valued tier of loot boxes. Post-reinforcement pauses are seen as a direct measure of the hedonic pleasure associated with rewarding stimuli, and such PRP results mirror findings of greater PRPs following bigger wins in slots play.

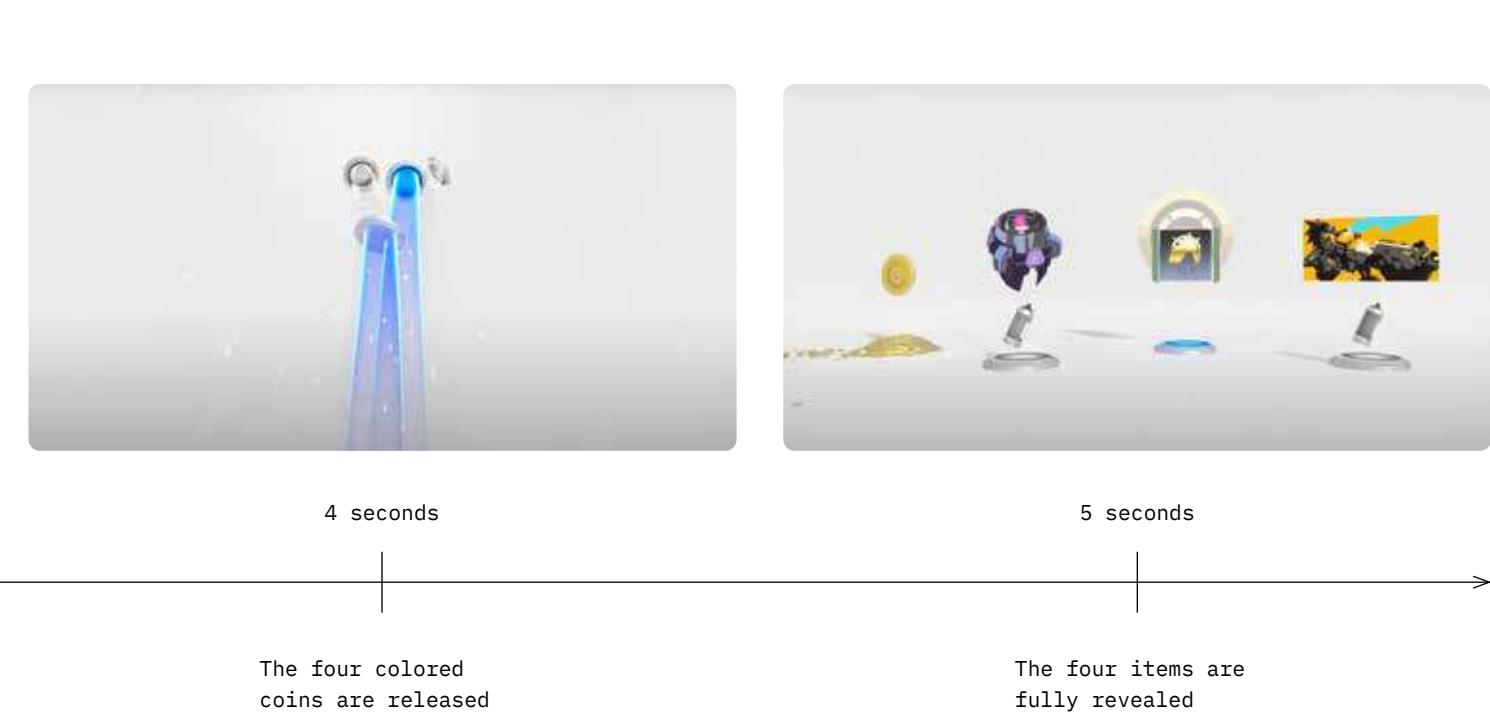
Coupled with the subjective ratings of value, such findings are indicative of players' awareness and sensitivity to the value of different loots, despite loot boxes not conferring any real-world monetary worth.

Our findings also suggest that items of the greatest rarity were the most subjectively and physiologically arousing, hedonically pleasing, and importantly the most inducing of urge to open another box. Specifically, subjective

ratings of arousal, valence and urge all showed the same monotonic increase with increasing reward tier. Convergently, for disappointment, players showed a monotonic decrease with increasing reward tier (i.e., the most common loots were the most disappointing, the least common loots the least disappointing).

The fact that these subjective measures were yoked to the magnitude of the objective reward value suggest that the degree of positive excitement elicited for these events is related to the rarity of the loots in the game.

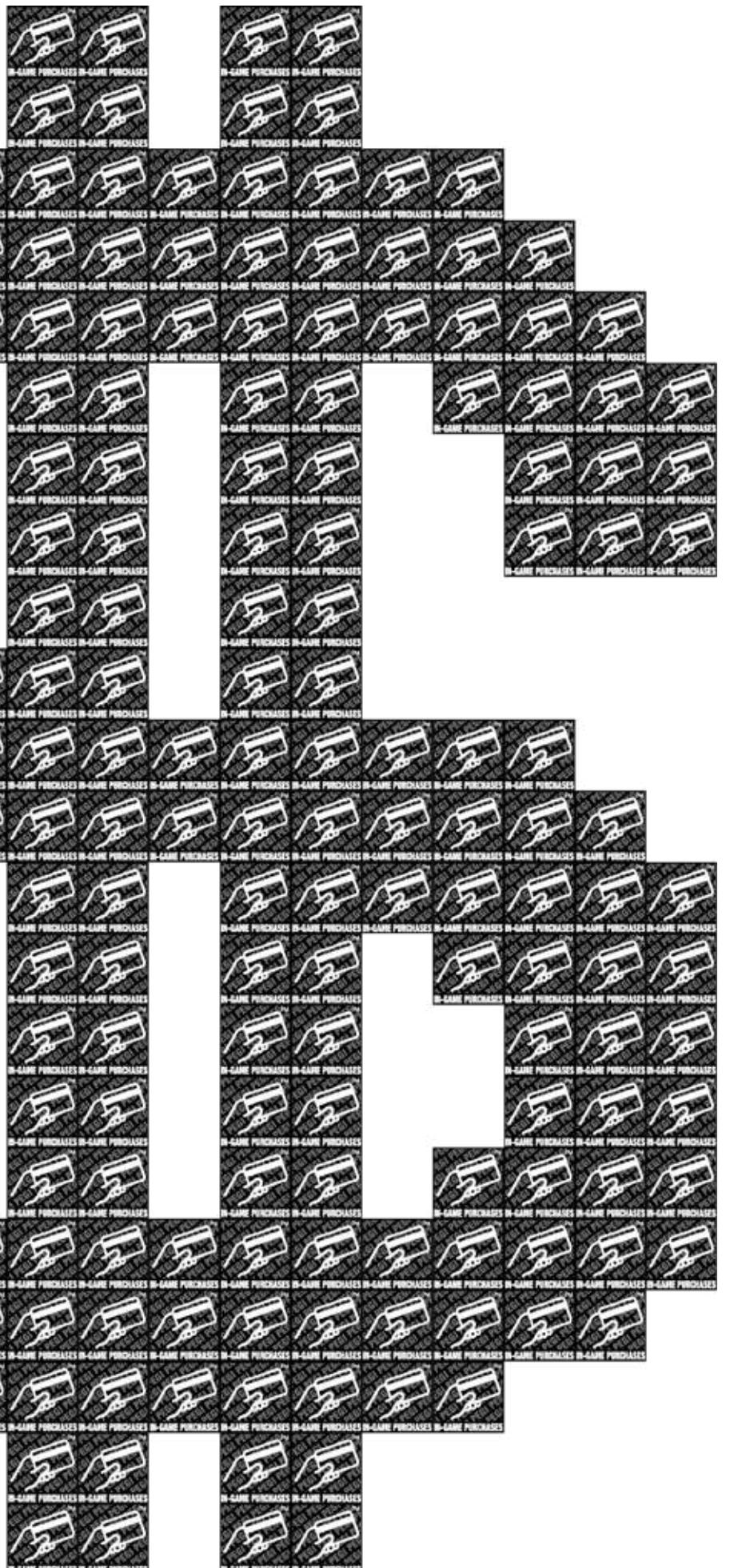
Similarly, the legendary reward tier loots were associated with greater skin conductance responses and force (a complementary measure of positive arousal) compared to epic or rare loots. Thus, our subjective, physiological and behavioural indices of arousal converge to support the notion that the rarest loots (those falling in the legendary category) are the most rewarding, exciting and motivating events for players.



such as the use of a variable ratio reinforcement schedule. In variable ratio schedules, rewards are unpredictable and high valued (good) loots occur much less frequently than lower valued (bad) loots. This reward schedule framework has been associated with potentially maladaptive behaviours in gambling, and thus can potentially extend to loot boxes.

In most jurisdictions, loot boxes are very loosely regulated compared to legalized

gambling activities. For one, gambling venues and websites are obligated to include help resources for gamblers who feel that their gambling behaviour is out of control. As the harms related to loot box use are becoming more salient, one direction for regulation could involve requiring games to feature similar safeguards. Another key regulatory discrepancy between games with loot boxes and gambling involves strictly enforced age regulations.♦



# They're not loot boxes...



...they're  
“surprise mechanics”...



...and they're  
quite ethical.

# "We got it wrong"

Michail 'Miska' Katkoff



## WHY EA HAD TO TURN OFF IN-GAME PURCHASES IN BATTLEFRONT 2

### A sure shot

All the way till launch, *Star Wars Battlefront 2* (*SWBF2*) was a sure-shot and a PR dream. It took the beloved *Star Wars* license and combined with the prowess of DICE's *Battlefield* series. The game had literally no risk as it was the second game in the series' reboot for the latest generation consoles. Based on the feedback from the *SWBF1*, DICE not only improved the gameplay but added also iconic starfighter battles and the requested story mode, which spans 3 generations of films. In short, *SWBF2* was, on paper, an online competitive first-person shooter built by the best. This notion was further enhanced by the glowing reviews of gameplay coming from alphas, betas and early access.

But all of the pros didn't erase the one critical mistake EA/DICE did with the progression design. By injecting so much importance to their microtransaction-driven gacha mechanic the game was met by full-scale revolt days before the release causing EA to drop the microtransactions from the game completely. A decision which likely meant a loss of around a billion of dollars in digital revenues. This analysis breaks down why things turned so bad so quickly and how the backlash could have been potentially avoided.

