

Banking in video games and virtual worlds

Issue spotlight

Executive summary

As video games and virtual worlds have become more and more popular, gaming assets have become increasingly valuable. Gaming assets are stored on a player's accounts and used as a medium of exchange for all sorts of transactions within these worlds, including the purchase of goods and services and person-to-person ("P2P") transfers.

Banking and payment services that facilitate the storage and exchange of valuable assets generally provide consumer protections, including recourse after unauthorized transactions. Yet operators of gaming and virtual worlds typically emphasize a "buyer beware" approach. The Consumer Financial Protection Bureau (CFPB) is monitoring markets—regardless of the infrastructure used—where financial products and services may be offered, including video games and virtual worlds.

KEY FINDINGS

- Gaming assets flow in and out of gaming marketplaces in a variety of ways and can have immense value. To leverage that value, financial products and services have begun entering gaming in the form of payment processing, money transmission, and even loans.
- With the rise in value of gaming assets, there have also been increased reports of users losing access to gaming assets through hacking attempts, account theft, scams, and unauthorized transactions. Yet operators of gaming and virtual worlds do not appear to provide the kinds of customer protections that apply to traditional banking and payment systems.
- Gaming publishers can collect a host of surveillance data about their users. This includes location data, social media data, and behavioral interactions, such as how a player responds to personalized incentives. There is risk that gamers may be harmed when their data is sold, bought, and traded between companies, including for purposes outside of game play.

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1. Introduction

Over the past several decades, U.S. marketplaces have seen a shift from traditional brick-and-mortar commerce to online marketplaces. Consumers increasingly conduct commercial activity online, typically relying on the infrastructure developed by banks and payment systems using fiat currency. For instance, consumers today primarily use debit or credit cards or other similar methods when conducting online transactions. Virtual currencies are steadily becoming an important part of the online commerce ecosystem. One prominent example of this trend is transactions that occur in games and virtual worlds.

Billions of U.S. dollars (USD) are spent each year in gaming and virtual worlds, where consumers buy gaming assets¹ using fiat currency and then use those assets to make purchases in-game. Some games also allow consumers to convert gaming assets back to fiat currency. These marketplaces and the infrastructure that supports them increasingly resemble traditional banking and payments systems. Yet operators of gaming and virtual worlds do not appear to provide the kinds of customer protections that apply to banking and payment systems.

The Consumer Financial Protection Bureau (CFPB) is monitoring non-traditional markets where financial products and services may be offered, including the use of virtual currencies in games and virtual worlds. This report examines:

- The evolution of the gaming industry and the revenue shift from one-time purchases of games to smaller payments made during game play.
- The systems that enable fiat currency to flow into and out of games and virtual worlds and make it possible to assign and extract considerable value from gaming assets both inside and outside of the game.
- How video games and virtual worlds act as electronic platforms that enable players to store and transfer valuable assets.
- Recent activity by companies to leverage gaming assets and their value by providing services that increasingly resemble traditional financial products, like loans and proprietary payment systems.

The CFPB is also monitoring a number of concerning issues regarding gaming markets. These issues include, for instance, the recourse (or lack thereof) for players who incur financial losses

¹ In this issue spotlight, gaming assets include in-game currencies and virtual items, such as skins or cosmetic items. For crypto-based virtual worlds, this includes crypto-assets. These assets can be bought, sold, or traded through gaming marketplaces.

due to theft, scams, or other criminal activity. Other issues include the proliferation of both fraud and money laundering facilitated by the two-way flow of money on these platforms, as well as the ability of gaming companies to collect an immense amount of sensitive consumer data, including data that is not only used to enhance game play but also to manipulate prices and monetize gaming in other ways. Ultimately, this activity raises questions about gaming companies' compliance with applicable law, including federal consumer financial protection laws.²

The ability to leverage, store, and transfer valuable assets within gaming markets and the collection and use of player data to inform that market may create significant risks to consumers, especially young consumers. The CFPB expects that emerging trends in the gaming market, as detailed in this issue spotlight, will be of interest to policymakers and other government agencies with responsibilities related to the issues uncovered.

² This issue spotlight is not intended to impose any obligations or define any rights and is not intended as a CFPB interpretation of any regulation or statute. Whether gaming companies are subject to liability under applicable laws will depend on the facts and circumstances. The CFPB encourages entities to review their legal obligations under federal and state law.

2. The gaming industry

The gaming industry has evolved rapidly, and gaming assets, such as in-game currency and virtual items, have become increasingly valuable alongside that evolution. Beginning in arcades, gaming originally relied on a one-time payment model, where players would pay a few cents for the opportunity to collect “power pellets” or purses. The industry soon shifted to home computers and consoles, where players would pay a fixed, up-front cost to play a game from beginning to end, collecting gold coins or “power-ups” along the way. Today, game revenue is no longer based solely on such one-time purchases. The highest revenue-generating games mostly profit through small, one-off payments known as microtransactions that are made throughout the lifetime of a game.³ The industry continues to trend in this direction, with many games changing to a free-to-play monetization model.⁴

Moreover, gaming is no longer constrained to just playing with people in the same room as you. Online gaming has made it possible for players to join virtual worlds with millions of other players. These types of games can include massively multiplayer online role-playing games (MMORPG) games like World of Warcraft, Runescape, and Final Fantasy, which usually involve players working together to accomplish a specific goal and collect objects, experiences, or territories. There are also platforms like Second Life, Roblox, and Fortnite that offer immersive, community driven, free-form virtual worlds.⁵ Recent market trends, including the development of augmented, virtual, and mixed-reality headsets—also known as AR/VR/MR headsets—point towards shifts that continue to blur the boundaries between the offline world and immersive, virtual worlds.⁶

³ Microtransactions are small, optional, one-off payments made within a game to buy assets like currency or items. Players can also buy opportunities to improve the game experience like upgrades and additional content. See Saddique Ansari, *The Economics of Microtransactions*, ECONOMICS ONLINE (Aug. 3, 2023), <https://www.economicsonline.co.uk/definitions/the-rise-of-microtransactions-in-video-games.html/>.

⁴ See Ethan R. Aronson, *A Primer on Game Monetization*, NAT'L L. REV. (Apr. 14, 2021), <https://www.natlawreview.com/article/primer-game-monetization>; See Kati Alha, *The Rise of Free-To-Play: How the Revenue Model Changed Games and Playing*, 345 TAMPERE U. DISSERTATIONS 19, 37-41 (2020), <https://researchportal.tuni.fi/en/publications/the-rise-of-free-to-play-how-the-revenue-model-changed-games-and->.

⁵ See Sara Brown, *What Second Life and Roblox Can Teach Us About the Metaverse*, MIT (July 19, 2022) <https://mitsloan.mit.edu/ideas-made-to-matter/what-second-life-and-roblox-can-teach-us-about-metaverse>. See generally Junghoon Moon, et al., *Player Commitment to Massively Multiplayer Online Role-Playing Games (MMORPGs): An Integrated Model*, 17 INT. J. OF ELECTRON. COMMER. 7, 7–38, (2013), <http://www.jstor.org/stable/24695812>.

⁶ See Suman Balakrishna, *What Is The Advent And Future of AI in AR/VR Gaming Technology?*, FORBES (Aug. 25, 2023), <https://www.forbes.com/sites/forbestechcouncil/2023/08/25/what-is-the-advent-and-future-of-ai-in-arvr->

For most of these games, a key part of game play is having an asset, item, or currency and using that currency to buy virtual items and services within the game. For virtual worlds, items purchased are typically cosmetic in nature and used to individualize players' avatars. Players generally earn or buy in-game currency, essentially converting fiat currency to in-game currency. Most of these games have in-game marketplaces where assets can be bought, sold, or traded. As a result, gaming companies are using gaming assets and proprietary marketplaces to replicate everyday activities online, including financial payments.⁷

2.1 Market participants

Recent estimates value the global gaming industry at \$249.55 billion in 2022.⁸ Global revenue for video games is expected to reach \$321.1 billion by 2026.⁹

The gaming industry consists of many large, established companies such as Microsoft (including Activision Blizzard), Sony, Valve (Steam), Epic Games, Roblox, and Electronic Arts. Collectively, these companies earn billions in global revenues.¹⁰ The largest gaming companies typically own blockbuster games or popular virtual world platforms. For instance,

[gaming-technology/](#); Victoria Song, *Meta's Big Vision for Face Computers Might Be Better Than Apple's*, THE VERGE (Feb. 14, 2024), <https://www.theverge.com/2024/2/14/24070729/ray-ban-meta-smart-glasses-apple-vision-pro-ar-vr>.

⁷ See *Steamworks Web API Reference*, STEAMWORKS, <https://partner.steamgames.com/doc/webapi> (last visited Feb. 15, 2024); Anne Mette Thorhauge & Rune K. L. Nielsen, *Epic, Steam, and the Role of Skin-Betting in Game (Platform) Economies*, 21 J. OF CONSUMER CULTURE 52, 59 (Mar. 12, 2021), <https://doi.org/10.1177/1469540521993929>; Joshua Brustein & Eben Novy-Williams, *Virtual Weapons Are Turning Teen Gamers Into Serious Gamblers*, BLOOMBERG (Apr. 20, 2016), <https://www.bloomberg.com/features/2016-virtual-guns-counterstrike-gambling/>.

⁸ *Gaming Market Size, Share & COVID-19 Impact Analysis, By Game Type (Shooter, Action, Sports, Role Playing, and Others), By Device Type (PC/MMO, Tablet, Mobile Phone, and TV/Console), By End-User (Male and Female), and Regional Forecast, 2023-2030*, FORTUNE BUS. INSIGHTS (July 2022), <https://www.fortunebusinessinsights.com/gaming-market-105730>.

⁹ Simon Read, *Gaming Is Booming and Is Expected to Be Growing. This Chart Tells All You Need to Know*, WORLD ECONOMIC F. (July 28, 2023), <https://www.weforum.org/agenda/2022/07/gaming-pandemic-lockdowns-pwc-growth/>.

¹⁰ *Top Public Games Companies by Revenue*, NEWZOO, <https://newzoo.com/resources/rankings/top-25-companies-game-revenues> (last visited Mar. 7, 2024). See Kyle Orland, *Epic Thinks EGS Could Make up 35-50% of the PC Gaming Market By 2024*, ARSTECHNICA (May 4, 2021), <https://arstechnica.com/gaming/2021/05/epic-thinks-egs-could-make-up-35-50-of-the-pc-gaming-market-by-2024/>.

