

Predatory Game Monetization: Going Beyond Loot Boxes and Gambling

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Executive Summary

Video game monetization has undergone multiple evolutions, driven by the rising popularity of free-to-play games, increasing costs and competition, and the introduction of the Internet and mobile gaming. While game makers nowadays have access to a wide range of options to generate revenue from their games, some of them put the financial and psychological well-being of players at risk. This white paper highlights the controversies surrounding popular modern monetization strategies, including loot boxes, Gacha systems, and battle passes. These monetization strategies are either inherently problematic due to their psychological resemblance to gambling or act as a gateway to other monetized features. Through data-driven player modeling, these negative impacts are further amplified as it usually aims at identifying and targeting more vulnerable groups such as minors and those suffering from disorders related to problem gambling and gaming addiction, while simultaneously exposing consumers to privacy risks. Unfortunately, current intervention measures remain inadequate to effectively address these issues, being primarily implemented at the national level, resulting in fragmentation and inconsistencies across jurisdictions. Moreover, they fail to address the underlying issues related to dark patterns in game designs that give rise to exploitative features and tactics. To bridge these gaps, policymakers are strongly encouraged to: 1) Establish a game design rating system based on transparency and information accessibility standards; 2) Implement consumer protection measures guided by two core principles: safeguarding all players, including vulnerable groups, and ensuring protection throughout the entire consumer journey; 3) Enforce policies and intervention measures at regional and international levels for better compliance and effectiveness.

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1 The Evolution of Game Monetization

Moving away from the typical perspective of entertainment form, discourses surrounding game monetization assume the alternative view of video games as a profit-generating industry in which monetization strategies are adopted by game developers and distributors to offset production expenses, sustain operations, and reinvest into new projects and products. The history of game monetization experienced various stages of evolution, driven by diversifying game genres, escalating development and maintenance costs, increasing competition and player standards, and most notably, the introduction of the Internet and mobile devices [1]. Apart from selling copies in physical retail stores and via online platforms, video game makers nowadays have a broad range of options for monetizing products and diversifying revenue streams, from regular subscriptions, in-game microtransactions, and advertisements, to more recently, loot boxes and battle passes. Furthermore, as the market becomes increasingly saturated with new game titles, developers face fierce competition to generate profit from game sales. This has driven a shift toward free-to-play business models with a low to no entry barrier and more emphasis on maximizing player in-game spending to sustain revenue growth instead.

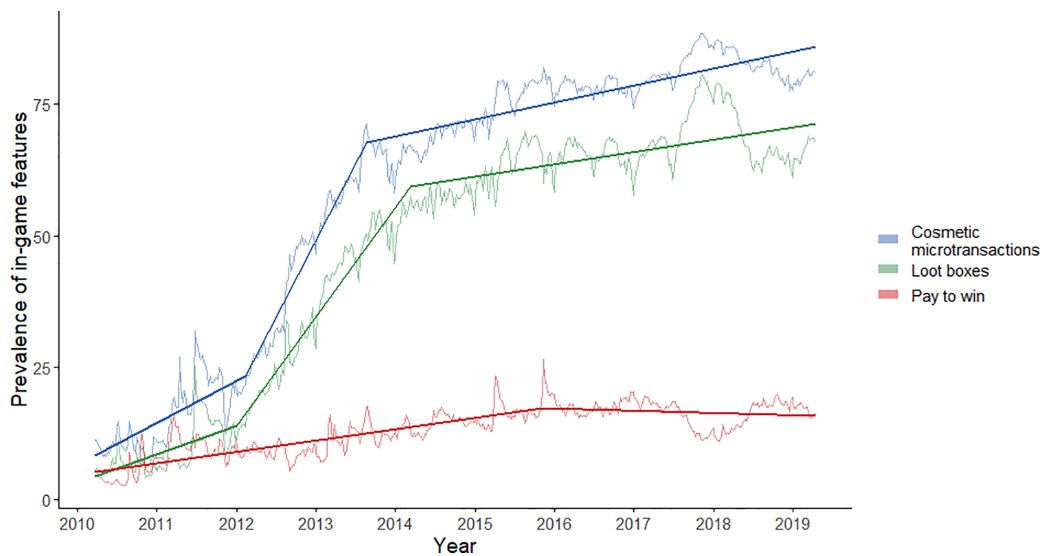


Figure 1: Time series graph showing the percentage of individuals playing most popular games on Steam that contain different monetization features (Source: [2])

Among modern monetization models, microtransactions, subscriptions, and loot boxes have seen the most financial success. Analysis of play history from 2010 to 2019 among the most popular *Steam* desktop games demonstrated a sharp growth between 2012 and 2014 with respect to players exposed to titles featuring cosmetic microtransactions and loot boxes, reaching 71. 2% and 85. 89% by 2019, respectively (Fig. 1) [2]. Results of a mobile game survey in 2020 also revealed that 58% of top-grossing titles on *Google Play* store and 59% on *Apple App* store featured loot boxes [3]. Statista figures projected a positive year-over-year increase in global player spending on subscriptions and loot boxes from 2020 to 2025 (Fig. 2). Revenue shares from monetization of game distributors and developers also showed an increasing trend over the years (Fig. 3 and 4), especially in the case of Blizzard where microtransactions and subscriptions in 2022 account for more than 78% of the company’s net revenue compared to just 37% in 2014.