### Progression controversy

Before diving deeper into analyzing EA's *Star Wars* controversy, let us spend a moment on deconstructing the heart of the controversy - the infamous progression design and how the *Loot Crates* were meant to work.

The player progression in *SWBF2* follows two axes. The first axis is Rank of each character player has. Rank increases as the player play the game with that character and gains XP after each battle. The second progression axis is the class specific Star Level, which is a summary of the Star Cards player has for each class or a character. And Star Cards is where things start to get interesting.

Star Cards are powerful collectibles, allowing you to boost and assign new abilities to your class and characters. They directly affect not only player's playstyle but also how effective player's characters are. The only way to earn Star Cards is by opening the infamous Loot Crates. You can purchase Loot Crates with Credits you earn playing matches at a rate of 300 Credits per one 10 minute match. Loot Crate cost between 2200 to 4000 depending on the type (there are three), and can contain Star Cards as well as Crafting Parts.

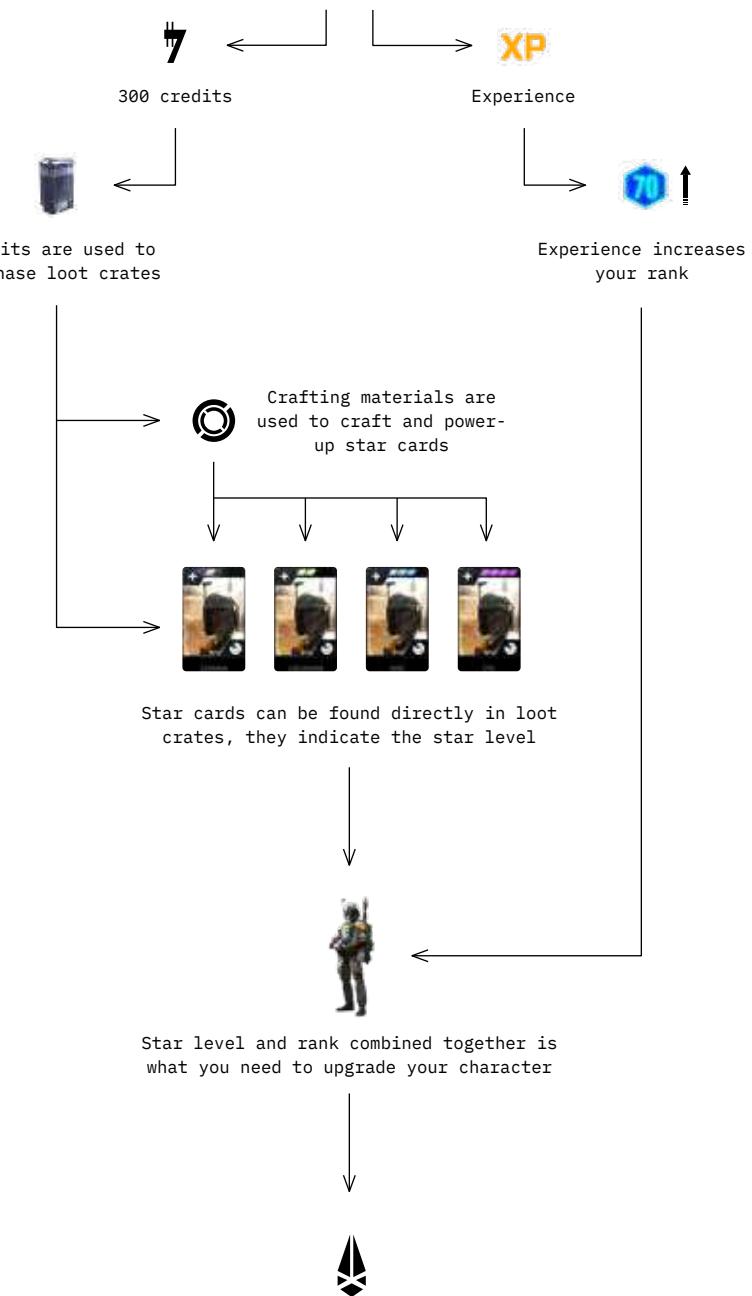
The Star Cards come in four rarity level: common, uncommon, rare and epic. Duplicate Star Cards are turned instantly into Credits, which are again used to purchase Loot Crates. Epic cards can be only gained through upgrading the Star Cards player owns. Upgrading requires Crafting Parts, which can as well be used to craft any Star Card a player specifically wants.

The way the two progression axis are tied together is that Rank and Star Level act as an upgrade prerequisite. In other words, even if I had an abundance of Crafting Parts, I couldn't invest these into a new character without first playing with that character and collecting enough Star Cards for that character.

▼ Levelling mechanics in *Battlefront II*



Playing one match of ten minutes gives you



**Main issues**

The way I see it there were two main issues with the progression in *SWBF2*:

1. The first issue was the player's ability to pay for content unlock. If it took player 100 hours to earn Darth Vader, Boba Fett or Luke Skywalker in the game, they would have been more than excited to invest that time. The issue is that player can, and are in fact incentivized, to pay to unlock these iconic heroes instantly by opening up their wallets on top of the steep purchase price. The system is tuned to maximize conversion - or in this case the feeling of getting screwed over.
2. The second issue was that the Loot Crate System made the game feel pay-to-win. Loot Crates give players Star Cards and Crafting Parts, which directly lead to significantly improved abilities and tactical advantage. In a full-on multiplayer game, this is dangerous because it makes advanced players more dominant on the battlefield as they have not only the skills but also much stronger abilities than the players with less time invested in the game.

Where it turned into straight-up pay-to-win was the fact that players could



spend real money to purchase Crystals which they used to purchase Loot Crates and thus instantly improving their characters. This caused the player who didn't want to pay additional dollars to feel cheated. Every time someone took you down with the same character class you were left in doubt if it was because they had better abilities they paid for. This doubt quickly turned into anger leading players to rage against the EA.

**Contract**

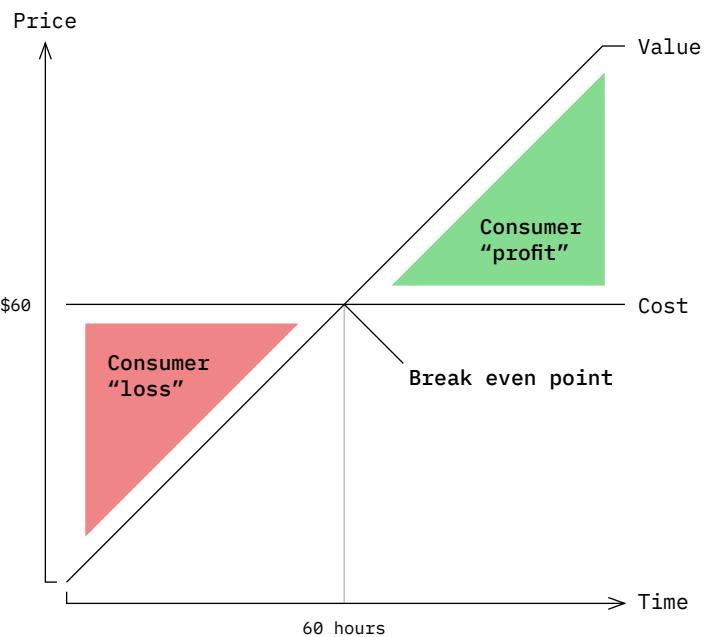
In the end, EA published a paid game that worked like a free-to-play game - and you just can't have both. I think that any serious game publisher will be fully embracing microtransactions in all of their games as a result of seeing the success of them in both PC, Mobile and Console titles. For EA, the performance of Gacha systems in *FIFA Ultimate Team* has added an incredible amount to their topline revenue and which big company is going to leave huge sums of money on the table? Not EA and that's why microtransactions have been added to this game and likely every other game they will make from here on out.

It's interesting that the consumer reaction has been so severe given that the system is in place in other EA games. Something that personally makes me

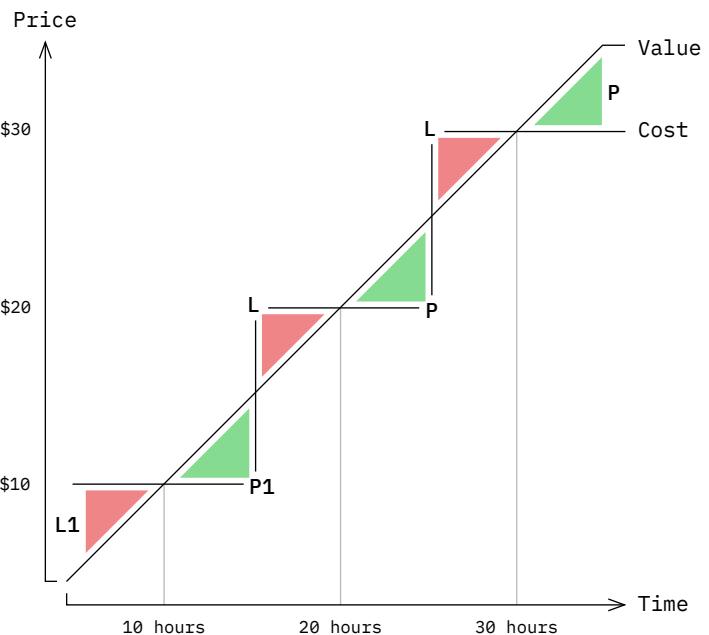
chuckle is that it's been calculated that to get all content in *Star Wars Battlefront 2* off the bat, it will cost about \$2.2K. And whilst that is a lot of money, I would love to see what would have happened if the game had an almost infinite economy like a 4X game! Games where some players have spent millions of dollars in... Perhaps this is why EA was largely unworried by the development of the system in the game given that it's fairly light compared to how these systems usually exist in other games.