- In 2023, Microsoft purchased Activision Blizzard—creator of popular games such as World of Warcraft—for \$75.4 billion.¹¹ In January 2024, Microsoft announced it made \$7.11 billion from gaming that quarter, exceeding earnings from flagship products like Windows.¹²
- In December 2023, the immersive, virtual world platform Roblox averaged 71.5 million active daily users globally.¹³ That year, the company made approximately \$2.8 billion in revenue.¹⁴

Some of the most successful gaming companies have increasingly sought to provide players with a “one-stop shop” experience that integrates playing, distributing, and storing games, as well as game assets, in one place. For example,

- Valve owns Steam, a digital distribution service and storefront where players can play and buy games, as well as trade gaming assets for additional fees.¹⁵
- Sony originally joined the gaming industry as a console manufacturer in partnership with Nintendo. However, in 1994, Sony developed the PlayStation, the first gaming console that used CDs instead of cartridges. Sony’s console continued to evolve over the years adding a digital media entertainment service and virtual marketplace, allowing players to purchase and store games.¹⁶ Recently, Sony changed its PlayStation store model to prevent digital download codes from other retailers, making it the sole digital game distributor for owners of its console.¹⁷

¹¹ Microsoft Corp. Quarterly Report (Form 10-Q) at 17 (Jan. 30, 2024), <https://www.sec.gov/ixviewer/ix.html?doc=/Archives/edgar/data/0000789019/000095017024008814/msft-20231231.htm>. The Federal Trade Commission challenged the transaction arguing that it was anticompetitive. See Microsoft/Activision Blizzard, FTC Docket No. 9412, <https://www.ftc.gov/legal-library/browse/cases-proceedings/2210077-microsoftactivision-blizzard-matter> (last updated Feb. 15, 2024).

¹² Microsoft Corp. Quarterly Report (Form 10-Q), *supra* note 11, at 29.

¹³ *Roblox Reports Fourth Quarter and Full Year 2023 Financial Results*, ROBLOX (Feb. 7, 2024), <https://ir.roblox.com/news/news-details/2024/Roblox-Reports-Fourth-Quarter-and-Full-Year-2023-Financial-Results/>.

¹⁴ Roblox Corp. Annual Report (Form 10-K) at 75 (Feb. 21, 2024), <https://www.sec.gov/Archives/edgar/data/1315098/000131509824000026/rblx-20231231.htm>

¹⁵ *About Us*, VALVE, <https://www.valvesoftware.com/en/about> (last visited Mar. 27, 2024). *Community Market FAQ*, STEAM, <https://help.steampowered.com/en/faqs/view/61F0-72B7-9A18-C70B> (last visited Mar. 27, 2024).

¹⁶ Tristan Donovan, *The Story Behind Nintendo’s Betrayal of Sony – and How it Created its Fiercest Rival*, VENTUREBEAT (June 23, 2018), <https://venturebeat.com/games/the-story-behind-nintendos-betrayal-of-sony-and-how-it-created-its-fiercest-rival/>; *Expanded Company Timeline*, SONY INTERACTIVE, <https://sonyinteractive.com/en/our-company/expanded-company-timeline/> (last visited Mar. 11, 2024).

¹⁷ See Nick Statt, *Sony Confirms It Will Stop Letting GameStop and Other Retailers Sell PS4 Download Codes*, FIN. TIMES (Mar. 25, 2019), <https://www.theverge.com/2019/3/25/18281538/sony-playstation-4-gamestop-stop-selling-game-download-codes-retailers>.

Games backed by large companies are so influential that some industry observers have suggested the odds of lower budget games breaking through in the market are shrinking.¹⁸ At the same time, large technology companies, with their vast resources, have been increasing their footprint in this space. For example:

- In 2014, Amazon acquired the market’s leading video game livestreaming service Twitch.¹⁹
- The U.S. AR/VR/MR market size was valued at \$4.39 billion in 2020²⁰ and large technology companies have bet big on creating games and headsets to fit this technology.
 - Meta released its Meta Quest headset and VR game, Horizon Worlds, in 2018 and then subsequently invested \$15.9 billion in the technology.²¹
 - Meanwhile, Apple launched its Vision Pro headset, which advertises the ability to “transport users to stunning game play environments and exciting new places” in 2024.²² Apple’s headset also integrates Apple’s phone payment system with features

¹⁸ In 2023, *Baldur’s Gate 3* by privately-owned Larian Studios became one of the biggest games of the year, leading to industry-wide discourse around the negative impact of large, publicly traded companies on gaming and the limited opportunities available for small gaming studios. See Jason Schreier, *The Secret Behind the Success of ‘Baldur’s Gate 3’*, BLOOMBERG (Aug. 18, 2023), <https://www.bloomberg.com/news/newsletters/2023-08-18/-baldur-s-gate-3-is-a-huge-hit-thanks-to-privately-owned-larian-studios>; see also Evgeny Obedkov, *Rami Ismail on Why Hits like BG3 Lead to Fewer Funded Games in Genre: “Everything That’s Successful Tightens the Noose”*, GAME WORLD OBSERVER (Aug. 22, 2023), <https://gameworldobserver.com/2023/08/22/game-funding-vicious-circle-industry-rami-ismail>.

¹⁹ *Amazon.com to Acquire Twitch*, AMAZON, (Aug. 25, 2014) <https://press.aboutamazon.com/2014/8/amazon-com-to-acquire-twitch>.

²⁰ Pramod Borasil, Vaibhav Mdoi & Vineet Kumar, *U.S. Augmented and Virtual Reality Market Size, Share, Competitive Landscape and Trend Analysis Report by Component (Solution, Services and Connectivity Type), Application (Consumer and Enterprise), Enterprise Size (Large Enterprises and Small & Medium Sized Enterprises (SMEs), and Industry Vertical (Gaming, Entertainment & Media, Aerospace & Defense, Healthcare, Manufacturing, Retail, Education, and Others): Opportunity Analysis and Industry Forecast, 2021-2030*, ALLIED MKT. RSCH. (Aug. 2021), <https://www.alliedmarketresearch.com/us-augmented-and-virtual-reality-market-A06735>.

²¹ Salvador Rodriguez, *Meta Pursues Teen Users as Horizon Metaverse App Struggles to Grow*, WALL ST. J. (Feb. 7, 2023), https://www.wsj.com/articles/meta-to-revamp-horizon-metaverse-app-plans-to-open-for-teen-use-as-soon-as-march-11675749223?mod=hp_lead_pos10.

²² *Apple Announces More Than 600 New Apps Built for Apple Vision Pro*, APPLE, (Feb. 1, 2024), <https://www.apple.com/newsroom/2024/02/apple-announces-more-than-600-new-apps-built-for-apple-vision-pro/>. One blockchain related firm announced its intentions to release the first crypto-asset based metaverse app for the headset. See Aoyon Ashraf, *Apple’s ‘Vision Pro’ Set to Get First Crypto-Focused Metaverse from Victoria VR*, YAHOO FIN. (Feb. 2, 2024), <https://finance.yahoo.com/news/apples-vision-pro-set-first-170539913.html>.

like sending and requesting money through Apple Pay,²³ and facilitating online shopping.²⁴

2.2 Gamers in the U.S.

American consumers spent \$56.6 billion on gaming in 2022, including hardware and content, like game purchases and microtransactions. According to research, the typical gamer skews slightly male,²⁵ even though the number of female gamers has been steadily increasing recently.²⁶ Research has shown that players typically average 12.8 hours a week gaming across multiple platforms and most often play video games on their phones, gaming consoles, PCs, or laptops.²⁷

For many young people today, gaming may be their introduction to financial activity. For example, gaming provides young people the opportunity to learn about earning currency, managing assets, and making purchases.²⁸ Gaming companies may view young players as an opportunity to create lifelong consumers early. An estimated 76 percent of children in the United States play video games.²⁹ The most popular virtual platform among young people in the U.S. is Roblox,³⁰ which, as previously mentioned, averaged 71.5 million active daily users

²³ *Apple Vision Pro User Guide*, APPLE, <https://support.apple.com/en-mz/guide/apple-vision-pro/tan5566a47aa/visionos> (last visited on Feb. 8, 2024).

²⁴ *Launch of Apple Vision Pro Supercharges Retailers' Adoption of VR*, PYMNTS (Feb. 2, 2024), <https://www.pymnts.com/news/retail/2024/launch-apple-vision-pro-supercharges-retailers-adoption-virtual-reality/>; see also Maria Monteros, *Brands Are Betting on Apple Vision Pro's Potential as a Shopping Channel*, MODERN RETAIL (Feb. 8, 2024), <https://www.modernretail.co/technology/brands-are-betting-on-apple-vision-pro-potential-as-a-shopping-channel/>.

²⁵ *2023 Essential Facts About the U.S. Video Game Industry*, ENTERTAINMENT SOFTWARE ASS'N, https://www.theesa.com/wp-content/uploads/2023/07/ESA_2023_Essential_Facts_FINAL_07092023.pdf (last visited Mar. 7, 2024).

²⁶ In 2020, women accounted for nearly 41 percent of all gamers in the US. That number increased to 46 percent in 2022. See Tomoko Yokoi, *Female Gamers are on the Rise. Can the Gaming Industry Catch Up?*, FORBES (Mar. 4, 2021), <https://www.forbes.com/sites/tomokoyokoi/2021/03/04/female-gamers-are-on-the-rise-can-the-gaming-industry-catch-up/>; *2023 Essential Facts About the U.S. Video Game Industry*, *supra* note 25.

²⁷ *2023 Essential Facts About the U.S. Video Game Industry*, *supra* note 25.

²⁸ *Gen Alpha & Gen Z – The Future of Gaming*, NEWZOO (Sept. 28, 2022), https://resources.newzoo.com/hubfs/Reports/Consumer%20Insights/2022_Newzoo_Gen_Alpha_&_Gen_Z_Report.pdf.

²⁹ *2023 Essential Facts About the U.S. Video Game Industry*, *supra* note 25.

³⁰ *Research By App Category: Gaming*, QUSTODIO, <https://www.qustodio.com/en/gaming-qustodio-annual-data-report-2021/> (last visited Mar. 7, 2024).

globally in December 2023³¹ and roughly 58 percent of those users were under the age of 16.³² Its popularity is largely due to the ease in which players “can invite friends to join...different virtual worlds or games” on the platform.”³³ Research has shown that today’s young people primarily turn to video games and virtual worlds to socialize with friends, rather than the draw of playing a game.³⁴ Harnessing the appeal of socialization, technology and gaming companies have expressed their intention to market VR headsets—and as a result community driven, free-form virtual worlds—to children as young as 10 years old.³⁵

Young people may be especially vulnerable to tactics used by gaming companies to induce spending and monetize gaming, as their financial habits are still forming.³⁶ In 2019, the Federal Trade Commission (FTC) raised concerns about loot boxes,³⁷ including the effectiveness of disclosures prior to purchase, the design of loot boxes promoting compulsive spending, and potential risks to young players. The FTC also noted that the gaming industry has taken steps to self-regulate loot boxes.³⁸ Nonetheless, in 2022, a study found that American youths’ consumption of loot boxes is on the rise³⁹ and additional research suggests that loot box usage

³¹ Roblox Reports Fourth Quarter and Full Year 2023 Financial Results, *supra* note 13.

³² Cecilia D’Anastasio, *Roblox Game Developers Earned a Record \$741 Million Last Year*, BLOOMBERG (Feb. 21, 2024), <https://www.bloomberg.com/news/articles/2024-02-21/how-much-do-roblox-game-makers-earn-741-million-in-2023>.