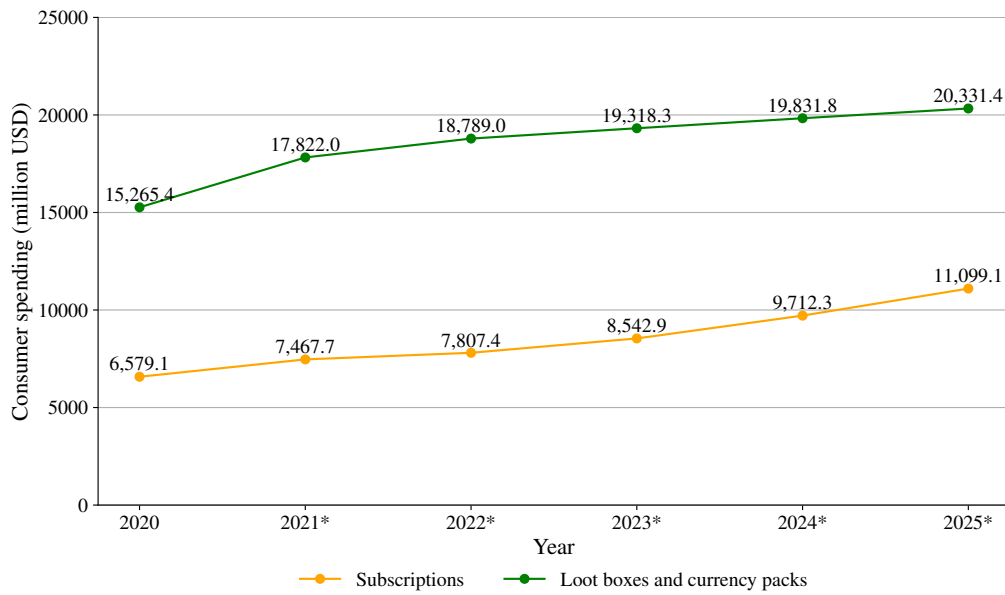


Figure 2: Worldwide consumer spending on game subscriptions and gaming loot boxes & currency packs from 2020 to 2025 (projected) (Data adapted from [4], [5]). Years with projected figures are denoted with *.

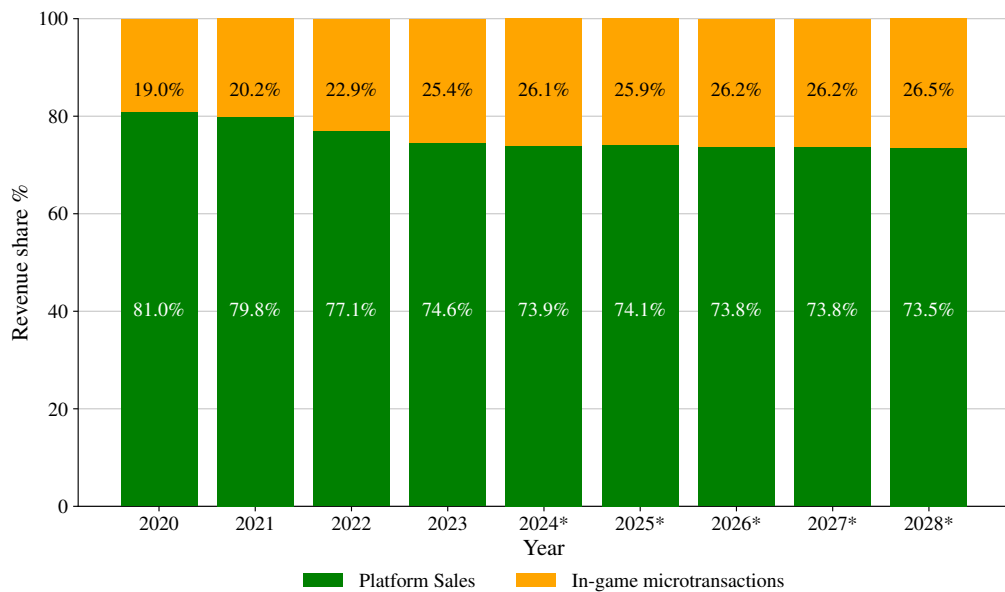


Figure 3: Distribution of gaming revenue generated by Steam from 2020 to 2028 (Author's compilation from [6]). *: Years with projected figures

2 The Controversies of New Monetization Strategies

In contrast to their indisputably massive success with regards to profit generation, the ethics of game monetization has been a contentious topic, spurring debates over their exploitative nature, negative impacts on players' psychological and financial well-being, as well as regulation measures. This section is thus dedicated to giving an overview of several monetization strategies that have come under controversies and criticisms. It should be noted that, in reality, games can implement a hybrid approach that combines different strategies to maximize their reach, impact, and thus revenue generation.