The big question is if microtransactions have a place in premium gaming. As a consumer, I don't like the idea of spending 60 bucks on a brand new game only to find out I have to spend even more money to get all of the content out of it. If I'm spending that much money up front without being able to sample the game first then it feels like a con to then find out you have to spend so much more. Most other Games As A Service (GAAS) titles could have insane amounts of spending possible, but given that these games can be played for long periods completely for free, it doesn't feel so bad somehow. PC stalwart titles such as *League of Legends*, *DOTA*, *World of Tanks* and *Team Fortress* are great examples of titles you can play for years without spending money on. I wonder if *SWBF2* had been free to download if the outcry would be so bad? It does feel a bit like EA wants both their cake and to eat it in this scenario, although given the insane numbers posted by *Grand Theft Auto V*, it's not surprising they want to follow suit.

I think that the core of the issue here is the implicit contract between game developer and game player, (or producer and consumer) and the violation that consumers feel has occurred to break this contract. For the longest time, the contract was fairly clear: game developer took on the job of building a complete entertainment product and put it on shelves for consumers to buy. What ended up on the shelf was the whole entertainment experience - at the time of purchase, the seller had done its job of fulfilling its duties, and the buyer had freedom to consume that experience for however long they chose to do so.

**Premium model**

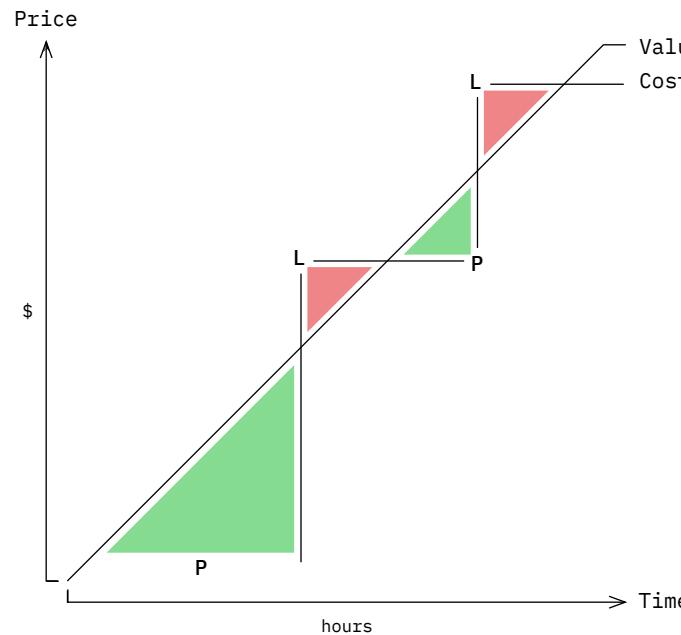
Let's take a theoretical example - let's say I buy the latest *Zelda* game, and I pay \$60. Additionally, let's say I value 1 hour of entertainment at \$1. If I get 60 hours worth of entertainment, I break even; meaning that I feel like I got my money's worth. Until then, I'm experiencing a consumer loss - but as soon as I reach the break-even point, any additional amount of time that I play that game I experience a consumer profit. I'm getting more than I bargained for, which is the ideal state. The gold standard games that we all love would break this barrier and provide us with an abundance of profit.

**Subscription model**

Before I get to the freemium model, let me briefly describe a relative of the freemium model: the subscription model. Let's take Netflix as an example - Netflix charges me a fixed price for their service per quantity of time. For the sake of example, let's say I spend \$10 / month on Netflix. As in the prior example, let's say I value 1 hour of entertainment at \$1. I break even when I consume 10 hours of Netflix per month. Anything more than that in a month, I'm getting a surplus, or a profit. The step function increases in cost correspond with the monthly fees - in the figure below, you pay \$10 month, and over 3 months you pay \$30. Similar to the above model, there is a fixed cost, but in the subscription model that occurs per unit of time. I can watch Netflix 24 hours a day, 30 days a month and pay the same as watching it for 1 minute a month.

L1: Experience loss until i watch ten hours of Netflix in the first month;

P1: Experience profit when i watch more than ten hours of Netflix in the first month;



### Freemium model

Freemium games totally changed the business model, and with it, changed the contract between game developer and game consumer. In this model, the contract was also fairly clear: game developer shipped a product and made it available to the consumer, but they would additionally continue to iterate on that product, and the job was never really done. The consumer has the option to consume that product in a completely free way - there is no necessity to transact at all. However, should they want the premium experiences associated with the product, they then transact with the producer, and thus the microtransaction was born. The contract here also is very clear that the transaction does not entitle

the user to the complete experience or product - the consumer only gets incremental pieces of the product with the transactions.

Let's take a look at what the model looks like in freemium - it looks a little like the subscription model, but with the big caveat that the consumer pays nothing up front, and receives profit up front. As we all know, you can (and the vast majority do) play freemium games free forever. But, on an aggregate level, consumers pay for the product. The reason that this model works is that a large group of users can play for free because a very small percentage of players pay a lot. Through microtransactions, users essentially subscribe to pieces of the product, but unlike subscriptions, the cost can scale

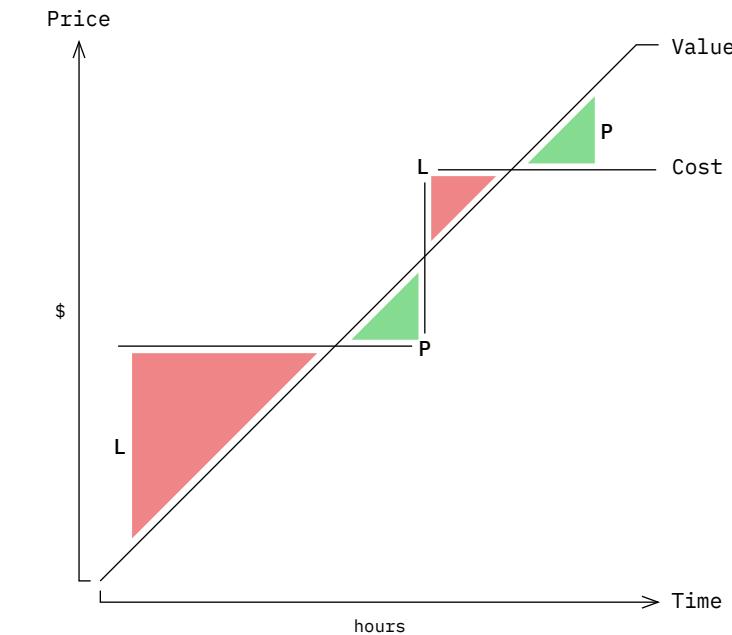
very high. Cost is not distributed evenly - imagine if you could watch Netflix for free, because a few users spent a million dollars a month on it, and that's what we're talking about!

In the best examples of this model, the relationship between consumer and producer is also mutually beneficial (it provides a profit to both consumer and producer), and the consumer can feel the surplus from getting the value that exceeds the price that they paid. I feel that many consumers would agree with me that when you are able to experience a product for an extended period of time in a freeway and feel that you are getting value, you are willing to pay to get the best of what it has to offer.

### SWBF2 model

The violation that consumers are feeling with *Battlefront II* is that EA is eating into their consumer profit by extracting more value from them. EA's approach in this instance was to take both monetization models and their equivalent pricing and expect consumers to react favorably. By using a hybrid model that combines pricing from the old school model with freemium microtransactions, EA runs the risk of making consumers feel cheated.

To put the figure above into numbers - if I expect 60 hours of entertainment to break-even on *Battlefront II*, and upon completing that I have to keep paying, I might end up feeling squeezed from the profits that I expect to receive. We are accustomed to AAA games giving



us full experiences because we paid up front. We have expectations when we pay \$60 up front. EA hedged their bet on this one - they want the upfront revenue of a \$60 game, AND they want micro-transactions to work.

In-app-purchases in console/PC games have always been a sticking point with the consumer, but never have I seen an implementation enrage potential buyers so overwhelmingly as with *SWBF2*. While it cannot be denied that EA attempted to have its cake and eat it too in terms of gating hero unlocks beyond the initial purchase price of the game, I believe their misconceptions about their audience go even deeper than that.

It seems that it wasn't just that the unlocks and upgrades were gated that offended the *SWBF2* fanbase, but what effect the progression would have on their match-to-match experience that enraged them and fueled the intense backlash the game has received.♦

EA's new  
handheld  
console.



# r/selfimprovement

Posted by u/OnePC4U 5 months ago

## OVERTCOMING LOOT BOX ADDICTION IS POSSIBLE

I want to share story on how I overcame my addiction on loot boxes or gacha games. Hopefully this can be helpful for someone who are experiencing the same issues and want to change.

This will be a long post, but I will post the TLDR at the end.

To provide a context, I am a 28 years old man, and started spending heavily on gacha since 3 years ago. I might have spent thousands (maybe around \$3000) in total during those 3 years. Even though I spent that with my disposable money, that's still a lot of money for me personally, and I could have spent that on something that is way more useful.

I spend mainly on two games: *FIFA* and an anime gacha game that I prefer not to disclose. During the past year, I have tried to quit those games multiple times, but I always failed. Everytime I see new cards or characters, I always pulled the trigger to open packs or do summons and spent some money. I know it's only pixels that have no real life value, but I still could not help it. The sensation of dopamine release when doing pulls was too addictive for me.

I was getting more and more worried because the amount of money that I spent always increased every year. Year 1, I could still control my spending. Year 2, my spending was getting out of hand. Year 3 was where I spent impulsively to a point where I was so afraid to see my Credit Card Bills. This was where I knew that I had to stop.

My first attempt to quit was by uninstalling the games. It only worked for couple days but then I re-install it again and then nothing changes at all. Couple months after that, I realized that I could not make drastic changes to stop my spending habits, I have to do it step by step. So I decided to drop only one of the games, I chose to uninstal *FIFA*, and unfollowed the *FIFA* streamers on Twitch and unsubscribed from *FIFA* subreddits. My goal was to not see any *FIFA* related content at all. It worked for couple weeks. However, after I accidentally saw the new fancy *FIFA* cards that were just released while I was scrolling through social media feeds, I decided to install it again to pull for that cards.