³³ Simon Hill, *What You Need to Know About Roblox—and Why Kids Are Obsessed*, WIRED (Mar. 15, 2021), <https://www.wired.com/story/unpacking-roblox-and-its-popularity/>.

³⁴ Gen Alpha & Gen Z – The Future of Gaming, *supra* note 28.

³⁵ See Alex Heath, *Meta Is Lowering the Minimum Age for the Quest to 10 Years Old*, THE VERGE (June 16, 2023), <https://www.theverge.com/2023/6/16/23763812/meta-quest-headset-lower-age-10-years-old>. As explored in later sections, AR/VR headsets collect an immense amount of data, including biometric data and location information, to operate. This targeting of children as young as 10 years old raises concerns about the collection and use of personal information from and about children in these virtual environments.

³⁶ For a longer analysis regarding the development of financial capability in young people, see CFPB, BUILDING BLOCKS TO HELP YOUTH ACHIEVE FINANCIAL CAPABILITY: A NEW MODEL AND RECOMMENDATIONS 9 (Sept. 2016), https://files.consumerfinance.gov/f/documents/092016_cfpb_BuildingBlocksReport_ModelAndRecommendations_web.pdf.

³⁷ A loot box is a seemingly randomized package of game assets where the player only knows the contents after paying and opening the package. Prior to opening a loot box, the contents are often marketed as containing rare and valuable items missing from a player’s collection, or game currency. These assets can then be sold for fiat currency on third-party websites. See FTC, FTC VIDEO GAME LOOT BOX WORKSHOP: STAFF PERSPECTIVE, 1-5 (Aug. 2020), https://www.ftc.gov/system/files/documents/reports/staff-perspective-paper-loot-box-workshop/loot_box_workshop_staff_perspective.pdf.

³⁸ FTC, INSIDE THE GAME: UNLOCKING THE CONSUMER ISSUES SURROUNDING LOOT BOXES – AN FTC WORKSHOP (Transcript) 21-22 (Aug. 7, 2019), https://www.ftc.gov/system/files/documents/videos/inside-game-unlocking-consumer-issues-surrounding-loot-boxes-session-2/ftc_loot_boxes_workshop_transcript_segment_2.pdf.

³⁹ Whitney DeCamp & Kevin Daly, *Loot Box Consumption by Adolescents Pre- and Post- Pandemic Lockdown*, PEERJ 1-3 (2023), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10158757/pdf/peerj-11-15287.pdf>.

by children or teens can potentially lead to problems with gambling later in life.⁴⁰ Internationally, regulatory efforts have focused on disclosing the odds of loot box rewards and including 'gambling-like mechanisms' in age-rating decisions.⁴¹ Within the U.S., efforts have been mostly focused on industry-wide self-regulation rather than specific policy interventions.⁴²

⁴⁰ Jason W. Osborne, *How Loot Boxes in Children's Video Games Encourage Gambling*, FORBES (May 25, 2023), <https://www.forbes.com/sites/jasonwosborne/2023/05/25/how-loot-boxes-in-childrens-video-games-encourage-gambling/>.

⁴¹ Leon Y. Xiao, *Loot Box State of Play 2023: A Global Update on Regulation*, GAMESINDUSTRY.BIZ (Dec. 5, 2023), <https://www.gamesindustry.biz/loot-box-state-of-play-2023-a-global-update-on-regulation>.

⁴² FTC, *supra* note 37.

3. Monetizing player data

While playing games, companies collect a great deal of data and information on the player. The collection of this data is often marketed as beneficial to the player and their game play, as it can be used to provide a unique and personalized experience.⁴³ However, this data can be used to monetize game play in a manner that may take advantage of players' proclivities to entice more spending.⁴⁴ This data is also often sold, bought, and traded between companies.⁴⁵

3.1 Types of data collected

As players move through a game, game publishers track their behavior. This behavior can include financial data like purchasing history, spending thresholds, and how a player responds

⁴³ Epic Game's Privacy Policy states that they collect data such as "Usage information and statistics about how you interact with the Epic Services, including the application you used or the game you played, how long you used or played it and when, gameplay attempts, progression and results, saved preferences, crash reports, the URLs of our websites that you have visited, URLs of referring and exiting pages, page views, time spent on a page, number of clicks, and platform type...[and] the general location of your device" for the purposes of "Personalizing your experience, including by presenting content or features better tailored to you or your interests, or our inferences about your interests (for instance, if you frequently play games in a certain genre, we may infer that you'd be interested in that genre and suggest similar games to you)." Additionally, "[Epic Games] may also share information that does not identify you with third parties, including aggregate or de-identified information." See *Epic Games Privacy Policy*, EPIC GAMES, <https://www.epicgames.com/site/en-US/privacypolicy> (last updated Jan. 17, 2024). Electronic Art's Legal and Privacy Policy states that they "may collect and store data from your computer or device when you use our Services. This information includes technical and related information about your computer, device, and operating and/or network systems (such as IP Address and device identifiers); information about your engagement with certain features and services; gameplay and usage statistics; as well as system interactions and peripheral hardware." They also aggregate data by "sync[ing] or connect[ing] behavior across different websites, mobile apps and devices to tailor offers and advertising to your interests. For instance, you may be presented with an offer for a game we think you might enjoy." Also, "third-party advertising companies may combine the information collected in the context of delivering an offer to you via our Services with other information they have independently collected over time and/or across different websites." See *Privacy and Cookie Policy*, ELECTRONIC ARTS, <https://www.ea.com/legal/privacy-and-cookie-policy> (last updated Oct. 10, 2023).

⁴⁴ Joshua Foust & Joseph Jerome, *A Guide to Reining in Data-Driven Video Game Design*, BROOKINGS INST. (June 25, 2021), <https://www.brookings.edu/articles/a-guide-to-reining-in-data-driven-video-game-design-privacy/>; Tracy Markle & Brett Kennedy, *In-Game Purchases: How Video Games Turn Players into Payers*, DIGITAL MEDIA TREATMENT & EDUC. CTR. (Mar. 29, 2021), <https://digitalmediatreatment.com/in-game-purchases/>.

⁴⁵ Eli Hodapp, "We Own You" – Confessions of an Anonymous Free to Play Producer, TOUCHARCADE (Sept. 16, 2015), <https://toucharcade.com/2015/09/16/we-own-you-confessions-of-a-free-to-play-producer/>; Ben Egliston, *The Unnerving Rise of Video Games that Spy on You*, WIRED (Feb. 1, 2022), <https://www.wired.com/story/video-games-data-privacy-artificial-intelligence/>.

to personalized incentives like dynamic price updates. It also includes non-financial data, like how players interact with characters and the amount of time spent on tasks.⁴⁶

The technology used to operate mobile games or render virtual or mixed-reality environments collects an immense amount of sensitive player data. Gaming consoles, mobile phone gaming applications, and gaming platforms often track lifestyle and behavioral measurements like location data and interactions with games and devices,⁴⁷ as well as details obtained through integrations with social media platforms.⁴⁸ Viewed as a whole, this data can be used to generate an accurate portrait of a player's offline identity, including their daily routines, home address, places of employment or worship, and who they connect with while playing.⁴⁹

Similarly, AR/VR/MR headsets track a player's movements and physical behavior to render a VR scene used to interact with virtual environments. This data includes biometric data such as posture, eye gaze, gestures, facial expressions, voice, heart rate, and interpersonal distance. Eye movement, pupil response, and gait analysis are considered especially sensitive.⁵⁰ Researchers have associated eye-movement tracking with ADHD symptoms⁵¹ and Alzheimer's,⁵² and this

⁴⁶ Anders Drachen, Magy Seif El-Nasr & Alessandro Canossa, *Game Analytics – The Basics*, in *GAME ANALYTICS: MAXIMIZING THE VALUE OF PLAYER DATA* 13, 20-29 (2013), <https://cmps-people.ok.ubc.ca/bowenhui/game/readings/ch2-game-metrics.pdf>; see Foust & Jerome, *supra* note 44.

⁴⁷ Jacob Leon Kröger et al., *Surveilling the Gamers: Privacy Impacts of the Video Game Industry*, 44 *ENTERTAINMENT COMPUTING* (2023), <https://www.sciencedirect.com/science/article/pii/S187595212200060X>.

⁴⁸ Boris Bankov, *The Impact of Social Media on Video Game Communities and the Gaming Industry*, *INFO. AND COMM. TECH. IN BUS. AND EDUC.*, 2-3 (Oct. 2019), https://www.researchgate.net/publication/337144821_The_Impact_of_Social_Media_on_Video_Game_Communities_and_the_Gaming_Industry.

⁴⁹ The FTC recently announced several enforcement cases regarding the deceptive or unfair collection of consumers' sensitive geolocation information, the sharing of that data with third parties, and the consumer consent required. See Lesley Fair, *How Location, Location, Location Can Lead to Enforcement, Enforcement, Enforcement*, FTC (Jan. 18, 2024), <https://www.ftc.gov/business-guidance/blog/2024/01/how-location-location-location-can-lead-enforcement-enforcement-enforcement>; see also Cecilia D'Anastasio & Dhruv Mehrotra, *The Creators of Pokémon Go Mapped the World. Now They're Mapping You*, *KOTAKU* (Oct. 16, 2019), <https://kotaku.com/the-creators-of-pokemon-go-mapped-the-world-now-theyre-1838974714>.

⁵⁰ See FTC, *AUGMENTED REALITY/VIRTUAL REALITY PANEL MODERATED BY ERIK MARTIN, OFFICE OF POLICY PLANNING* (Transcript) 58 (Nov. 1, 2022), https://www.ftc.gov/system/files/ftc_gov/pdf/privacycon-2022-transcript.pdf; see also Joseph Jerome & Jeremy Greenberg, *Augmented Reality + Virtual Reality: Privacy & Autonomy Considerations in Emerging, Immersive Digital Worlds*, *FUTURE OF PRIVACY F.* (Apr. 2021), <https://fpf.org/wp-content/uploads/2021/04/FPF-ARVR-Report-4.16.21-Digital.pdf>.

⁵¹ Johan Lundin Kleberg, Matilda A. Frick & Karin C. Brocki, *Eye-Movement Indices of Arousal Predict ADHD and Comorbid Externalizing Symptoms over a 2-Year Period*, 13 *SCI. REPORTS* 6-8 (Mar. 23, 2023), <https://doi.org/10.1038/s41598-023-31697-3>.