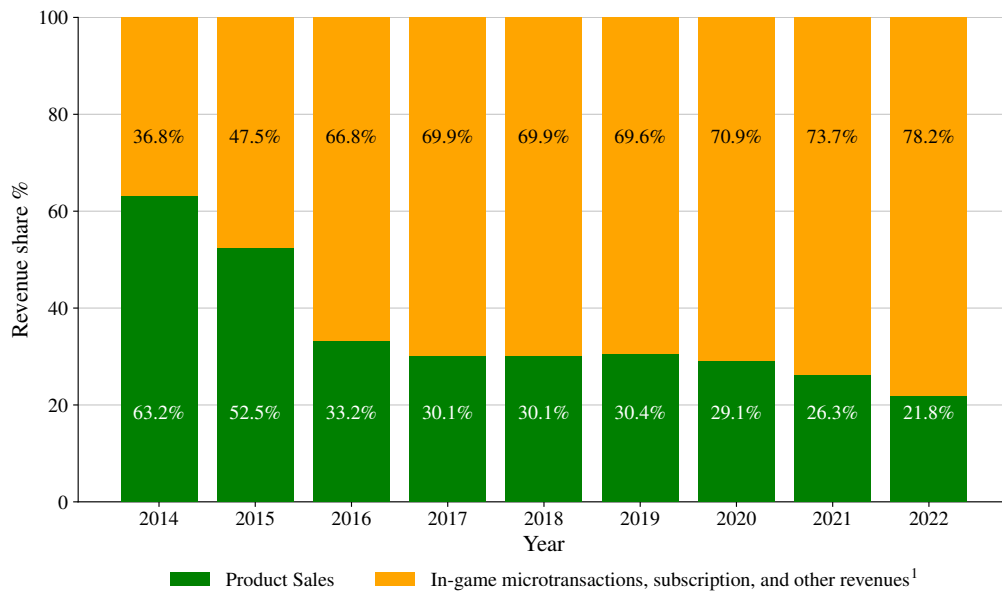


Figure 4: Distribution of net revenue generated by Activision Blizzard from 2014 to 2022 (Author's compilation from [7]). ¹: Revenues from microtransactions and downloadable content, *World of Warcraft* subscriptions, licensing royalties from our products and franchises, and other miscellaneous revenues.

2.1 Loot Boxes & Gacha Systems

Loot boxes, redeemable virtual items that can unlock randomized rewards in exchange for real money, are among the most prevalent forms of monetization in contemporary video games. Rewards offered are typically cosmetic items, including skins or avatars, but can also be equipment allowing modification of in-game power like weapons and tools [8]. Available for purchases in many popular games like *Overwatch*, *FIFA*, *League of Legends*, *Counter-Strike: Global Offensive*, etc., loot boxes are referred to under different terms like treasure chests, packs, orbs, loot crates, mystery boxes, to name but a few (Fig. 5). Gacha systems, originating from



Figure 5: Loot boxes in different games: *CS:GO* Cases (top left), *League of Legends* Hextech Chests (top right), *Overwatch* Loot Crates (bottom left), *FIFA* Packs (bottom right)

Japanese toy capsule vending machines and introduced to mobile games since 2011, also share similar concept

of randomized rewards as loot boxes where players pay to "spin" the Gacha for prizes. The key difference lies in Gacha's typical limited availability of rewards during special events, which targets players' fear of missing out to encourage more spending [9]. While controversies surrounding loot boxes and Gacha games only emerged in recent years, their random reward mechanisms can be traced back to the '90s and early 2000s, underpinning various forms of collectible entertainment, and even incorporated in early games as an inexpensive means for developers to introduce players to new and diverse content [10].

More recently, paid loot boxes and Gachas have attracted criticisms from gamers primarily due to their unpredictability and unequal odd distribution among different rewards, which causes the amount of spending required to obtain desired rewards to vary drastically. Each loot box can be purchased at a relatively low price, however, players are not always guaranteed to receive desired or high-value rewards, as developers typically design drop rates so that valuable items are significantly rarer than common ones. For example, a set of Hextech chest and key in *League of Legends* costs 195 RP, which amounts to roughly \$1.69 or €1.69 depending on the server's location [11]. Upon opening a chest, players have 50% chance of getting a skin shard (which can be unlocked by spending orange essence or rerolled with another 2 Skin shards in exchange for one random permanent Skin), 25% chance of getting a champion shard (which can be unlocked by spending extra blue essence), but only 3.6% chance of receiving a bonus drop of 10 Mythic Essence (a special in-game currency for purchasing Mythic-tier and Prestige skins that cost from 100 to 200 Mythic essence) [12]. Even with bad luck protection mechanisms and pity-timers, players still have to open up to 50 chests to guarantee receiving 10 Mythic essences. Not to mention, higher drop rates for lower-tier items might result in unwanted duplicating rewards.