At this point I was really disappointed with myself because I kept getting back to the game and could not change this

bad habit. After a long thought, I decided to do something drastic, I decided to delete my club. This means that I will lose all my progress, and all the money that I have spent to build a good squad will be gone for nothing. By doing this, uninstall and re-installing the game would not make any difference. This was where the sunk cost fallacy kicks in and I had my hesitation. But I kept my resolve, I deleted my club, and it was painful. Seeing your hundreds of dollars and hours of progress gone just like that hurts. To console myself during that tough time, I kept thinking "well at least I can still play that gacha game." (which is my favorite of the two)

Using that method, I successfully escaped from *FIFA* loot boxes. Since that time, my total spending for *FIFA* was zero, hurray. "This is a progress" so I thought, but a new problem occurred. It turns out, the total spending for the other gacha game increased considerably. Because I no longer spent on *FIFA* and I still have spare money, I unconsciously spent that money on this gacha game instead. Therefore, my monthly spending was still the same compared to my *FIFA* playing days.

I really like this game, and I really do not want to part ways with this game. So for another several months, I kept spending heavily to pull for its new fascinating characters, they really now how to bait their players.

Then came this one particular month where I had unexpected medical expenses, and my savings were really tight so I almost could not afford my primary needs. This was a wake up call for me, because I realized that all those money that I spent on gachas could have been allocated for extra emergency funds to help me better prepare for situation like this. It made me reflect my choices and I knew that something must be done. I believe that the time has come, I need to face the final boss. After three years of struggle controlling my gacha addiction, I had my conviction, I want to be free from all of this guilty feelings.

I remember the feeling of regret after spending hundreds of dollar and not getting the cards/characters that I want. I remember the feeling of defeat and disappointment because I could not control my action, "just one more pull". I remember the anxiety that I have everytime I receive email of CC monthly bills. I have had enough of those and I want to start a new page.

"Make the most of yourself....for that is all there is of you."

- Ralph Waldo Emerson

This subreddit is for those who have questions about how to improve any aspects of their lives, from motivation and procrastination, to social skills and fitness, and everything in between. It is also a subreddit to share your helpful and civil ideas, tips, and advice on how others can improve themselves.

Since I believe I had found the right reasons to stop, I did some research to create effective system in order to achieve my goal. Here are the steps that I did:

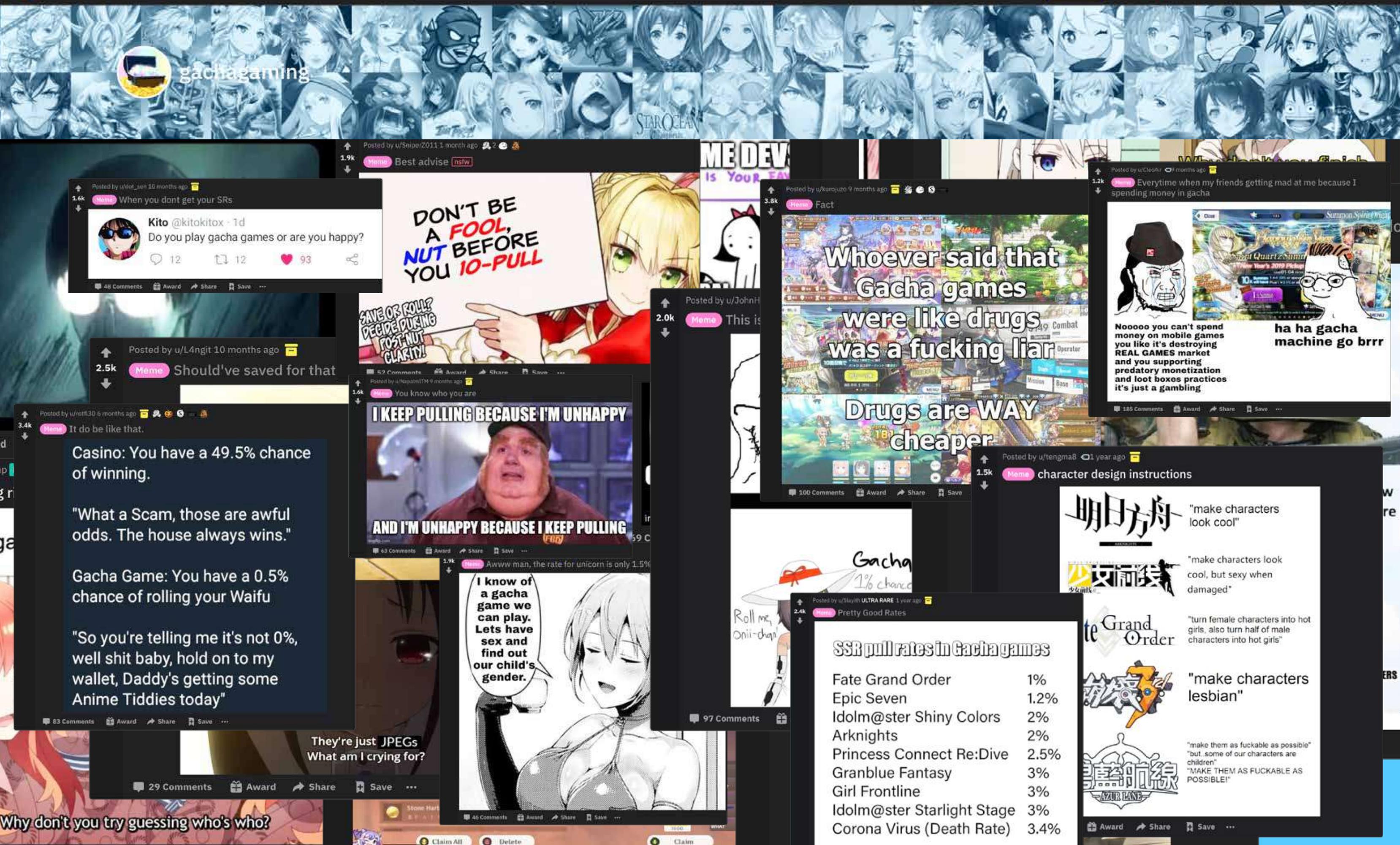
1. Based on my experience, I knew uninstalling the game will not work for me, so I did not try that again.
2. I removed my saved payment method on Play Store. Therefore, when I want to do in app purchases, I need to re-type it again manually. Results: still not working because I keep saving the payment method again and again.
3. Stop opening the game, and block any access to content that are related to this game (on Reddit, Twitch, Youtube). Results: not working since after several days I willingly look for new content about the game.
4. I tried to make a list of "what could I purchase with this money that I about to spend." For example, let's say one pull equal to \$40. I then made list of the other good ways to spent that \$40 (AAA games, delicious foods, emergency funds, etc). Results: it makes me hesitate a bit but at the end I think, "well, it is a disposable money after all." So nothing really change.
5. I learn about how brain works on addiction and its relation to dopamine. Results: surprisingly it helps a lot, because it makes me aware of my pattern and behavior.
6. Same as before, I decided to delete my account for good. This was even tougher because this game means a lot to me and I have spent thousands of dollars on this game. Despite my hesitation, I knew that as long my account is still available, I will keep coming back to this game and will continue to spend. So I say my final goodbye and.. I deleted my 4 years old account, I nearly cried. Nothing I can do now since the account has gone. Results: it works.
7. To help my transition phase and ease my suffering, I quickly prepare the substitute game that are similar but not a gacha game, that game is *Pokemon*. When I study a bit about how brain works and habit forming (steps no 5), I found that you need to create an attractive,

simple, and sustainable system in order to build a new habit (read Atomic Habit for more info). So my planned system is to find similar replacement game that has no gacha elements. I tried to learn about myself on what makes me so attracted on gacha games, it turns out I am attracted to the grind and low rate probability to get rare items. *Pokemon* fits this perfectly, to be more precise, shiny hunting on *Pokemon*. In *Pokemon*, there are shiny *Pokemon* who are extremely rare and the odds to get this *Pokemon* can be 1/2000. I spent weeks after that playing *Pokemon* to help forget the previous gacha game. The results: It's super effective!

And now, I can say I successfully overcome my gacha/pulls/loot boxes addiction. It's been 2 months already since I deleted that account. What makes me convinced that I am past my addiction is because now I can enjoy watching the streamers doing pulls on that game without having the urge to play the game again. I am really glad I can reach this phase.

Since I believe there might be other people that are in the same situation with me, I decided to create this post and share my story. For all of you who want to stop your gacha /loot box addiction, I believe in you! All you need is to find the true reason on why you want to stop (on my experience, motivation alone won't get that far) and create the system that fits with your characteristics. Good luck! Hope this helps and thank you for reading all the way here :)

TLDR: spent too much on gacha and could not stop even after several attempts quitting the game. So I decided to try different methods to quit until I found my success. The methods that are working for me is to learn about myself and how my brain works (dopamine), find the real reason on why I want to stop (not relying in motivation alone), and find the substitute (but gacha free) game to break my gacha addiction + create personalized system that suits myself.♦





# Case(s) law

Nicholas Straub  
Paul Lanois

## ARE LOOT BOXES LEGAL EVERYWHERE?

In recent years governments and politicians have joined the discussion about loot boxes controversies. In fact, many countries are currently acting against predatory microtransactions, creating regulations and bans.

### Japan

Japan was the first country to take regulatory action against loot boxes. In 2012, *Japan's Consumer Affairs Agency* declared complete gacha to be illegal. In their ruling, via Venturebeat, the agency said that complete gacha violated laws against "unjustifiable premiums and misleading representation." Complete gacha, a monetization mechanic, is basically a loot box variant in which individuals pay to get some random reward. The contrast, and what makes it especially predatory, is that in order to progress in the game a set of rewards must be obtained, meaning players must continue to buy boxes, or whatever the package of rewards is called, until they acquire the proper set. Japan still allows for other types of microtransactions, but this particular model, once very popular in social games, has been outlawed.

### China

In 2016, China passed a law that changed how loot boxes could operate when used in games played in the country. According to the law, games with loot boxes have to reveal not just the name of all possible rewards but the probability of receiving said rewards. The intent of the law was to make loot boxes more fair and transparent. Since then, China has added further restrictions and intensified the older ones. Now companies must give an exact drop rate for loot boxes items, giving players an idea of the maximum number of boxes they would need to be buy in order to ensure they get a certain item. Also, China has introduced caps on the number of loot boxes that can be bought in a certain day.