⁵² "But why should we worry about using eye-tracking? Before going deep into the privacy concerns, let's first see how does the eye-tracking data look like. Let's look at the figure, where I plot one user's eye gaze data as a heat map when they are browsing on an online store. We can see the two major clusters in the dense orange that represent users' attention. The eye gaze data can be [bucketed] into two categories, fixation, and saccade. Fixations are eye gaze located close to each other, and it's associated with users' visual attention. Saccades are eye gaze traveling fast from

data collection poses medical privacy risks for that reason. The headsets generally also use audio, visual, and inertial sensors to detect the position and movement of a user or device relative to its surroundings. These sensors collect information about the user’s physical location, including the size of the room they are in and data on passive bystanders that happen to be within range.⁵³

3.2 How gaming companies make money on player data

3.2.1 Microtransactions and discriminatory pricing

Optimizing game play based on player data is commonly referred to by industry experts as “dynamic odds.”⁵⁴ Gaming companies have been using behavioral, biometric, and personal data to manipulate prices and the availability of goods or services on a highly individualized level.⁵⁵

For example, if player data shows that a player is unlikely to spend money on microtransactions, their odds of earning—rather than buying—rare assets will increase. This practice helps advertise rare assets to players that do spend money. Where data shows that a player is willing to participate in microtransactions or pay more money to keep playing the game, the game will increase their prices and decrease their chances of earning rare assets.⁵⁶

While some gaming terms of service state that prices of in-game items may be determined by factors that are not disclosed to the player—such as an algorithm that considers the player's

one fixation to another. Users’ fixation ... is associated with the regional interest in a visual scene. [Headsets] can analyze the spatial distribution of such eye gaze absolute positions to note about their attention, even subconsciously. Also, they can associate the aggregate statistic of eye gaze distribution with a lot of traits...These traits include psychological traits and physiological traits, such as implicit interest, cultural backgrounds, personality traits, health status, like Alzheimer’s or vision condition, and biometric identities and so on.” See FTC, *supra* note 50, at 58-59.

⁵³ See Joseph Jerome, *Pretty Soon, Your VR Headset Will Know Exactly What Your Bedroom Looks Like*, WIRED (Oct. 3, 2023), <https://www.wired.com/story/virtual-reality-meta-wearables-privacy/>; see also Omer Tene, *Protecting Data in the Metaverse: Do Avatars Dream of Privacy?*, JD SUPRA (Oct. 19, 2022), <https://www.jdsupra.com/legalnews/protecting-data-in-the-metaverse-do-5740290/>.

⁵⁴ See FTC, *supra* note 38, at 21-22; see also People Make Games, *How Valve is Profiting from Steam’s Back-Door Casinos*, YOUTUBE (Nov. 7, 2022), <https://www.youtube.com/watch?v=eMmNy11Mn7g>.

⁵⁵ See David Murphy, *Gondola Brings Dynamic Pricing to Mobile Games*, PC MAG (Apr. 3, 2015), <https://www.pcmag.com/news/gondola-brings-dynamic-pricing-to-mobile-games>; see also Daniel L. King et al., *Unfair Play? Video Games as Exploitative Monetized Services: An Examination of Game Patents from a Consumer Protection Perspective*, 101 COMPUTERS IN HUMAN BEHAVIOR 131, 137 (Dec. 2019), <https://www.sciencedirect.com/science/article/pii/S0747563219302602>.

⁵⁶ See Daniel L. King et al., *supra* note 55.

available funds and cost sensitivity—the availability, value, and quality of goods, including those in the user's account, may change at any time.⁵⁷

“Dynamic odds” impact the perceived value of gaming assets when their availability, price, and/or scarcity within the game is individualized and therefore the real value is obscured from the player. This use of data gives a misleading impression to the player about the fairness or neutrality of these opportunities.

3.2.2 Advertising

In addition to microtransactions, players often pay with their time and attention. The gaming industry uses player data and algorithms marketed as artificial intelligence or “AI” to target ads to specific audiences, making them more effective for advertisers and profitable for game publishers.⁵⁸ For example, games can combine individual player location data, as well as data like birth date, age group, and gender with statistical location-based demographic data to provide advertisers with an array of audience targeting options including age, gender, family, and economic status.⁵⁹ Game publishers can also use player behavior to make targeted ads more effective. For example, games can present non-skippable ads at certain intervals within the game when a player is highly motivated to continue playing. Sometimes, the player can pay to get rid

⁵⁷ See, e.g., *Terms of Use: Service Provided Content*, BUNGIE, <https://www.bungie.net/7/en/legal/terms> (last updated June 18, 2021) (“Price and availability of Service Provided Content are subject to change without notice.”); *Rockstar Games End User License Agreement: Virtual Currency and Virtual Goods*, ROCKSTAR GAMES, <https://www.rockstargames.com/eula> (last updated July 11, 2019) (“You acknowledge and agree that Licensor may revise or take action that impacts the perceived value of or purchase price for any VC and/or VG at any time except as prohibited by applicable law.”); *Ubisoft Terms of Use: What Are Some Features of Our Services and How Can I Access Them*, UBISOFT, <https://legal.ubi.com/termsfuse/en-US> (last updated May 12, 2020) (“We reserve the right to modify or eliminate any or all of the Virtual Content or Points Systems at any time entirely at its own discretion, subject only to these Terms and applicable law.”).

⁵⁸ Microsoft promotes Xbox’s ability to “deliver[] an immersive experience and effective results engaging with the audience on the largest screen in the home” and to “[c]onnect with a diverse, engaged audience of 63 million monthly unique Xbox visitors.” See *Display Ads for Online Marketing*, MICROSOFT, <https://about.ads.microsoft.com/en-us/solutions/ad-products/display-advertising-for-search-marketers> (last visited Mar. 7, 2024). Microsoft predicted that advertising revenue would represent 11 percent of total gaming revenue in 2022. See Jordan Novet, *Microsoft Projects Two New Areas of Growth for Gaming, Leaked Document Says: Mobile and Ads*, CNBC (Sept. 19, 2023), <https://www.cnbc.com/2023/09/19/microsoft-projected-fast-gaming-growth-from-ads-mobile-transactions.html>.

⁵⁹ Several marketing resources have released public statements promoting the use of targeted in-game advertising based on individual player data and larger demographic data. See *How In-Game Advertising Is Reacting to Kid Safety Concerns in the Digital Realm*, THE DRUM (Mar. 4, 2024), <https://www.thedrum.com/open-mic/from-coppa-to-kosa-how-kid-safety-concerns-are-shaping-digital-platforms-and-in-game-advertisings-role-in-the-future-of-digital-privacy>; Tim Parkin, *In-Game Advertising: A Marketer’s Guide*, MARTECH (Mar. 10, 2023), <https://martech.org/in-game-advertising-a-marketers-guide/>.

of these ads. Other times, the player will have to watch the ad to keep playing or get a reward like in-game currency.⁶⁰

Ultimately, this vast accumulation of data from consumers raises questions as to whether proper privacy regulations are being adhered to and whether consumers are fully aware of how their data is being used by gaming companies and across the industry. Without the right privacy protections, the data collected from gaming and AR/VR/MR headsets may be used to inform predictive models, including those marketed as artificial intelligence, and to adjust prices and game play or drive revenue growth.⁶¹

⁶⁰ See Alha, *supra* note 4, at 30, 34; Myriam Davidovici, *Innovation in Business Models in the Video Game Industry: Free-to-Play or the Gaming Experience as a Service*, 2 THE COMPUTER GAMES J. 22, 5-6, 11, 19 (Dec. 15, 2013), https://www.researchgate.net/publication/318147067_Innovation_in_business_models_in_the_Video_Game_Industry_Free-to-Play_or_the_gaming_experience_as_a_service.

⁶¹ “[An embedded payment system] can support growth and market expansion by using data on gaming habits and spending patterns to tailor their games, enhancing player retention and driving revenue growth.” *Revolutionizing the Gaming Industry Through Embedded Payments*, J.P. MORGAN (Oct. 27, 2023), <https://www.jpmorgan.com/insights/payments/payment-trends/revolutionizing-gaming-through-embedded-payments>.

4. Examining the value of gaming assets

Gaming companies are using gaming assets and proprietary marketplaces to replicate everyday activities online, including financial activities. In-game currencies can act as mediums of exchange that players can use for all sorts of in-game transactions, such as person-to-person (“P2P”) transfers or buying and selling in-game goods and services. These assets may be “treasure keys,” or “gold pieces,” instead of USD, but their use is functionally the same. And like the offline world, game economies experience supply, demand, and fluctuating prices.

Many gaming companies view their assets as virtual, licensed content or a preloaded currency that can only be used in their proprietary virtual world. Many gaming companies also claim that their gaming assets have no monetary value, are irredeemable for fiat currency⁶² and that their environments function as closed markets. However, these markets can actually be quite porous and gaming assets can have considerable value, including outside of the game itself.

This is largely due to the two-way flow of money that makes it possible to assign and extract monetary value from gaming assets. Several games provide on-ramps of fiat currency into their systems by allowing gaming assets to be purchased with USD. And, although they’re not the majority, some prominent games allow players to extract fiat currency (“cash-out”) directly from their platform⁶³ or enable third-party systems that facilitate a cash-out process.⁶⁴ Most games do

⁶² Second Life’s Terms of Use states that “Linden Dollars are not currency or any type of currency substitute or financial instrument, and are not redeemable for any sum of money from Linden Lab...Linden Lab has the right to manage, regulate, control, and/or modify the license rights underlying such Linden Dollars as it sees fit, and may revalue or make such license rights more or less common, valuable, effective, or functional, and that Linden Lab will have no liability to you based on its exercise of this right.” See *Second Life Terms and Conditions*, LINDEN RESEARCH, INC. (July 31, 2017), <https://secondlife.com/app/tos/tos.php>. Roblox’s Terms and Conditions states “A User may acquire Robux (i) by purchasing or otherwise receiving Robux from Roblox...Robux are not a substitute for real currency, do not earn interest, and have no equivalent value in real currency. Except as otherwise outlined in the DevEx Terms.” See *Roblox Terms of Use: Robux and Roblox Premium Membership*, ROBLOX (Nov. 14, 2023), <https://en.help.roblox.com/hc/en-us/articles/115004647846>. Jagex’s (creator of Runescape) Terms and Conditions states that “Virtual Currency and micro-game credits do not have any inherent monetary value and are not your own private property...you do not own the Virtual Currency or Micro-Game Credits. Instead, they constitute an element of your license in the relevant Jagex Product... Virtual Currency, Micro-Game Credits and Items can never be redeemed for real world money, goods or any other item of monetary value, and cannot be inherited.” See *Terms & Conditions (Version 0.7)*, JAGEX (Sept. 2022), <https://www.jagex.com/en-GB/terms>.

⁶³ See, e.g., *Converting Earned Robux to Cash*, ROBLOX, <https://create.roblox.com/docs/production/earning-on-roblox#converting-earned-robux-to-cash> (last visited Mar. 7, 2024); *Process Credit (Withdrawal) Requests*, LINDEN RESEARCH, INC., <https://lindenlab.freshdesk.com/support/solutions/articles/31000135224-process-credit-withdrawal-requests> (last visited Mar. 7, 2024).