At the same time, loot boxes have also come under regulatory scrutiny due to their high resemblance to gambling. Many studies have found evidence linking loot boxes with gambling. A survey among Reddit gamers aged 18 or older resulted in a stronger link between spending on loot boxes compared to other in-game items and problem gambling, suggesting that certain features of loot boxes which resemble gambling contribute to this relationship [13]. Loot box expenditure has also been shown to exhibit a positive correlation with impulsiveness, a common personality trait among problem gamblers [14], [15]. From a psychological perspective, players may experience an escalating desire to purchase and open loot boxes as a result of reinforcement mechanisms widely abused by gambling operators which reward one through dopamine releases on an irregular and unpredictable basis so that they are compelled to engage in such behaviors repeatedly [8]. This mechanism is conducive to addiction in the long term, taking tolls on players' psychological health and financial well-being.

There have been arguments that loot boxes do not constitute gambling since players always receive some rewards even if it is not desirable and loot boxes rewards do not have any value outside of the game. These claims have been disputed, however, as the actual cost of some items could be less than the cost of opening a loot box itself, incurring a financial loss, and in-game items can be traded among players for real currency [16]. Furthermore, examining games containing loot boxes shows that they all exhibit most or all the characteristics commonly occurring in gambling activities [17]. Thus, while regulatory definitions remain inconclusive, research widely agrees that loot boxes and Gacha systems display traits psychologically akin to gambling, and therefore should be closely monitored.

2.2 Battle Passes

While most debates and criticisms on game monetization have been centered around loot boxes, problematic game monetization encompasses various other forms and practices that also merit attention. Battle passes, introduced in 2013 in Valve Corporation's *Dota2* as an opt-in seasonal subscription that tracks in-game progress to gradually unlock rewards [18], has transformed how game developers enhance player engagement and retention, becoming a staple of free-to-play games' monetization approach. Unlike loot boxes which reward one as soon as they purchase and open them, battle passes' reward systems are designed to be unlocked through

achieving a series of milestones (or levels) by accumulating progress.



Figure 6: *Apex Legends* Season 24 Split 1 Battle Pass Levels 1-10 (Source: [19])

At first glance, they might seem like a "good deal" for players, typically costing around \$10 to \$15 while offering a variety of cosmetics, skins, and in-game boosts. As long as one is willing to invest time in the game, one can "make a profit" by eventually unlocking rewards exceeding the cost of the pass itself. In fact, many games offer both a free and paid version of a battle pass, with the former option available for all players but yielding vastly fewer and lower-rarity rewards. Players who stay on the free track can accumulate rewards on the paid track by playing the game and accomplishing missions, which can be unlocked at any time during the season or event once they buy the battle pass [20]. Games' client interfaces also tend to display the battle pass progression with rewards associated with each level (Fig. 6), ensuring that players are constantly reminded of what they are "entitled" to should they spend on the pass and how far off they are from the next milestone, which encourages continued engagement.

Nevertheless, the real concern is how battle passes are strategically positioned as a gateway to other problematic monetized add-ons. Instead of "grinding" through the pass, one also has the option to purchase level unlocks, essentially skipping the playing requirements in exchange for instant rewards. Such an option promotes impulsive spending and impatience-driven behaviors even in a monetization layer that is built on gradual advancement and is supposed to merit consistent playing [18]. Conversely, players who forgo pay-to-skip offers but still seek access to rewards must bear the cost of significant time investment. An interface study of *Dota 2* even highlighted that battle pass levels can be purchased without a limit, and are offered in bundles with additional rewards for a higher price point [21]. Bundling the battle pass is another common strategy found in other free-to-play games like *League of Legends* where players can purchase the pass along with additional items like champions, skin chromas, and level unlocks (Fig. 7). Again, these are conscious choices aimed at encouraging more impulsive purchases and leveraging individual's desire for instant gratification. Unlike the case of loot boxes, where the issues stem from their inherent randomized characteristic, concerns with battle passes are rooted in how they are integrated into monetization layers and serve as a retention tool designed to keep players engaged over the long term by creating a sense of urgency and continuous investment. It is worth emphasizing that these nuances are less obvious, leaving battle passes under-recognized and under-investigated compared to loot boxes when it comes to discussions of and research on problematic monetization strategies.