### Netherlands

In April of 2018, the *Netherlands Gaming Authority* conducted a study of 10 unnamed games, and concluded that four of the games were in violation of Netherlands laws concerning

gambling. To be exact, the study said (via *PC Gamer*), "that the content of these loot boxes is determined by chance and that the prizes to be won can be traded outside of the game: the prizes have a market value." In order to sell such items in the Netherlands a license is required but given the current laws, no license can be given to game companies, so "these loot boxes (were) prohibited." The loot boxes used in the other games were deemed legal because they lack "market value." According to the study, those loot boxes whose prizes wouldn't be traded constituted a low risk for gambling addiction, being akin to "small-scale bingo." The marketable loot boxes though, those which are banned in the country, "have integral elements that are similar to slot machines."

### Belgium

Shortly after the Netherlands banned certain types of loot boxes, Belgium followed suit with even stricter regulations, declaring loot boxes to be a form of illegal gambling. Looking at various games, such as *FIFA 18* and *Overwatch*, Belgium determined that the randomized risk/reward system innate to loot boxes is tantamount to gambling. The decision had wide ranging implications. Some developers, like Valve, altered their games to remove loot boxes while *Nintendo* outright removed two of their mobile games, *Animal Crossing: Pocket Camp* and *Fire Emblem Heroes*, from sale in Belgium.

▼ Animal Crossing: Pocket Camp is now illegal in Belgium



## United Kingdom

The *House of Lords Gambling Committee*, a committee within the U.K.'s lower house of parliament, issued a statement in July 2020 calling for legislative action against the sale of loot boxes in videogames. The committee concluded that microtransactions akin to loot boxes constitute gambling and fall under the legislative body's jurisdiction. As of yet, no laws have been made but given the committee's recent recommendation, it is probably only a matter of time.

## European Union

On July 2020 the *European Parliament's Committee on Internal Market and Consumer Protection (IMCO)* recommended a new report tackling the topic of loot boxes. The Report, titled "Loot boxes in online games and their effect on consumers, in particular young consumers," notes that the national gambling authorities have come to different conclusions about the nature of loot boxes, despite similarities in their national legal definitions of gambling and despite their cooperation, shows the limitations of a national approach. In particular, the Report found that banning loot boxes under national laws regulating gambling (as is the case for example in Belgium and the Netherlands) effectively removed loot boxes that were considered gambling from videogames in those countries, but this also has an impact on the *European Single Market strategy*.

At the same time, the presence of loot boxes in games is a point of controversy with regard to children and adolescents. Certain developmental phases may make children particularly vulnerable for mechanisms used in loot boxes.

### Children and adolescents

Research suggests that children are less able to disentangle costs and were found to be more at risk of problem gambling behaviour compared to adults when presented with virtual currencies. Children were found to have problems understanding and taking probabilities into account, and this could make it particularly difficult for them to understand the probabilities of obtaining different items from a loot box and predict their outcomes and value.

## "The EU has not yet taken any significant targeted action to address the topic of loot boxes"

Annette Cerulli-Harms, *Loot boxes in online games and their effect on consumers*, July 2020

Furthermore, with regard to psychosocial effects, children are more at risk to develop habits in response to certain stimuli. Research claims that videogames containing frequent reward mechanisms, such as in loot boxes, get children used to a constant input of new and exciting stimuli and thereby contribute to hyperactivity and symptoms of inattention.

Another developmental issue to take into account for both children and adolescents is impulse control. The ability to exert control over decisions is not yet fully developed in minors and is associated with higher vulnerability to problem gambling. This goes back to research about delayed gratification. It has been found that preschool children have major difficulties resisting immediate rewards compared with potential future rewards. The full ability to exercise impulse control and delay rewards is only developed in adolescence and ego depletion, a state in which the energy for self-control is impaired, is mainly found in people below the age of 25. In the face of a potential reward in a loot box, children and adolescents are less likely to be able to delay gratification and wait for obtaining the loot box through gameplay, they are more likely to experience a state of ego depletion in which they cannot exert willpower and thus are more prone to spending.

Lastly, the association between spending money on loot boxes and displaying signs of problem gambling was found to be more pronounced in adolescents. Whereas Zendle and Cairns found a small-to-medium-sized effect in adults, a survey on adolescents revealed a relationship of medium-to-large effect size for adolescents aged 16 to 18.

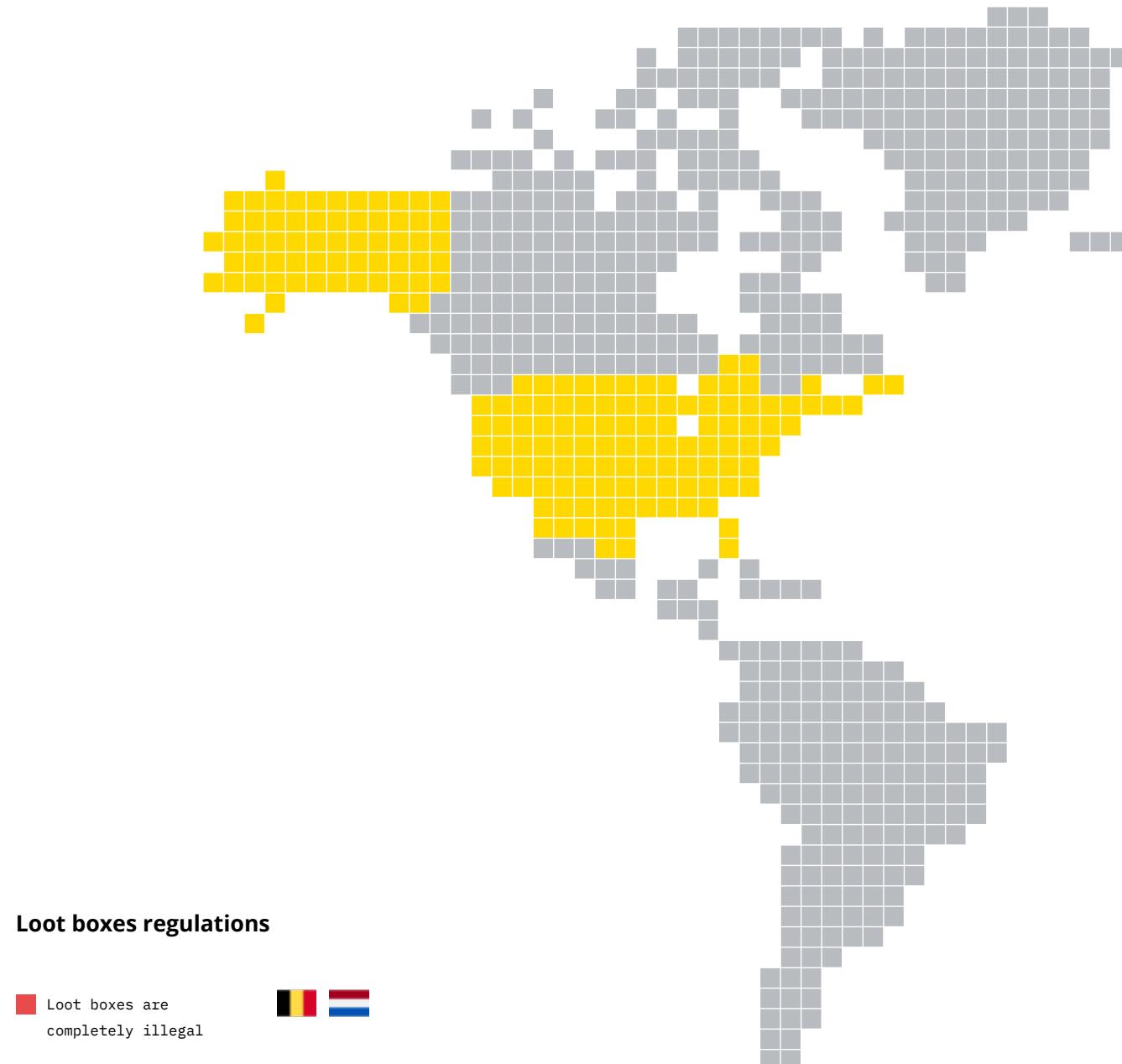
### An ongoing battle

To date, only four countries have active laws regulating or banning the sell of loot boxes, but more are surely on the way. More and more countries have put together reports examining the problem, and the United States and the UK both have lawmakers calling for laws to be put into place. However, even if laws are passed, developers and publishers will likely still find loopholes. For instance, *Bungie* removed their version of loot boxes from *Destiny*, only to replace them with more predatory microtransactions. Only time will tell how the political battle plays out, but microtransactions aren't going anywhere anytime soon.♦



**"Only four countries have active laws regulating or banning the sell of loot boxes, but more are surely on the way."**

▼ Map showing the different levels of regulation of loot boxes from country to country