⁶⁴ Steam has an Application Programmer Interface (API) that enables third-party websites to withdraw one or more virtual items from a consumer’s Steam item inventory. See *Steamworks Web API Reference*, *supra* note 7; Thorhaug & Nielsen, *supra* note 7, at 59; Brustein & Novy-Williams, *supra* note 7.

not currently enable a cash-out process themselves, but third-party systems have emerged to facilitate the conversion of some gaming assets to fiat currency through various means.⁶⁵ The estimated value of these assets is even tracked on public websites that show the current exchange rate of various gaming currencies to USD.⁶⁶

4.1 In-game and virtual currencies

In some of the most popular video games today, players generally earn or buy in-game currency, essentially converting fiat currency to in-game currency. In-game currency is then used to buy goods and services as a part of game play, including virtual items.⁶⁷ Game publishers determine the conversion rate of fiat currency to in-game currencies and the prices of virtual items, as well as the supply.⁶⁸ Figure 1 below shows the various cash-in and cash-out relationships of gaming and virtual world markets.

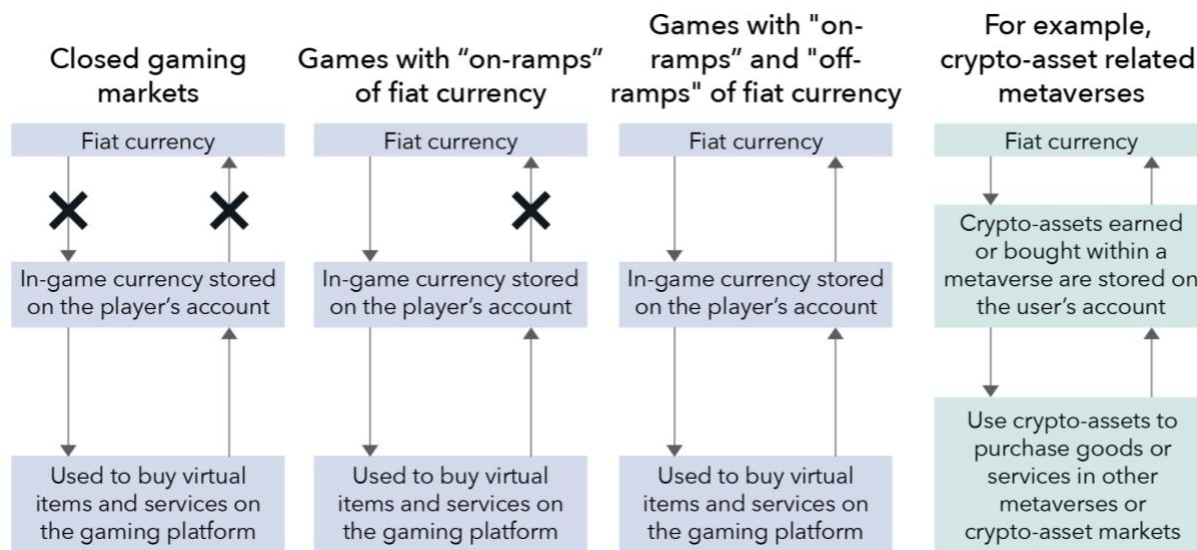
⁶⁵ See, e.g., *Buy OSRS Gold - Old School RuneScape GP for Sale*, PLAYERAUCTIONS, <https://www.playerauctions.com/osrs-gold/> (last visited Mar. 7, 2024); *Sell WoW Classic Gold*, CHICKS GOLD, <https://chicksgold.com/sell/currency/wow-classic> (last visited Mar. 7, 2024); *Sell POE Currency*, GAMING4EZ, <https://www.gaming4ez.com/sell-to-us/poe> (last visited Mar. 7, 2024); *RuneScape 3 Gold*, ELDORADO, <https://www.eldorado.gg/runescape-gold/g/9-0-0> (last visited Mar. 7, 2024).

⁶⁶ *In-Game Currency Price Tracker: Buy Game Gold*, PLAYERAUCTIONS, <https://www.playerauctions.com/market-price-tracker/> (last visited Mar. 7, 2024).

⁶⁷ See Alha, *supra* note 4, at 37-41.

⁶⁸ See Alha, *supra* note 4, at 38-41, 81-83.

FIGURE 1: THE POSSIBLE FLOW OF FIAT CURRENCY IN INDIVIDUAL GAMING MARKETS⁶⁹



Second Life, a large and popular online virtual world⁷⁰ owned by Linden Lab that was released in 2003, is an example of a game with both on and off-ramps to convert fiat currency. In Second Life, “Residents” use the Linden Dollar (L\$), which can be purchased both in-world and from Second Life’s official Linden Exchange (LindeX) using fiat currency. Linden dollars act as money, as the player can use it to buy and sell virtual items, tip, or pay other Residents,⁷¹ and buy original services.⁷² All Second Life accounts have both a Linden Dollar balance and a USD balance, and players can convert Linden Dollars back to USD by selling Linden Dollars on the Linden Exchange. The USD account balance can be withdrawn or used to pay for Second Life services like subscriptions or fees. The USD account balance is managed by Tilia, a licensed money transmitter and subsidiary of Linden Lab. The USD account balance can be withdrawn using PayPal or Skrill. During withdrawal, a 5-percent fee is taken from the transaction total and the first withdrawal typically takes about 30 days.⁷³ Between 2011 and 2013, third-party

⁶⁹ This chart was informed by Figure 1, which defines the three types of virtual currencies. See Amir Reza Asadi & Reza Hemadi, *Understanding Currencies in Video Games: A Review*, ARXIV 6 (Mar. 27, 2022), <https://arxiv.org/pdf/2203.14253>.

⁷⁰ Dean Takahashi, *Tilia Spins Out, Gets Minority Investment From J.P. Morgan to Do Metaverse Payments*, VENTUREBEAT (Oct. 18 2022), <https://venturebeat.com/games/tilia-spins-out-gets-minority-investment-from-jp-morgan-to-do-metaverse-payments/>.

⁷¹ Jeremy Linden, *Buying and Selling Linden Dollars*, LINDEN RSCH. INC., <https://community.secondlife.com/knowledgebase/english/buying-and-selling-linden-dollars-r46/> (last visited Mar. 7, 2024).

⁷² Asadi & Hemadi, *supra* note 69.

⁷³ *Process Credit (Withdrawal) Requests*, *supra* note 63.

websites allowed trading between Linden dollars and Bitcoin.⁷⁴ In 2021, Second Life reported the average number of daily users to be 200,000 users across 200 countries and a GDP equivalent of over \$600 million,⁷⁵ more than some small countries.⁷⁶

On the other hand, League of Legends is an example of a game that does not allow players to cash-out within the game, but third-party systems exist that enable the exchange of its in-game currency for fiat currency. The game has two main currencies: Blue Essence (BE), which has no cash-in or cash-out process, and Riot Points (RP), which is exclusively obtained for purchase via fiat currency. Riot Points are used in the in-game market to purchase various virtual items that work across all games made by Riot Games.⁷⁷ League of Legends does not allow Riot Points to be cashed-out within the game, but third-party systems enable the exchange of Riot Points for fiat currency.⁷⁸

4.2 Virtual items, such as skins or cosmetic items

Virtual items, such as “skins”,⁷⁹ are usually ornamental or cosmetic goods that have no impact on game play but have become a token of status and in some instances are considered

⁷⁴ See Wagner James Au, *Linden Dollars Helped Fuel Bitcoin’s Early Hype – Even Though L\$ Are Still More Used Than BTC*, NEW WORLD NOTES (June 15, 2021), <https://nwn.blogs.com/nwn/2021/06/bitcoin-linden-dollar-second-life-1.html>; Jamie Redman, *A Look at How Second Life’s Linden Dollars Helped Kickstart Bitcoin’s Value*, BITCOIN.COM (June 14, 2021), <https://news.bitcoin.com/a-look-at-how-second-lifes-linden-dollars-helped-kickstart-bitcoins-value/>; *The Early Days of Crypto Exchanges*, CRYPTOPEDIA (Mar. 17, 2022), <https://www.gemini.com/cryptopedia/crypto-exchanges-early-mt-gox-hack>.

⁷⁵ See *High Fidelity Invests in Second Life*, LINDEN RSCH. INC. (Jan. 13, 2022), <https://lindenlab.com/press-release/high-fidelity-invests-in-second-life>; Daniel Voyager, *Second Life Stats*, DANIEL VOYAGER (July 9, 2021), <https://danielvoyager.wordpress.com/2021/07/09/second-life-grid-statistics-july-2021-update/>.

⁷⁶ *GDP (Current US\$)*, THE WORLD BANK, <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD> (last visited Mar. 7, 2024).

⁷⁷ Ed Thorn, *League of Legends: How to Get Riot Points*, ROCK PAPER SHOTGUN (Jan. 14, 2019), <https://www.rockpapershotgun.com/league-of-legends-how-to-get-riot-points>; *Buy Riot Points at Startselect: What Are Riot Points?*, STARTSELECT, <https://startselect.com/gb-en/gift-cards/riot-points-gift-cards> (last visited Mar. 7, 2024).

⁷⁸ *Sell RP LOL (Sell Riot Points From League of Legends)*, ELO JOB HIGH, <https://eljobhigh.com.br/en/sell-rp-lol> (last visited Mar. 7, 2024).

⁷⁹ A skin is a cosmetic item or graphic that can be applied to a player’s character within a game. In Counter-Strike, skins are typically different weapon appearances. The most expensive skins are usually considered rare and special items. See Thorhauge & Nielsen, *supra* note 7, at 59-62; Christian Vaz, *CS2 Skins Explained*, PCGAMESN (Feb. 2024), <https://www.pcgamesn.com/counter-strike-2/skins>.

immensely valuable by players.⁸⁰ In general, virtual items are typically acquired through one of the following ways:

- Earned as a reward in game play.
- Bought with USD or in-game currency as a microtransaction.
- Bought, sold, or traded through in-game, secondary, or third-party markets for fiat currency, other virtual items, or in-game currency.
- Won in a “random chance” loot box.

Importantly, virtual items can sometimes be traded between players as an acceptable form of payment.⁸¹ For example, in the virtual world of Habbo Hotel, items are exchanged between players through the in-game market. Plastic chairs were originally designed to furnish virtual apartments. Over time, these chairs gradually became the currency of the game. Prices on the market would be denominated in plastic chairs, and the exchange of plastic chairs would allow players to buy goods or services within the game.⁸²

Notably, the value of these skins or cosmetic items can be converted into fiat currency and certain skins reach surprisingly high value in virtual markets that allow P2P trading. The Steam Community Market is a platform-supported secondary market where players go to buy, trade, and sell items outside of individual games. Within the individual games, skins only have cosmetic use value, but on the Steam Community Market, these assets have “exchange value,”⁸³ meaning skins can be bought, sold, or traded among players for Steam Wallet funds or other skins.⁸⁴ This value can be so great that, in Steam’s terms and conditions, they even acknowledge

⁸⁰ See Thorhauge & Nielsen, *supra* note 7, at 59.

⁸¹ See J. Gregory Cloward & Brett L. Abarbanel, *In-Game Currencies, Skin Gambling, and the Persistent Threat of Money Laundering in Video Games*, 10 UNLV GAMING L. J. 105, 107 (2020), https://heinonline.org/HOL/Page?collection=journals&handle=hein.journals/unlvgalj10&id=122&men_tab=srchresults.