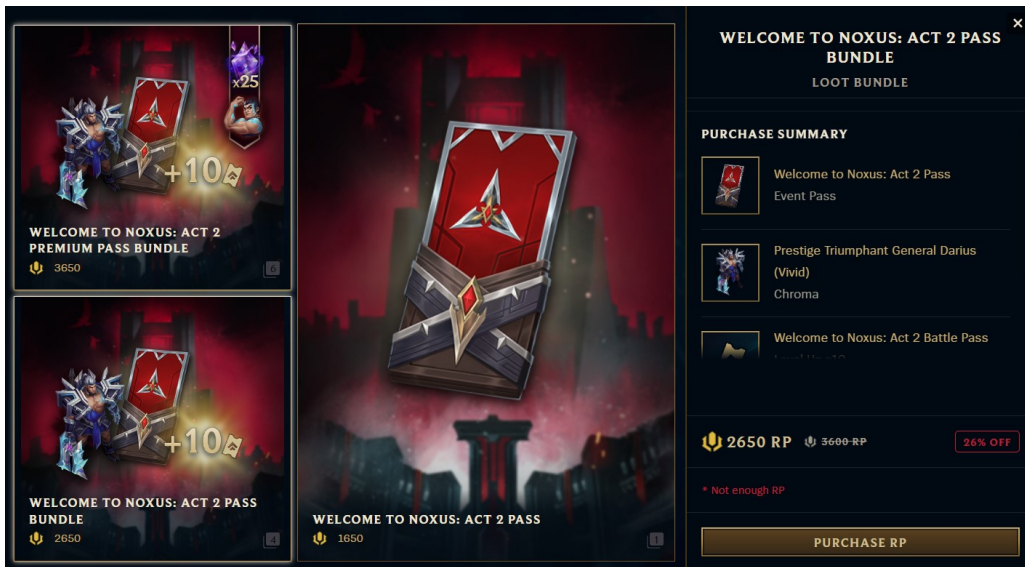


Figure 7: *League of Legends* Welcome to Noxus: Act 2 Battle Pass and bundle options: The Bundle includes the battle pass, 10 levels' progression, skin chroma, and champion. The Premium Bundle additionally includes an emote and 25 Mythic Essence.

2.3 Data-driven Player Modeling & Game Designs

The rising popularity and digitalization of video games has also opened up myriads of opportunities for research and development of data-driven monetization. Player modeling, which involves operationalizing and capturing aspects of players' behaviors, characteristics, and preferences with computational models, is one such prime example, having resulted in an extensive range of applications for game monetization, including lifetime value estimation, churn prediction, and recommender systems, among others [22]–[24].

Questions regarding privacy arise, however, as player modeling leverages players' data which could be shared unconsciously. Telemetry data, for example, is data obtained remotely about how a user interacts with a game. Apart from behaviors, this data can also contain details of one's social networks, personal devices, location, etc. that are passively given off whenever players engage with the game. Such data is used by game publishers to generate player profiles, which helps inform advertising placement strategies [25]. However, when correlated with other sources of personal data, information such as personality traits, sexual orientation, medical conditions, political affiliations, and so on, can be inferred [26], significantly enhancing the values and sensitivity of the data. The problem, thus, exceeds players' awareness and consent over the collection and usage of behavioral data, but also in terms of data ownership rights as game publishers engage in data trading to generate profits. Until recently, many game analytics platforms, such as *Mobalytics*, *GameAnalytics*, etc. have access to players' profiles and game history, which allows for analyses of current game meta and trends, and publicly searchable player statistics spanning across multiple seasons or years. Some of these platforms then analyze individual players' historical data to assess their performance and charge fees for personalized coaching services [27]. Children are particularly vulnerable to this practice, often falling prey to mobile game apps on both Google Android and Apple iOS that collect and send their data to third-party tracking companies despite parental supervision and children online privacy laws [28]. As the market for analytics services continues to expand, personal data becomes an increasingly valuable and highly sought-after commodity, of which game publishers have plenty to offer.

Regarding in-house applications, player modeling adds to the existing concerns with monetization tools by enabling the identification and targeting of players who are more prone to spending. Previous findings have indicated that in-game spending is not equally distributed as the majority of microtransaction revenues comes from a small portion of high-spenders, also known as "whales" [29]. Consequently, churn prediction mod-

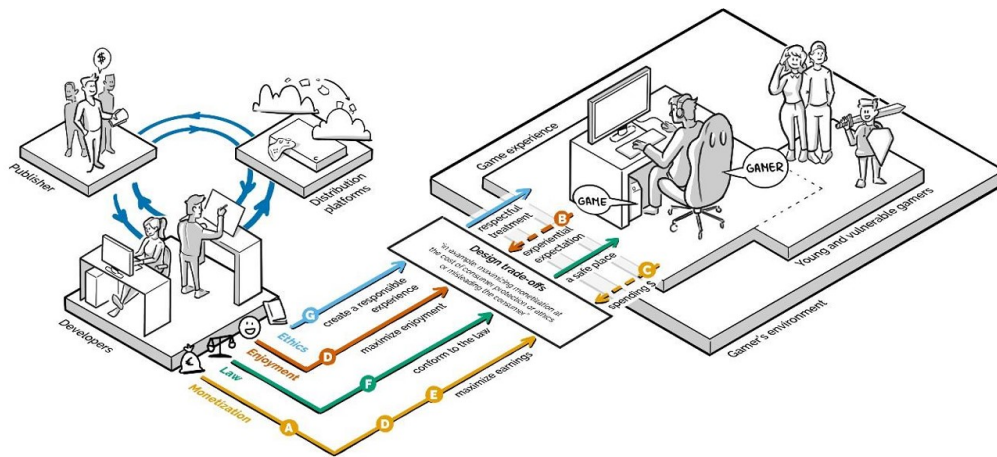


Figure 8: A taxonomy of behavioral design in video games (Source: [26])

els tend to be developed with specific aims towards facilitating retention of these individuals for maximizing long-term profits [30], thus exposing them to more suggestive content and stimuli aimed at eliciting spending. As the decisions by these models are based on in-game spending rather than financial well-being in real life, these practices can cause serious financial implications, subjecting individuals to irresponsible spending behaviors and entrenched cycles of debt in the long run. On top of that, children and adolescents diagnosed with Internet Gaming Disorder on average spend significantly more money and time on games than those who are non-problematic [31]. These findings further highlight the severity of monetization practices which exploit the vulnerabilities of certain groups like minors who may lack financial sense and people with psychological disorders related to gambling, gaming, and other forms of addiction.