#### Loot boxes regulations

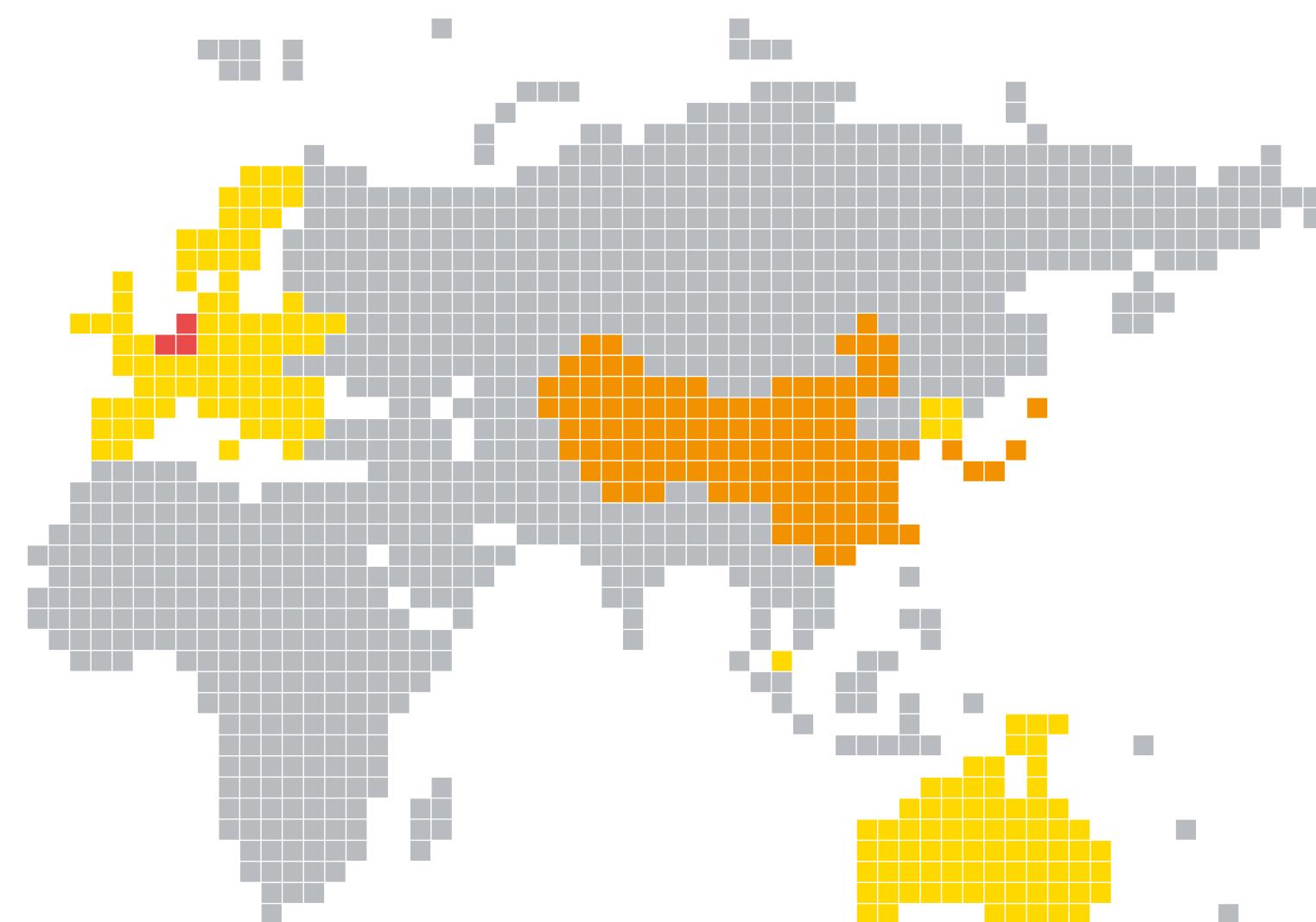
■ Loot boxes are completely illegal  
Belgium, France

■ Some forms of loot boxes are illegal  
China, Japan

■ Loot boxes are legal, but discussed  
Australia, European Union, Singapore, South Korea, United Kingdom, United States

■ Loot boxes are legal and not discussed  
Bolivia, Cambodia, Costa Rica, Djibouti, Ecuador, El Salvador, Georgia, Greece, Honduras, India, Indonesia, Iraq, Israel, Jordan, Kenya, Laos, Lebanon, Libya, Maldives, Morocco, Oman, Pakistan, Portugal, Qatar, Romania, Saudi Arabia, Sri Lanka, Sudan, Turkey, Turkmenistan, Uganda, Uruguay, Venezuela, Vietnam, Yemen, Zimbabwe

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# What should we do?

Daniel L. King  
Paul H. Delfabbro  
Leon Y. Xiao  
Laura L. Henderson

## GUIDELINES FOR AN ETHIC MONETIZATION SYSTEM

### Social responsibility

The expansion and sophistication of loot box systems in online games has led to concerns about vulnerable users overspending on these schemes. Currently, there are limited regulatory and/or consumer protection frameworks for videogame monetization schemes. This essay explores some potential social responsibility measures for monetized gaming products to stimulate further discussion and developments in this area.



#### #1 -----

Microtransactions are often completed with the use of a virtual currency that is first purchased by the player and then traded for the virtual good. This system may have the effect of disguising the true cost of the transaction for the player. A protective guideline that requires loot boxes are always visually associated with their real-world price or cost may serve to increase player awareness of spending.

Another simple measure that may reduce impulsive spending is the requirement of a two-step process for all microtransactions. This could involve the player having to read the terms and conditions of the transaction (or a brief version of the disclosures of the transaction and conditions understandable to a layperson) or re-enter their account username and password, to prompt the player to reconsider and confirm the purchase and slow down or reduce the automaticity or mindlessness of purchasing behavior.

A similar system to two-step purchasing is the implementation of a cooldown, an onscreen timer during which the player is unable to spend money. In the gambling literature, this has been referred to as embedded disruption or time-out / break-in-play measure.

#### #2 -----

One aspect of the appeal of the loot box system in some games is the exclusive availability of items from within loot boxes (i.e., the player has no other method of acquiring the items than to spend money). In addition, some games may make certain exclusive items in loot boxes a timed

exclusive, meaning that the player must make purchases within a predetermined time frame before they are indefinitely unavailable, and this artificial scarcity of desirable items may be the impetus for some players to spend money, particularly players with a drive to complete the game or unlock all features in order to feel satisfied.

But players may be less inclined to overspend on items if these items are designed to be as essentially permanent as the regular content in the game. More specifically, a potential guideline may require that purchased game content should not expire, be deleted or consumed without being freely retrievable in some way to the player.

#### #3 -----

Microtransactions, such as loot boxes, provide in-game rewards that tend to fall into two general categories: cosmetic rewards, referring to items that alter the appearance of in-game assets (e.g., skins) but do not affect the functional experience of play, and items that confer in-game advantages (e.g., power-ups), or increase the rate at which the player acquires points or XP, or increase the likelihood of a favorable in-game outcome (e.g., a rare item drop), are known as pay-to-win features. While game developers claim that these options are not necessary to play or make progress in the game, some players may still rely on the latter class of item in particular to optimize their playing experience and therefore overspend on these items.

Ensuring that purchased rewards are cosmetic and do not alter the playing field may reduce overspending and ensure that all game outcomes are primarily determined by skilful play.

#4

Some registered game patents appear to indicate that some game companies may employ microtransaction systems that adjust the reward payout so that it is determined largely by player behaviors rather than by random chance. A patent by McClellan et al. (2017) for Kabam refers to mystery boxes where the payout is influenced by player statistics, including (but not limited to) how much time or money the player has already spent in the game. Knowledge about the player's behavior may be exploited, for example, in a scenario where a novice player receives better rewards at the beginning of the game, but then the odds of receiving the desired rewards reduce over time and thereby encourage more persistent play. A measure to ensure fairness may be to require that loot boxes have fixed probability payout rates that do not depend on how much money the player typically spends or currently has available to spend.

#5

Another measure related to player exposure to offers relates to the presence of solicitations (e.g., on-screen offers). Some games employ recurring limited time offers that are designed to elicit a sense of urgency and therefore increase the likelihood that the player will desire to spend money. The removal or reduction of these solicitations may ensure that the player's focus within the game remains consistent with the design principle of playing (e.g., skilfully) to achieve success.

▼ Overwatch, as many others, is using limited time offers to solicitate spending



#6

For some players, the act of opening the loot box itself may have strong psychological appeal. This appeal usually relates to the audio-visual cues associated with the loot box, such as the sound effects, the suspenseful animation of the box opening, and/or colorful light or other graphical effects that emanate from the loot box. These features may give the act of opening loot boxes some additional intrinsic appeal that reinforces the player to spend money. The salience of these cues could be reduced by removing loot box audio-visual cues.

#7

Although microtransactions may not meet the technical definition of gambling, an argument has been advanced that these activities should not be freely available or advertised to those under the legal age (Dwan 2017). Some young people may lack the capacity to form reasonable judgements on the value proposition of microtransactions, which becomes especially problematic if these individuals are not using their own money in these games (e.g., a parent's credit card). In addition, many of the top gaming companies' terms of use specify that in-game purchases by minors should be or are assumed to be conducted with the approval of a parent or guardian and there may be limited or no refund avenues. The display of classification labels specifying the appropriateness of these products for older players only (e.g., 'Mature' or 'Adults only' ratings) may deter some parents or guardians from purchasing games with these features for younger users.