⁸² Vili Lehdonvirta, Terhi-Anna Wilska & Mikael Johnson, *Virtual Consumerism: Case Habbo Hotel*, 12 INFO., COMM. & SOC’Y 1059, 1071-73 (Oct. 2009), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1630373.

⁸³ Thorhauge & Nielsen, *supra* note 7, at 59-60; *Community Market FAQ*, *supra* note 15.

⁸⁴ Funds in your Steam Wallet funds are preloaded onto a user’s Steam account and denominated in the fiat currency in which a player resides. They may be used in the Steam Community Market, for the purchase of any game on Steam, or within a game that supports Steam transactions. See Thorhauge & Nielsen, *supra* note 7, at 59-60; *Community Market FAQ*, *supra* note 15.

that proceeds from these sales or trades may be considered as taxable income to players and thereby subject to applicable laws.⁸⁵

Although, the Steam Community Market does not directly facilitate a cash-out process to withdraw Steam wallet funds for fiat currency,⁸⁶ there is an entire ecosystem of third-party markets that are enabled by Steam's application programming interface (API).⁸⁷ These sites facilitate player-to-player trading and converting skins to crypto-assets or fiat currency, leading to even higher exchange values for some individual skins on these third-party markets, as well as the Steam Community Market.⁸⁸ For example, the largest sale of a Counter-Strike skin occurred in 2023 on a third-party website for over \$500,000.⁸⁹

Third-party websites also facilitate a growing skin gambling industry that supports wagering skins, similar to casino chips, in virtual games such as blackjack, roulette, or craps.⁹⁰ For example, a player's account balance can be made up of skins, conventional currency, and other forms of virtual currency that are then converted to that site's form of credit.⁹¹ Skins are then won or lost depending on the outcomes of the games.⁹² Third-party websites also facilitate skin betting on events like competitive gaming contests, also known as esports,⁹³ and games between

⁸⁵ "If you complete a trade, sale or order in a Subscription Marketplace, you acknowledge and agree that you are responsible for taxes, if any, which may be due with respect to your transactions, including sales or use taxes, and for compliance with applicable tax laws. Proceeds from sales you make in a Subscription Marketplace may be considered income to you for income tax purposes. You should consult with a tax specialist to determine your tax liability in connection with your activities in any Subscription Marketplace." *Steam Subscriber Agreement: Trading and Transactions of Subscriptions Between Subscribers*, STEAM, https://store.steampowered.com/subscriber_agreement/#3 (last visited Mar. 7, 2024).

⁸⁶ *Community Market FAQ*, *supra* note 15.

⁸⁷ *See Steamworks Web API Reference*, *supra* note 7.

⁸⁸ Valve (Steam) charges a 5 percent fee for every transaction that occurs within the Steam Community Market. Games developed by Valve (Steam) (e.g., Dota 2, Counter-Strike, etc.) charge an additional 10 percent fee for every transaction. Therefore, Valve (Steam) may earn up to 15 percent of an item's total value for a transaction that occurs on the Steam Community Market. *See Community Market FAQ*, *supra* note 15.

⁸⁹ Anna Bernardo, *Counter-Strike Video Game Skins Sold for a Whopping Us\$500,000*, YAHOO NEWS (Apr. 19, 2023), <https://sg.news.yahoo.com/counter-strike-ak-47-and-knife-skins-sell-for-a-whopping-us500000-073744021.html>.

⁹⁰ Desirée Martinelli, *Skin Gambling: Have We Found the Millennial Goldmine or Imminent Trouble?*, 21 GAMING L. REV. 557, 558-561 (Oct. 2017), https://edisciplinas.usp.br/pluginfile.php/7969719/mod_resource/content/2/martinelli2017.pdf; *see also* Brustein & Novy-Williams, *supra* note 7.

⁹¹ *See, e.g.*, CSGOEMPIRE, <https://csgoempire.com/> (last visited Mar. 7, 2024); *Free to Play CS:GO Skin Gaming*, CSGOFAST, <https://csgofast.com/> (last visited Mar. 7, 2024); CSGOROLL, <https://www.csgoroll.com/> (last visited Mar. 7, 2024); *The Best CS:GO & CS2 Unboxing Site*, CLASH, <https://clash.gg/> (last visited Mar. 7, 2024).

⁹² Mark R. Johnson & Tom Brock, *How Are Video Games and Gambling Converging?*, GAMBLING RSCH. EXCHANGE ONTARIO 3-5 (Jan. 2019), [https://www.greo.ca/Modules/EvidenceCentre/files/Johnson%20and%20Brock%20\(2019\)%20How%20are%20videogames%20and%20gambling%20converging.pdf](https://www.greo.ca/Modules/EvidenceCentre/files/Johnson%20and%20Brock%20(2019)%20How%20are%20videogames%20and%20gambling%20converging.pdf).

⁹³ *Id.* at 4-5.

professional sports teams.⁹⁴ Winnings can be converted to fiat currency or other forms of virtual currency and withdrawn for a fee directly to the player's digital wallet.⁹⁵

4.3 Third-party systems convert gaming assets to USD

Many third-party systems facilitate the buying, selling, and trading of in-game currency, virtual items, and even entire player accounts. However, third-party systems do not need to be enabled by a company's API to convert gaming assets back to conventional currency and at the time of this report, many games make it impossible to convert gaming assets back to fiat currency without using a third-party market or website.⁹⁶ For example, third-party sites support the selling of game currencies for USD from games where an API doesn't exist like RuneScape, World of Warcraft, and others.⁹⁷

To convert gaming assets these sites first connect interested buyers with sellers so they can then exchange assets within the game. The buyer then pays the seller through the third-party website and the seller can withdraw that payment in their preferred fiat currency directly to a bank account or digital wallet for a fee. Because these sites facilitate the transaction, players are able to exchange gaming assets for fiat currency.⁹⁸

⁹⁴ Shaun Assael, *Skin in the Game*, ESPN, (Jan. 20, 2017), https://www.espn.com/espn/feature/story/_/id/18510975/how-counter-strike-turned-teenager-compulsive-gambler.

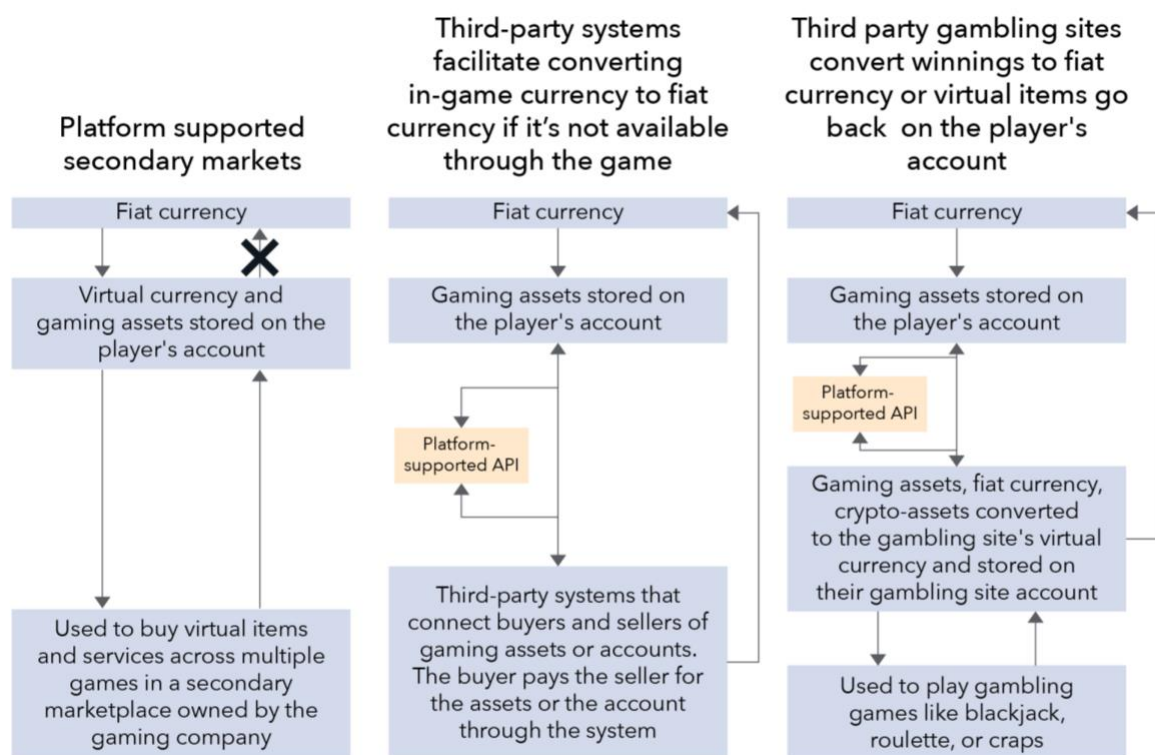
⁹⁵ See, e.g., CSGOEMPIRE, *supra* note 91; CSGOFAST, *supra* note 91; CSGOROLL, *supra* note 91; CLASH.GG, *supra* note 91.

⁹⁶ See Elena Petrovskaya & David Zendle, *Predatory Monetisation? A Categorization of Unfair, Misleading and Aggressive Monetisation Techniques in Digital Games from the Player Perspective*, 181 J. OF BUS. ETHICS 1065, 1072 (Oct. 20, 2021), <https://link.springer.com/article/10.1007/s10551-021-04970-6>.

⁹⁷ See, e.g., *Buy OSRS Gold - Old School RuneScape GP for Sale*, *supra* note 65; *Sell WoW Classic Gold*, *supra* note 65; *Sell POE Currency*, *supra* note 65;); *RuneScape 3 Gold*, *supra* note 65.

⁹⁸ See, e.g., *What Is Eldorado GG and How Does It Work?*, ELDORADO, <https://www.eldorado.gg/> (last visited Mar. 7, 2024); *Who We Are*, PLAYERAUCTIONS, <https://www.playerauctions.com/about/> (last visited Mar. 7, 2024); *What is Odealo?*, ODEALO, <https://odealo.com/page/about-us> (last visited Mar. 7, 2024); *World Leading Peer 2 Peer Digital Marketplace*, G2G, <https://www.g2g.com/> (last visited Mar. 7, 2024).

FIGURE 2: MARKETS AVAILABLE OUTSIDE INDIVIDUAL GAMES



4.4 Crypto-asset related virtual worlds

Though their usage remains sparse, a number of virtual worlds and games exist that utilize crypto-assets—such as non-fungible tokens (NFTs)—as virtual items, or crypto-assets as game currency.⁹⁹ The relationship between these virtual worlds and their official crypto-assets is similar to video games and their in-game currencies. Players purchase the virtual world’s native asset and use it to buy goods and services within that virtual world’s economy.