Looking at the big picture, player modeling and monetization strategies are fundamental aspects of game design, shaping its identity and influencing players' emotions and mental well-being. Driven by a combination of motives, including compliance requirements, monetization maximization, enjoyment facilitation, and upholding ethical responsibilities, game design bears a significant impact on the decision-making process by game companies and on the gamers as well as their environment (Fig. 8). In the pursuit of multiple goals simultaneously, game designers are faced with conflicts between prioritizing players' enjoyment and maximizing earnings through monetization mechanics [32]. Business incentives that place a strong emphasis on profit may lead to ethically questionable design choices that go against players' best interests, constituting what is called dark patterns in game design (Table 1). These patterns, which can take multiple forms, mainly temporal, monetary, and social capital-based, tend to elicit certain behaviors from the players, either accidentally or purposefully, that exert negative impacts on themselves while benefiting the game publishers financially, including but not limited to overinvestment of time and money, feeling of entrapment due to the sunk cost fallacy, and inability to control and keep track of financial expenditures. Addressing issues with monetization strategies, therefore, will require establishing standards for ethical and transparent game design and closely scrutinizing potential dark patterns that may facilitate predatory monetization practices.

3 Game Monetization Regulations

3.1 Current Landscape of Game Monetization Regulation

In light of problems with predatory monetization practices as well as their potential harms to consumers, it is evident that the industry needs proper oversight and robust governing frameworks to ensure responsible business practices and uphold consumers protection. That being said, much like the research body on predatory game monetization, intervention measures so far have been disproportionately centered around loot boxes,

Table 1: Dark patterns in game design (Author’s compilation from [33])

Category	Description	Examples
Temporal Dark Patterns	Making players spend more or less time than they expected	Grinding: Requiring players to perform repetitive and tedious tasks to progress, emphasizing time investment over skill Playing by Appointment: Requiring players to play at specific times or dates defined by the game, rather than the player’s schedule
Monetary Dark Patterns	Deceiving players into spending more money than they anticipated or spending money at unexpected moments	Pay to Skip: Allowing players to pay to make progress or skip tasks / challenges Pre-Delivered Content: Providing game content or functionality for extra fees Monetized Rivalries (Pay-to-win): Exploiting player competitiveness by encouraging them to spend money to achieve in-game competitive advantage
Social Capital-Based Dark Patterns	Risking the players’ social capital, defined as the value of their social standing and relations	Social Pyramid Schemes: Encouraging players to invite their friends to participate by providing tangible in-game benefits or making progress difficult without social connections. Impersonation: Impersonating other players by communicating actions they never performed or assuming the player’s identity to perform out-of-game actions like sending emails or posting messages

with varying degrees of enforcement and approaches across different countries. Within Europe and Asia-Pacific, some countries have banned or proposed a ban on loot boxes (e.g. Belgium, Austria), while others have implemented age restrictions for games featuring them (e.g. Germany, Australia), or required transparency measures like disclosing drop rates (e.g. China, Taiwan, South Korea) or displaying warning labels to indicate the presence of loot boxes in games (e.g. the United Kingdom) [34]–[36]. Under regulatory scrutiny, many game publishers have revealed drop rates for their loot boxes including Nintendo, Microsoft, Sony, and Ubisoft [37]. Blizzard has also taken an extra step to make loot boxes only available through weekly rewards, seasonal events, and special drops instead of direct purchase in *Overwatch 2* [38], whereas Psyonix announced the removal of crates from *Rocket League* in 2019 [39].

However, the predominant approach to regulating loot boxes which hinges on determining whether loot boxes fall afoul of pre-existing gambling laws in the respective country has been ineffective as a result of improper enforcement as in the case of Belgium [40]. Similarly, compliance with transparency requirements varies significantly between countries where loot box probability disclosure is mandated by law and those that rely solely on industry self-regulation [41]. Meanwhile, in countries with a large video game market like the United States, regulatory crackdowns on paid loot boxes have been either unsuccessful due to large game publishers making efforts to settle claims and allegations via financial means [42], [43], or progressing slowly as legislative bills having yet to pass Congress votes [44].