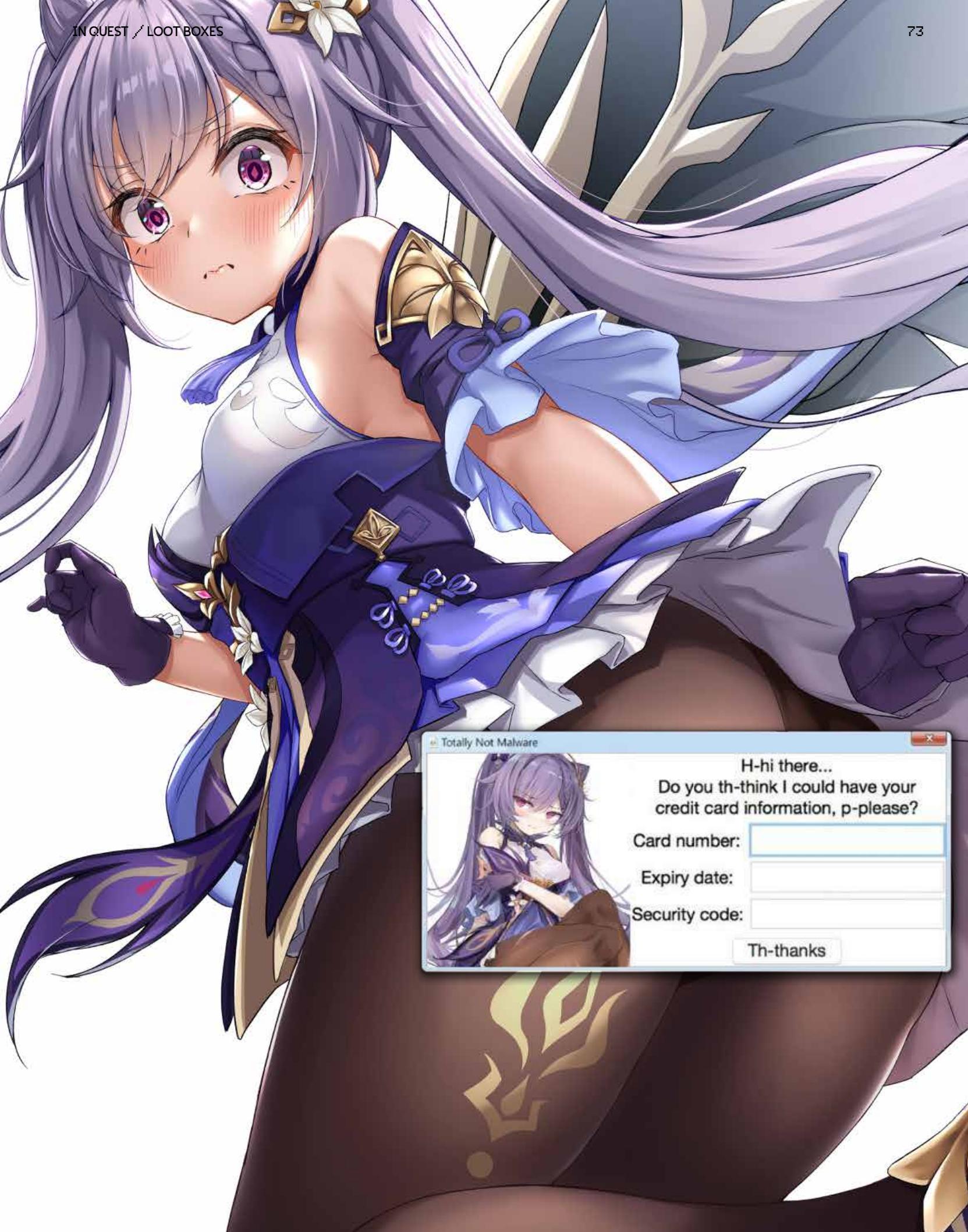
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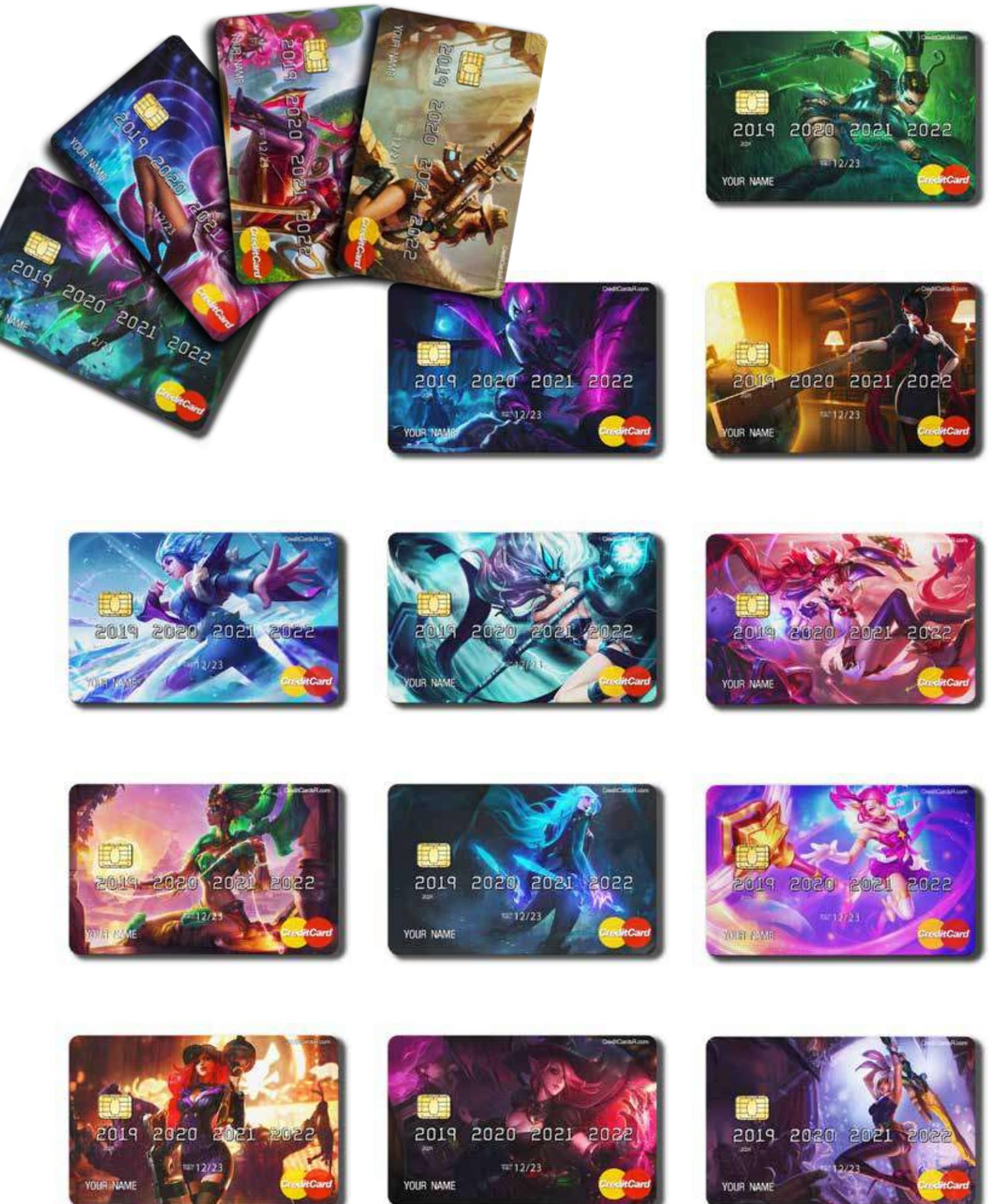
Given that the actual cost of microtransactions may be disguised or lack visibility as credit card debt, some players may benefit from reminders of their recent and historical financial investment in the game (see Griffiths et al. 2009), including spending within sessions across days and weeks. This information may help some players make more informed decisions about their future spending intentions.

### Industry responsibility

The practical solutions proposed in the essay can be immediately voluntarily applied by conscientious game designers wishing to minimise the potential risk of abusing the player-consumer's psychology for financial gain. However, widespread adoption would require proactivity from across the industry. Recent developments, such as the major hardware providers and software publishers committing to requiring the public disclosure of "information on the relative rarity or probability of obtaining randomized virtual items" (or drop rates) in paid loot boxes, have been positive and encouraging (See Entertainment Software Association, 2019). However, regrettably, proponents for continued implementation of loot boxes within the industry have maintained their commonly held belief that loot boxes, as currently implemented, are "quite ethical" (Hopkins 2019).

A nudge, which influences behaviour with delicate, suggestive and benevolent interventions rather than with indiscriminately imposed mandates may be sufficiently effective at encouraging certain behaviours, like the removal of potentially abusive random rewards mechanisms. Hence, instead of attempting the impossible task of codifying and enforcing the above-mentioned social responsibility measures as law, governments can instead incentivise their adoption by game companies through discretionary funding, tax relief and other benefits. ♦





# A good job of mixing it up

James Batchelor

## LOL'S CCG HAS A (QUITE) FAIR REVENUE METHOD

### Breaking the barrier

In the wake of *Blizzard's* success with *Hearthstone*, many a fantasy gaming IP has been applied to the collectible card game model, including *Elder Scrolls*, *The Witcher*, and *RuneScape*. Riot Games on April 2020 launched its own, *Legends of Runeterra*. It's no surprise that a *League of Legends* CCG has actually been in the works for close to a decade, keeping a watchful eye on the rise and fall of rival card games in the hopes of bringing something new to the table.

"We've learned a lot of lessons from what other card games have done in the past, and felt that we could learn from that and make a new product that is exciting for players," game designer and live balance lead Steve Rubin tells us. "We're players who have played CCGs our entire lives and we've lived those lessons. We've gone to tournaments, we've played casually, and we really think that using something powerful that players love like the League IP, we've come up with something really great." The biggest struggle other titles have faced lies in card accessibility, with players facing "a huge barrier to entry to play a card game."

▼ Legend's of Runeterra's in-game coins



"Not only do you have to learn how to play, but you also have to spend a ton of money on booster packs or buying the singles you want," says Rubin. "This stuff has really prevented players from being able to play, which really sucks. We're not trying to necessarily saturate the CCG market; we're actually trying to make a game that more players can fall in love with. We love [card] strategy games and we think more people will love them too if they're more accessible."

### A true free-to-play

Rather than *Hearthstone*, perhaps the closest comparison for *Legends of Runeterra* is Valve's *Artifact*, which was based around rival MOBA *Dota 2* (incidentally, a sequel to the original inspiration for *League of Legends*). The lineage is similar, yet *Artifact's* struggles have been well documented. "We definitely learned some stuff from *Artifact's* launch," Rubin says. "We've seen their failures, and even some of the stuff they did well, honestly. We took that as an opportunity to really grow our game. We've learned from their mistakes." Perhaps the biggest issue for *Artifact* was the business model: a \$20 entry fee

to a game that still had a marketplace for buying better cards. Rubin is confident that his game offers the opposite, proudly declaring it to be "true free-to-play."

"We're not trying to necessarily saturate the CCG market... We think more people will love them too if they're more accessible. If you want to play casually or competitively, in both those situations Legends of Runeterra will hopefully be easier than some of our competitors to get in there."

The increased scrutiny around the industry might have played a part in that "true free-to-play" ambition. Card packs, specifically those found in *FIFA Ultimate Team*, have been used as a prime example of the way loot boxes and monetization mechanics around randomised content can cause financial harm to players, with calls to even regulate them as gambling. Rubin believes booster packs are "not all negative" and stresses the reason *Legends of Runeterra* doesn't have them is "not because we think they're predatory - we just think we can do something better for who our players are."

#### Loot boxes for free

*Riot Games* faced a problem, however, in testing when players were confused as to how they would gain extra cards or what they might open to discover what content they have unlocked. "That was an interesting challenge for us because we were like, 'Man, we're giving you everything, isn't that cool?' but players were like, 'No, we still want to open stuff and progress.' So about a year ago, we shifted models. People like opening booster packs, but we don't want people to have to pay for randomised content."