While these crypto-asset virtual worlds are significantly less popular than virtual gaming worlds like Roblox, Second Life, or Fortnite,¹⁰⁰ they are important to note because of the prevalence of third-party crypto-asset trading platforms, users can convert a virtual world’s native crypto-asset to fiat currency, making them even more porous than typical gaming markets. Notably, some of the largest virtual gaming world publishers have expressed growing interest in

⁹⁹ See Cam Thompson, *It's Lonely in the Metaverse: DappRadar Data Suggests Decentraland Has 38 'Daily Active' Users in \$1.3b Ecosystem*, COINDESK (Oct. 7, 2022), <https://www.coindesk.com/web3/2022/10/07/its-lonely-in-the-metaverse-decentralands-38-daily-active-users-in-a-13b-ecosystem/>.

¹⁰⁰ *Id.*

positioning their virtual items as crypto-assets that have the ability to be traded outside of the game's economy.¹⁰¹

Examples of these crypto-asset related virtual worlds include Decentraland, which uses a crypto-asset called MANA, and The Sandbox, which uses a crypto-asset called SAND.¹⁰² Both of these in-game crypto-assets can be used for transactions within their respective virtual worlds and can also be traded on other crypto-asset platforms for USD.¹⁰³

In the game Axie Infinity, players interact virtually through digital pets called “Axies,” each of which is a non-fungible token (NFT) stored on the Ronin network. Users earn the crypto-asset Smooth Love Potion (SLP) by playing the game. Players can also “breed” new Axies by spending SLP and another crypto-asset token, Axie Infinity Shards (AXS). Users can trade SLP and AXS for fiat currency or other crypto-assets on third party crypto-asset trading platforms.¹⁰⁴ At the height of its success, Axie Infinity had over 2.7 million daily active users¹⁰⁵ but as the number of users grew, the NFTs required to play became very expensive, leading to hierarchies of users: investors, managers, and workers.¹⁰⁶ While the crypto-asset industry and its investors lauded the game as a viable way to earn income, reports documented the ways the gaming system exploited workers.¹⁰⁷ The ecosystem largely fell apart in 2022 following a breach of the game by a state-sponsored hacking group.¹⁰⁸

¹⁰¹ See, e.g., *Roblox CEO David Baszucki on Q3 Results, Strong User Growth: Really Hitting on All Cylinders*, CNBC (Nov. 9, 2023), <https://www.cnbc.com/video/2023/11/09/roblox-ceo-david-baszucki-on-q3-results-strong-user-growth-really-hitting-on-all-cylinders.html>; Clayton Cyre, *Sony Developing ‘Super-Fungible Tokens’ for Gaming*, GAMERANT (Mar. 5, 2024), <https://gamerant.com/sony-super-fungible-tokens-gaming-patent/>.

¹⁰² See *Metaverse, NFTs, and Crypto Tokens: Here’s Why Investors Should Know About Their Relation*, THE ECON. TIMES (Feb. 3, 2022), <https://economictimes.indiatimes.com/markets/cryptocurrency/metaverse-nfts-and-crypto-tokens-heres-why-investors-should-know-about-their-relation/articleshow/89320390.cms>.

¹⁰³ The Securities and Exchange Commission alleged in a 2023 lawsuit that AXS was offered and sold as an investment contract, and thus as a security on the crypto-asset trading platform Binance. See *Complaint, SEC v. Binance Holdings Ltd.*, 1:23-cv-01599, 85, 119-121 (D.D.C. June 5, 2023), <https://www.sec.gov/files/litigation/complaints/2023/comp-pr2023-101.pdf>.

¹⁰⁴ Adi Robertson, *Axie Infinity’s Financial Mess Started Long Before Its \$600 Million Hack*, THE VERGE (Apr. 8, 2022), <https://www.theverge.com/2022/4/8/23015468/axie-infinity-blockchain-nft-play-to-earn-game-economics-hack>.

¹⁰⁵ Andrew R. Chow & Chad De Guzman, *A Crypto Game Promised to Lift Filipinos Out of Poverty. Here’s What Happened Instead*, TIME MAG. (July 25, 2022), <https://time.com/6199385/axie-infinity-crypto-game-philippines-debt/>.

¹⁰⁶ Edward Ongweso Jr., *The Metaverse Has Bosses Too. Meet the ‘Managers’ of Axie Infinity*, VICE (Apr. 4, 2022), <https://www.vice.com/en/article/88g3ag/the-metaverse-has-bosses-too-meet-the-managers-of-axie-infinity>.

¹⁰⁷ *Id.*

¹⁰⁸ Paul Vigna, *U.S. Agency Links North Korea Crime Ring to \$540 Million Axie Infinity Crypto Hack*, WALL ST. J. (Apr. 14, 2022), <https://www.wsj.com/articles/u-s-agency-links-north-korea-crime-ring-to-540-million-axie-infinity-crypto-hack-11649966631>.

4.5 Conversion and purchase issues with in-game currency

Industry experts have expressed concern about the tactics game makers use to obscure the real costs of gaming assets from players.¹⁰⁹ Games frequently use currency bundles¹¹⁰ to hide the true value of what players may purchase and to make larger quantities seem like the “better deal.” These pre-set bundles are often in large quantities (e.g., 100, 1,000, or 10,000 units) with confusing exchange rates (e.g. 2/3, 3/5, 5/7), rather than the exact amount needed for a particular in-game purchase or activity.

In some cases, games may also have more than one currency with different exchange rates for each currency, making the mental conversions between fiat currency and the game currency difficult. This often leads to large amounts of unused currency without any way to get it out of the game. Some players believe this is done by game makers to maximize profits as players are unable to track the exact amount of money spent but feel obligated to keep playing to avoid sunk costs.¹¹¹

Converting game assets back to fiat currency within a game can lead to increased costs for players, for example, by using differing ratios for deposits and withdrawals or burdensome thresholds for withdrawal. For instance, the popular game Roblox allows players to create games and virtual worlds within Roblox’s gaming universe, as well as play games created by other users. As users move from game-to-game within Roblox, they can buy virtual items in exchange for Robux, the platform’s in-game currency. When a virtual item is bought within a game developed by a specific player, that player earns Robux. Roblox’s terms and conditions only allows players that are active creators¹¹² to cash-out their earned Robux for fiat currency.¹¹³ Notably, while Roblox has separate "User Terms" and "Creator Terms," everyone who joins

¹⁰⁹ FTC, *supra* note 37, at 3.

¹¹⁰ Currency bundles are a commonly used strategy in free-to-play (F2P) games to incentivize players to purchase more in-game currency by offering a better per unit price. *See, e.g., Buy Robux*, ROBLOX, <https://www.roblox.com/upgrades/robux> (last visited Feb. 20, 2024). For example, buying 400 Robux for \$4.99 or 1,700 Robux for \$19.99. *Id.*

¹¹¹ *See Petrovskaya & Zendle, supra* note 96, at 1072; *see also* Erin Gibson et al., *Videogame Player Experiences with Micro-Transactions: An Interpretative Phenomenological Analysis*, 145 *COMPUTERS IN HUM. BEHAV.* 2 (Mar. 31, 2023), <https://www.sciencedirect.com/science/article/pii/S0747563223001176>.

¹¹² According to Roblox, of their 70.2 million global daily active users during September 2023, 5.6 million are active creators. Active creators are categorized as players that are developing content on Roblox and earning Robux. *See Earning on Roblox*, ROBLOX, <https://create.roblox.com/docs/production/earning-on-roblox> (last visited Feb. 20, 2024).

¹¹³ *See Roblox Terms of Use: Creator Terms*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/115004647846-Roblox-Terms-of-Use#creator-terms> (last visited Feb. 20, 2024).

Roblox’s must agree to both terms and conditions, essentially making all players also creators.¹¹⁴ To convert earned Robux¹¹⁵ to USD, an active creator must earn a minimum of 30,000 Robux. Additionally, Roblox’s conversion rate to USD is not intuitive. Buying 100,000 Robux through Roblox’s store costs \$1,000, but withdrawing 100,000 of earned Robux only gets a player \$350.¹¹⁶ Even with these constraints, Roblox players that are creators withdrew \$740.8 million in 2023.¹¹⁷

4.6 Gaming platforms facilitate the P2P transfer of gaming assets

As previously mentioned, gaming assets are frequently exchanged or transferred among players through various means. These means can include gifting virtual items to other players, which is supported by games like Fortnite, Rocket League, and Minecraft.¹¹⁸ As well as, platform-supported secondary markets like the Steam Community Marketplace and in-game markets like RuneScape’s expansive transfer market, where individuals can trade valuable virtual items in their inventory and currency with other players.¹¹⁹ Gaming platforms and virtual worlds thus appear to function like payment systems by facilitating the storage and exchange of valuable assets.

Players have also found ways to recreate traditional P2P transfer activities within gaming markets that do not allow it. While Roblox expressly disallows person-to-person transfers of Robux,¹²⁰ users facilitate the transfer process themselves by purchasing quickly developed items

¹¹⁴ *Roblox Terms of Use: Introduction*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/115004647846-Roblox-Terms-of-Use#introduction> (last visited Feb. 20, 2024).

¹¹⁵ Only “earned” Robux can be withdrawn from a Roblox account, meaning Robux that are earned from purchases made in a virtual world or game developed by an active creator, as opposed to Robux that are converted from fiat currency. See *Developer Exchange Terms of Use*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/115005718246-Developer-Exchange-Terms-of-Use> (last updated Aug. 1, 2023).

¹¹⁶ *Developer Exchange (DevEx) FAQs*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/203314100-Developer-Exchange-DevEx-FAQs> (last visited Feb. 20, 2024).

¹¹⁷ See D’Anastasio, *supra* note 32.

¹¹⁸ See Clayton Cyre, *supra* note 101.

¹¹⁹ See *Grand Exchange*, JAGEX, https://secure.runescape.com/m=itemdb_rs/ (last visited Feb. 20, 2024); see also Daniëlle N. M. Bleize & Marjolijn L. Antheunis, *Factors Influencing Purchase Intent in Virtual Worlds: A Review of the Literature*, 25 J. OF MKTG. COMM. 403, 406 (Jan. 12, 2017), <https://www.tandfonline.com/doi/full/10.1080/13527266.2016.1278028>.

¹²⁰ Roblox’s terms of use states that Robux cannot be transferred except to Creators. However, all users can be Creators. “The purchase of Robux only entitles you to receive a limited, non-transferable, revocable license to use

from an individual enrolled in the Developer Exchange Program, who may also be a player. The individual who receives Robux from the purchase of their item will receive 70 percent of the earned Robux. This effectively transfers Robux from one person (the buyer) to another (the seller).¹²¹ This also extends to collectives known as “Roblox Groups,” which include individuals that are enrolled in the Developer Exchange Program and who want to split Robux revenue. These earnings can then be transferred to USD through a one-time or recurring payment.¹²²

Robux...[Robux] can be used to acquire Virtual Content or access to Experiences on the Services. Robux are not a substitute for real currency, do not earn interest, and have no equivalent value in real currency. Roblox does not recognize or take responsibility for third-party services that allow Users to sell, transfer, purchase, or otherwise use Robux or Virtual Content, and any such use by a User is a violation of the Roblox Terms. However, transferring an Account in connection with the sale of the Experience(s) created by that Account, pursuant to a valid written agreement, is permitted.” See *Roblox Terms of Use*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/115004647846> (last visited Feb. 23, 2024).