3.2 Policy Gaps and Limitations

The lack of consistency with regard to enforceability and definition, as well as the limited application scope at national levels constitutes one of the crucial gaps in current measures as they fail to account for the transnational nature of the video game market. Such fragmentation creates opportunities and incentives for companies to exploit regulatory loopholes by operating and shifting monetization focus towards less stringent jurisdictions. Thus, players in certain countries and regions may be exposed to a higher degree of predatory monetization

practices and, at the same time, entitled to lower levels of transparency and protection. Furthermore, as previously discussed, loot boxes are only the tip of the iceberg when it comes to problematic monetization. The issue at hand encompasses various tactics, from manipulative marketing strategies and deceptive pricing models, to opaque telemetry collection and other dark patterns in game design to maximize engagement and encourage excessive spending. Given their existence and future evolution, simply targeting loot boxes is not enough to protect players against exploitative practices. Lastly, monetization regulations so far have been largely based on the grounds of pre-existing laws regarding gambling, which leads to the myopic concentration on gambling-like monetization strategies and overlooking the core issues with game design and consumer protection measures. These gaps will motivate the solutions and recommendations to be outlined in the following section.

4 Solutions and Recommendations

4.1 Transparency and Information Accessibility in Game Design

Whereas monetization practices will continue to evolve as game publishers strive to adapt to changing player preferences and regulatory developments, they remain an integral component of game design. Thus, a comprehensive approach to regulating game monetization would first require establishing standards to promote transparent game design that not only provide accurate and up-to-date information on monetized features but also make such information easily accessible.

This begins with including accurate and specific labels and descriptions of monetized products and features. Currently, prominent rating systems like Pan European Game Information (PEGI) and Entertainment Software Rating Board (ESRB), mainly used in Europe and the US, have adopted descriptors for in-game purchases of random items including loot boxes (Fig. 9). These rating systems should be more widely adapted and large game platforms such as Steam, Xbox, Apple Store, and Google Play Store should mandate game ratings, both before release and through periodic updates afterward.

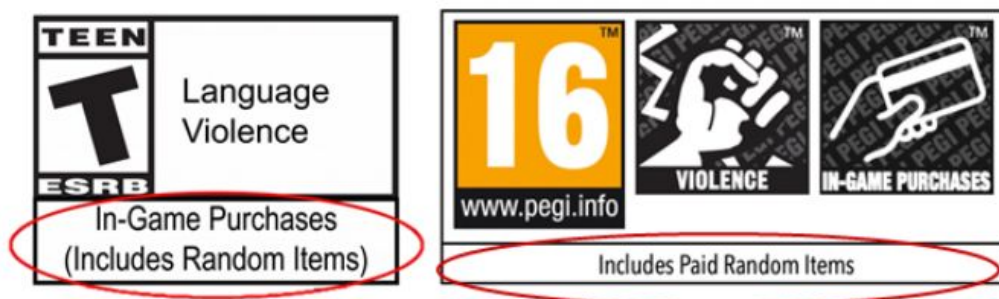


Figure 9: ESRB (left) and PEGI's (right) labels for purchasable random items

Moreover, while probability disclosure of randomized items theoretically helps improve transparency, in practice, under game companies' discretion, many factors can affect the accessibility and clarity of the information, such as the placement of the information, or lack of real-currency equivalents [45], [46]. Game design standards regarding transparency, should, therefore, aim for more stringent requirements in terms of how information should be displayed, accessed, and updated. The following non-exhaustive list contains examples of requirements policymakers can consider enforcing to promote transparency and accessibility of information in game designs:

- In addition to being displayed on the website, explanations of monetized features or items (e.g., loot box drop rates, progress tracking of battle passes) should be integrated directly in the game's client or app. These explanations should be shown alongside the relevant features or items to ensure clarity and accessibility for players.

- Major changes and updates to monetization systems that significantly affect the value or utility of purchased items should also come with official in-client or in-app announcements and alerts.
- The option to convert the value of items to real currency should be available as a toggle feature.
- Information on whether a purchasing an item grants permanent accessibility or not should be displayed at the time of purchase.
- Refundability, refundable time frame, and refundable amount should be made known at the time of purchase.
- In-game spending records associated with each player account should be available and regularly updated.

These best-practices will form the foundation for a game design rating system to assess the transparency and accessibility of information in video games, both existing and upcoming in the market. The ratings should be represented on a scale reflecting the degree to which game designs adhere to transparency standards and the potential risks it can pose to the players' well-being. To be released or remain on the market, games must ensure they meet a minimum threshold and for AAA titles, this threshold may be set even higher. The rating and assessment should be conducted both before release and on an annual basis afterward, and results should be publicly accessible to consumers.

4.2 Consumer Protection Measures

Additionally, rather than targeting specific monetization strategies like loot boxes, intervention measures and regulations of video game monetization should instead be framed from a wider perspective of consumer protection. A more comprehensive approach should be based on monetization methods' potential effects and harms on consumers, ensuring that they are robust to continuous developments in business models, game designs, and technology, which may give rise to alternative problematic game designs. While the topic is extensive and spans multiple dimensions, there are two main principles that policymakers should take into account:

First, consumer protection measures should strive to protect all players, with extra emphasis on vulnerable groups like minors and individuals with psychological disorders related to problem gambling and gaming addiction. While the risk of financial overinvestment in video games applies to everyone, young people are more likely to suffer from microtransaction value propositions due to a lack of reasonable judgments, particularly in scenarios where they have access to financial means that do not belong to them like a parent's credit card [46]. Because of that, age restrictions and parental consent should be legally required in games where items purchasable with real currency are offered. Enforcement can vary from one type of product to another, depending on their characteristics and potential effects on the individual player. For example, loot boxes and Gacha-like features should be banned from being offered to underage players due to their psychological effects resembling gambling, pay-to-skips or pay-to-spin (i.e. paying to draw a reward) can be subject to a daily/weekly purchase limit to prevent children overspending, whereas cosmetics items with price exceeding a certain threshold can still be purchased given the consent from their legal guardian.