The team's solution is *The Vault*, which Rubin believes offers a mystery unlock "in a fairer way." This is a weekly content drop that gives players random items, but the quality of that content is based on how much XP they have gained or time they have

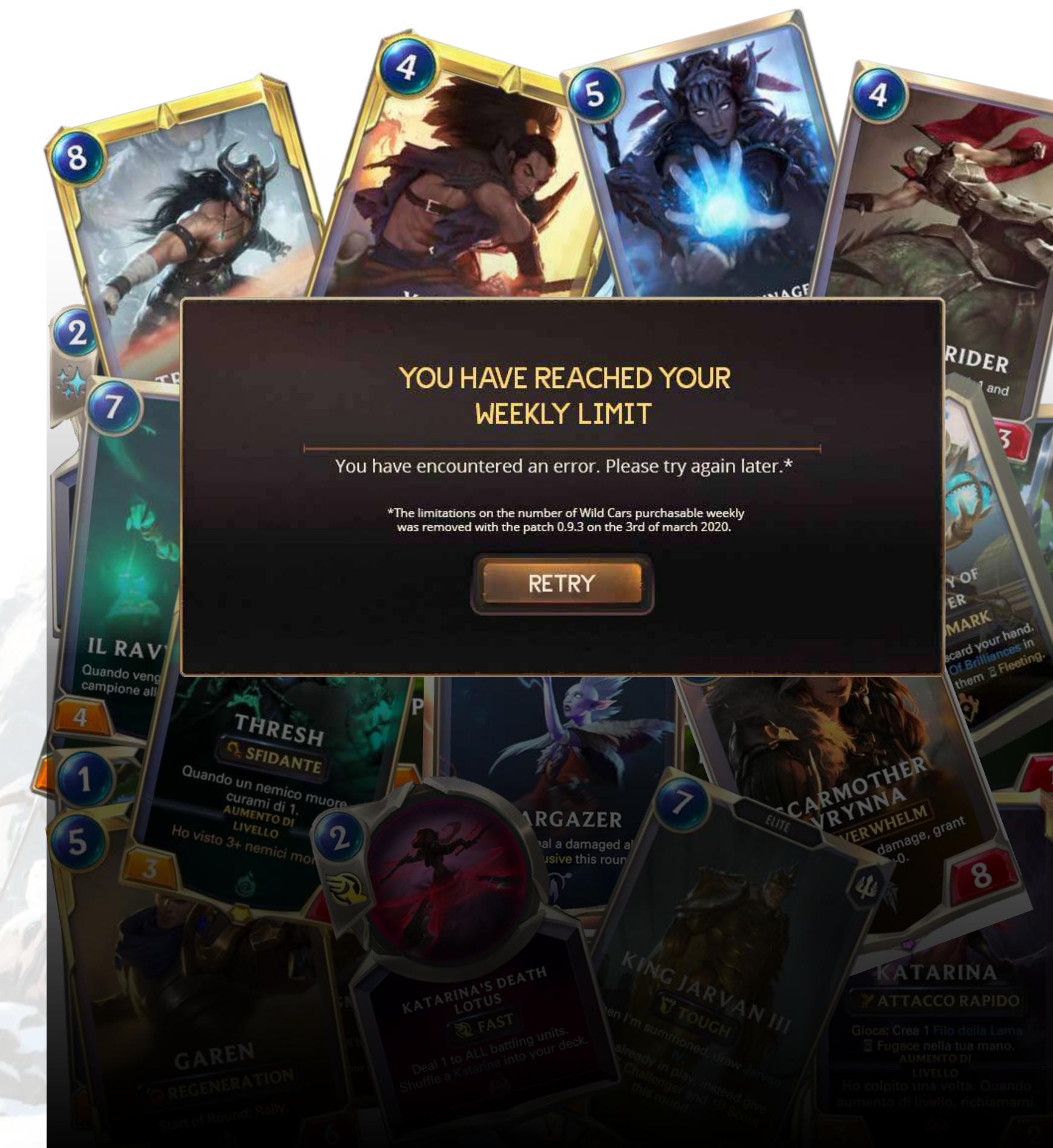
put in over the course of the week. Similarly, the *Regional Wars* feature means that players can select one of *Runeterra*'s six regions from which they gain cards. These are still randomly selected but from a specific set, and players can change which region's cards they're unlocking at any point.

#### Different rarities, same value

Of course, there will still be some monetization, and *Riot* is confident it has come up with a fair system: Wild Cards. These can be redeemed for any card in the game, so if players don't want to grind for a specific item, they can just purchase a Wild Card and use that in exchange. "We know that some players are going to want to buy stuff," Rubin explains. "At first, we had some systems where players couldn't really buy that much stuff. We really liked it that free-to-play players wanted a level playing field. People really don't like playing against wallet decks, where they join a game for the first time and their opponent has a \$150 deck they can't compete with. Our goal is to serve free-to-play players and make it a fair playing field."

"We want to have games for everybody because we think the League of Legends IP is so strong." He continues, "[With Wild Cards] We're essentially saying that every champion and their different rarities are all the same value. We have a situation where we want to make sure free-to-play players can experiment and not feel punished for not paying."

*Riot Games* has put a weekly limit on the number of Wild Cards players can buy, in an attempt to both preserve the balance of the game and avoid the criticism that comes from enabling players to spend hundreds of dollars on content with little to no barrier. It's a model that was divisive among influencers during testing - pack-opening videos have proven to be very popular - but Rubin believes the team has done a "good job of mixing it up" when it comes to ensuring fairness while offering plenty of rewards.♦



# noob

**a person who is inexperienced in a particular sphere or activity, especially computing or the use of the internet.**

“lmao what a fucking noob”

**10-pull:** in gachas, the act of opening 10 banners instead of 1 at a time. It usually incentivises the players to do so by granting them small rewards like “buy 10, get 1 free” or the guaranteed presence of a rare character, card, or other item in the pull.

**4X game:** abbreviation of Explore, Expand, Exploit, Exterminate. Is a subgenre of strategy based computer and board games that include both turn-based and real-time strategy titles. The gameplay involves building an empire.

**Battle pass:** a type of monetization approach that provides additional content for a game usually through a tiered system, rewarding the player with in-game items for playing the game and completing specific challenges.

**Banner:** in gachas a banner is the equivalent of a loot box in which specific SSR/SR character, card, or other item have greater chance of being pulled.

**Break-even point:** the amount of revenue necessary to cover the total fixed and variable expenses incurred by a company within a specified time period.

**Delayed gratification:** the resistance to the temptation of an immediate pleasure in the hope of obtaining a valuable and long-lasting reward in the long-term.

**Ego depletion:** the idea that selfcontrol or willpower draws upon a limited pool of mental resources that can be used up. When the energy for mental activity is low, self-control is typically impaired, which would be considered a state of ego depletion. In particular, experiencing a state of ego depletion impairs the ability to control oneself later on.

**F2P:** in gachas, opposite of

a whale, acronym for “free to play”, a person that plays a game without spending any money.

**Gacha:** a genre of videogames that implement the gacha (toy vending machine) mechanic. Similar to loot boxes, gacha games induce players to spend in-game currency to receive a random virtual item.

**Game as a service:** or (GaaS) represents providing videogames or game content on a continuing revenue mode. Games released under the GaaS model typically receive a long or indefinite stream of monetized new content over time to encourage players to continue paying to support the game.

**Hats:** collectable items in Team Fortress 2. Term used to refer to any cosmetic item in videogames in the early days of loot boxes.

**Near-miss effect:** or almost-win effect, is a losing outcome of a chance based game that clearly shows the player that he almost received a big win or valuable item. For example, players are shown a spinning wheel of various rewards that might be inside the specific loot box, until the wheel stops at the value-less item the player receives. The very rare and valuable item is then shown next to the item received on the wheel.

**Pity:** in gachas, the incorporation of a pity system means that if you don't pull/drop a desirable item a certain, predetermined, number of times in a row, you'll be guaranteed one eventually.

**Post-reinforcement pause:** a pause in responding that typically occurs after the delivery of the reinforcer on fixed-ratio and fixed-interval schedules of reinforcement.

**Problem Gambling Severity Index:** (PGSI) the standardised measure of at risk behaviour in problem gambling. It is a tool based on research on the common signs

and consequences of problematic gambling.

**Pull:** also “wish”, “summon”, “roll” or “spin” (analogous to a slot machine or roulette wheel) the action of using a specific amount of in-game currency, which will then give the player a randomized chance based character, card, or other item.

**Skinner box:** or operant conditioning chamber is a laboratory apparatus used to study animal behavior. A skinner box permits experimenters to study behavior conditioning (training) by teaching a subject animal to perform certain actions (like pressing a lever) in response to specific stimuli, such as a light or sound signal. When the subject correctly performs the behavior, the chamber mechanism delivers food or other reward.

**SR:** an acronym for Super Rare. It's an item of the maximum rarity obtainable in a certain game.

**SSR:** an acronym for Specially Super Rare. It's an item that can't be obtained by normal methods. They are usually introduced in games for a limited time, or can only be obtained after completing a special task, or sold through a special seasonal sale.

**Self-Assessment Manikin:** (SAM) is a non-verbal pictorial assessment technique that directly measures the pleasure, arousal, dominance associated with a person's affective reaction to a wide variety of stimuli.

**Waifu:** used to refer to a fictional girl or woman (usually in Anime, Manga, or video-games) that you have sexual attraction to, and you would even marry.

**Whale:** in gachas, a person who spends an incredible amount of money, which makes him/her ultra powerful and godlike.

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**ART DIRECTOR:**

*Daniele Dell'Orto*

**EDITOR:**

*Michela Montani*

**PICTURE EDITOR:**

*Octavian Husoschi*

**LAYOUT AND GRAPHIC PROJECT:**

*Matteo Pini*

**PRODUCTION DIRECTOR:**

*Alessandro Quets*

**CONTRIBUTORS:**

*Alessandro Quets, Alex Wiltshire, Catherine Myers, Chanel J. Larke, Christopher Lee, Daniele Dell'Orto, Daniel L. King, David Zendle, James Batchelor, James Close, Joanne Lloyd, Katrina Chini, Laura L. Henderson, Leon Y. Xiao, Matt Gardner, Mikail 'Miska' Katkoff, Mike J. Dixon, Myra Fernandes, Nicholas Straub, Octavian Husoschi, Paul Cairns, Paul H. Delfabbro, Paul Lanois, u/OnePC4U*

**CONTACTS:**

INQUEST.com

instagram.com/INQUESTmag

twitter.com/INQUESTmag

hello@inquest.com



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FUCK LOOT BOXES.

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LOOT BOX:  
any game-related  
purchase with a  
chance-based outcome