Alternatively, problem gamblers and those with Internet Gaming Disorder may struggle with impulsiveness and over-engagement, potentially leading to excessive spending. For these individuals, having access to records of in-game purchases on a regular basis can be useful to keep track of expenditures and provide insights into their own spending patterns that reveal vulnerability to overspending at different times. Aligned with the aforementioned solutions for information accessibility above, expenditure reports should be implemented in the game and players should be notified frequently (e.g., monthly, quarterly). Players who are more committed to regulating their own spending can also benefit from the ability to set a limit on their in-game spending or set a self-abstinence period from microtransactions. This solution has previously been studied among gamblers and has shown a positive effect on individuals' restraint on gambling and reducing harmful consequences [47],

[48]. These features can be integrated either in individual games or across platforms to give players an overall view of how much they are spending across different titles. In the case of underage players, this information and feature should additionally be made available to adult supervisors, allowing them to be consistently informed of children's gaming and spending behaviors.

Secondly, intervention measures should be implemented throughout a player's customer journey. The solutions suggested in this section so far illustrate how consumer protection measures can safeguard players during the conversion and retention stages. However, preemptive measures, including educating players about the potential harms of monetization practices and how one can be manipulated by dark patterns in game design, play an equally essential role in preventing exploitation by problematic monetization schemes. Simultaneously, it fosters self-awareness and self-consciousness, which, when coupled with having access to spending reports, can go a long way in helping players regulate their own spending and staying vigilant of manipulative monetization strategies. Apart from that, external resources and checklists for healthy gaming can also be developed and introduced among players for periodic self-assessment, encouraging players to seek help in case of serious problem gambling or addiction. Parents and legal guardians with a better understanding of monetization practices will also be better equipped to filter appropriate gaming content for their children, monitor their spending behavior, and intervene when necessary.

On top of these two principles, given the increasingly extensive use of data-driven analytics in marketing and game design, more attention and oversight should be paid to game telemetry and other underlying tracking mechanisms, and consequently marketing activities driven by these data. Banning these practices completely may not be a feasible solution at the moment since data analytics, to a certain extent, still has a positive impact on game design and content driven by feedback. An example is data-driven recommendation systems to help players navigate the market for suitable game titles. However, given that children and certain gamer populations are more vulnerable to the harms caused by non-consensual data collection and unethical applications, it is nonetheless an urgent issue deserving utmost attention. Regulating these practices, thus, will be highly dependent on the maturity of pre-existing regulations on personal data protection and ethical data-driven applications under the respective jurisdiction.

4.3 Regulatory Enforcement at Regional and International Levels

Finally, as the online gaming market transcends national borders, national-level interventions are not enough to address the issue at hand. At the same time, self-regulation is not always effective as faced with increasing competition and rising costs, profit-driven game designers are likely to prioritize maximizing earnings at the expense of players' well-being. It is therefore imperative that the initiatives suggested so far to establish transparent game design standards and protect consumers be adopted and overseen at transnational levels. The most obvious motivation is to address inconsistencies in legal definitions and scopes across different countries that may be exploited to target countries with less stringent laws. This aligns with the principle of safeguarding all players, regardless of the jurisdiction they are subject to.

Furthermore, establishing and standardizing regulations at regional and international levels would contribute to harmonizing business practices across different game titles and markets. For players, this means better and consistent protection as they engage in various games on different platforms or during cross-border transactions (e.g., migrating their account to a different server). For business-makers, streamlined regulations across regions reduce the confusion and extra efforts to adapt to local jurisdictions as they expand their business to new markets. These standards and regulations would also create a solid foundations for processing lawsuits and claims related to consumer rights, especially when it involves games with a large player base and high presence across multiple regions.

5 Conclusion

Despite their financial success, modern monetization strategies pose significant ethical concerns regarding their impact on players' well-being. By exploiting the psychological vulnerabilities of consumers, these strategies encourage irresponsible spending habits and create a sense of entrapment, exposing them to financial strain and reinforcing problematic gaming behaviors. Given that current regulatory responses remain fragmented and inadequate in effectively managing the effect of monetization, future solutions should be driven by a broader perspective of consumer protection through both standards to evaluate and monitor game developers, as well as resources to raise consumer awareness and promote healthy gaming habits. As the industry continues to evolve, future solutions must remain future-proof, adaptable to technological developments and changing business models. Governments and policymakers should, therefore, be proactive in fostering collaborative efforts, implementing effective regulations and oversight, and supporting research into diversifying monetization practices and their impact on vulnerable consumers to create a more sustainable and player-centric ecosystem that balances profitability with consumer well-being.

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