¹²¹ Several articles and how to videos exist detailing the process of transferring Robux between players either through groups or through simple item purchases. See, e.g., Udit Surve, *How to Give People Robux on Roblox*, CHARLIE INTEL (Dec. 18, 2023), <https://www.charlieintel.com/games/how-to-give-people-robux-on-roblox-256267/>; Travis Boylls, *How to Give Someone Robux: 4 Easy Methods & Workarounds*, WIKIHOW (Apr. 23, 2023) <https://www.wikihow.com/Give-Someone-Robux>.

¹²² Roblox Creator Hub states “You can use groups to share Robux revenue. Group owners can pay contributors by either transferring group funds as a one-time payout or by scheduling recurring payouts. Roblox monitors payouts to prevent fraud and abuse.” See *Group Collaboration: Managing Payouts*, ROBLOX, <https://create.roblox.com/docs/projects/groups#managing-payouts> (last visited Feb. 20, 2024).

5. The impact of gaming assets having monetary value

Video games and virtual worlds appear to be functioning more and more like banking and payment systems that facilitate the storage and exchange of valuable assets. As gaming assets store greater amounts of value and their use becomes increasingly similar to that of money, the CFPB is monitoring how gaming assets are used and the associated risks, including those impacting children and the emergence of products or services that resemble traditional consumer financial products or services.

5.1 Accounts may be vulnerable to losses

When in-game currency or virtual items are earned during game play or procured via microtransactions, they are stored on a player's account for future use. This use can include transactions within the game,¹²³ trading virtual items with other players,¹²⁴ buying products on platform-supported secondary markets,¹²⁵ converting gaming assets to fiat currency,¹²⁶ withdrawals as fiat currency,¹²⁷ or using third-parties to convert and withdraw as fiat currency.¹²⁸ As a result, a player's account is considered highly valuable. In fact, several third-party systems facilitate the buying and selling of entire player accounts themselves, not just individual gaming assets.¹²⁹

¹²³ Coins are the in-game currency used in World of Warcraft Rumble to purchase Minis, Tomes of Experience, Talents, and more. Users can buy bundles. See *World of Warcraft Rumble: Coin Packs*, BATTLE.NET, <https://us.shop.battle.net/en-us/product/warcraft-rumble-coin-packs>, (last visited Feb. 22, 2024).

¹²⁴ *Steam Trading: What Can I Trade?*, STEAM, <https://help.steampowered.com/en/faqs/view/46A2-2B3C-95CC-8878#viewinventory> (last visited Feb. 22, 2024).

¹²⁵ See *Steamworks Web API Reference*, *supra* note 7; Thorhaug & Nielsen, *supra* note 7, at 59-62.

¹²⁶ *Process Credit (Withdrawal) Requests*, *supra* note 63.

¹²⁷ *Developer Exchange Terms of Use*, *supra* note 115.

¹²⁸ See, e.g., *What Is Eldorado GG and How Does It Work?*, *supra* note 98; *Who We Are*, *supra* note 98; *What is Odealo?*, *supra* note 98; *World Leading Peer 2 Peer Digital Marketplace, G2G*, *supra* note 98.

¹²⁹ Eldorado facilitates the selling of accounts for various games. See *Buying on Eldorado*, ELDORADO, <https://www.eldorado.gg/articles/how-to-use-eldorado-gg> (last visited Mar. 5, 2024). PlayerAuctions facilitates the selling of accounts for various games. See *Sell Your Game Accounts for Real Money*, PLAYERAUCTIONS, <https://www.playerauctions.com/about/sell-game-accounts/> (last visited Mar. 5, 2024). Odealo facilitates the selling of accounts for various games. See *Odealo: Path of Exile: Accounts*, ODEALO, <https://odealo.com/games/path-of-exile/accounts> (last visited Mar. 5, 2024); see also *G2G: Accounts*, G2G, <https://www.g2g.com/trending/accounts> (last visited Mar. 5, 2024).

The practice of harvesting in-game currency for sale on a player account, also known as gold farming and the amount of potential earnings has drawn seasoned players to this practice as a source of income. However, as detailed below, gaming accounts often lack the security and protections of traditional bank accounts. Some of the most common scams include defrauding a player of the assets stored on their account, as well as hacking into their account and transferring in-game currency to another account.

5.1.1 Account vulnerabilities

The monetary value of player accounts combined with the ability to cash-out gaming assets has led to an influx of phishing attempts and reports of account theft. Attackers often use compromised user credentials to break into player accounts and access game currency or virtual items. They then use third-party systems to transfer gaming assets to another account or sell the assets for fiat currency.¹³⁰ A recent study from 10,000 gamers globally showed that 63 percent of respondents feel their accounts aren't safe enough from attacks—with one in three reporting that their accounts had been hacked in the last two years.¹³¹ Industry experts consider young gamers especially at risk of phishing attempts due to their likely presence on social media and lack of awareness about social engineering tactics.¹³² Consumers are also potentially threatened by an emerging market of account recovery scammers that promote their ability to obtain lost gaming assets for victims of theft.¹³³

5.1.2 Recourse when assets are lost

In complaints to the FTC and CFPB, several players reported hacking attempts, account theft, scams, unauthorized transactions, and losing access to game currencies and virtual items, but they received limited recourse from gaming companies. Gaming companies often take a “buyer beware” approach, putting the burden on individual players to avoid these scams and phishing attempts. They may lock or ban players’ accounts suspected of scamming and phishing but do

¹³⁰ Mee Lan Han et al., *Cheating and Detection Method in Massively Multiplayer Online Role-Playing Game: Systemic Literature Review*, 10 EEE ACCESS 49050 (May 12, 2022), <https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&number=9766355>.

¹³¹ “Kaspersky commissioned Arlington Research to undertake quantitative online research with 10,000 gamers in 21 countries, including eSports athletes, gaming influencers, hardcore gamers, and gadget gamers.” *See Performance Addicted: Exploring Gamers’ Priorities*, KASPERSKY DAILY (2022), <https://www.kaspersky.com/blog/gamers-report-2022/>.

¹³² *See Fraud in the Online Gaming Industry*, ISA CYBERSECURITY (Nov. 5, 2020), <https://isacybersecurity.com/fraud-in-the-online-gaming-industry/>; *Guide to Protecting Young Online Gamers: Fortnite Scams and More*, TULANE UNIV. SCH. OF PRO. ADVANCEMENT, <https://sopa.tulane.edu/blog/guide-to-protecting-young-online-gamers> (last visited Mar. 14, 2024).

¹³³ Joseph Cox, *Sketchy ‘Account Recovery’ Services Are Trying to Scam Hacking Victims on Twitter*, VICE (Jan. 21, 2022), <https://www.vice.com/en/article/k7w39x/account-recovery-service-twitter-hacked-instagram-coinbase>.

little to provide remedy to the victim. For example, stolen items on Steam are not returned due in part to market incentives. Steam states that its virtual items' value is “at least partially determined by that item's scarcity. If more copies of the item are added to the economy...the value of every other instance of that item would be reduced.”¹³⁴

Consumers have complained that some gaming companies will terminate the accounts of players for pursuing recourse from their financial institution for unauthorized game purchases. In their terms and conditions, Roblox requests users to “contact Roblox Support before disputing any charges directly with your payment processor.”¹³⁵ The CFPB and FTC have received complaints from players who contacted their financial institutions regarding unauthorized Roblox game purchases. These complaints note that while they received refunds through their financial institutions, Roblox then terminated or locked their account.

When a player loses access to their account because they are accused of violating a game's terms of service or a game is terminated altogether, the game publishers state that they have no obligation to compensate the players for their lost assets or return the money players have invested.¹³⁶

5.2 Fraud in gaming markets

The ability to transfer and otherwise convert gaming assets to fiat currency or crypto-assets has led to a proliferation of money laundering¹³⁷ and fraud¹³⁸ on gaming platforms.

¹³⁴ *Scam FAQ (Confidence Scams and Trade Scams)*, STEAM, <https://help.steampowered.com/en/faqs/view/70E6-991B-233B-A37B> (last visited Mar. 5, 2024).

¹³⁵ *Terms of Use: Payments and Refunds*, ROBLOX, <https://en.help.roblox.com/hc/en-us/articles/115004647846-Roblox-Terms-of-Use> (last visited Mar. 5, 2024).

¹³⁶ See Alha, *supra* note 4, at 110-11. Ubisoft states “We are not required to provide a refund or other compensation for unused virtual content or points when an Account is closed, whether such closure was voluntary or involuntary.” See *Ubisoft Terms of Use: What Are Some Features of Our Services and How Can I Access Them*, UBISOFT, <https://legal.ubi.com/termsfuse/en-US> (last updated May 12, 2020). Moreover, when EA announced it was shutting down Apex Legends Mobile, it also announced that players wouldn't receive any refunds for purchases per the terms of the EA User Agreement, which includes the previously mentioned “no value” clause. Richard Lawler & Jay Peters, *EA Is Shutting Down Apex Legends Mobile and Not Giving Refunds*, THE VERGE (Jan. 31, 2023), <https://www.theverge.com/2023/1/31/23580285/ea-apex-legends-mobile-shutting-down-refunds-battlefield>.

¹³⁷ See Matthew Roomberg, *The Video Game Industry's Money Laundering Problem: When Do Game Publishers Become Money Transmitters?*, 91 FORDHAM L. REV. 161, 162-67 (May 1, 2023), <https://fordhamlawreview.org/law-review-online/the-video-game-industrys-money-laundering-problem-when-do-game-publishers-become-money-transmitters/>.

¹³⁸ See Jeffrey Bardzell et al., *Virtual Worlds and Fraud: Approaching Cybersecurity in Massively Multiplayer Online Games*, DIGITAL GAMES RSCH. ASS'N 742, 742-43 (2007), <http://www.digra.org/wp-content/uploads/digital-library/07311.42219.pdf>.

Researchers and academics have found that gaming markets can facilitate illegal money laundering.¹³⁹ For example, a person can open different player accounts on several online gaming platforms, use those accounts to buy gaming assets with illegally obtained funds. They can then send the assets to other accounts within the game and then convert them to fiat currency using third-party markets. These practices enable ill-gotten funds to become less traceable with each step.¹⁴⁰

Further, the conditions of gaming markets embolden activities such as fraudulent transactions and scams. In 2023, one firm estimated that it lost \$110 million due to fraudulent transactions.¹⁴¹ The CFPB has received complaints regarding various trade scams on these third-party websites. In one complaint, a consumer reports that they purchased a gaming account from a prominent third-party website and confirmed receipt of the account. However, once receipt was confirmed, the account was hacked and recovered by the original owner. Per the third-party website's terms and conditions, once receipt was confirmed, there was no available recourse for the buyer.¹⁴²

5.3 Issues with third-party systems

The terms and conditions of these third-party websites can be misleading or otherwise obscure the truth about the risks involved in their services. For example, some third-party websites entice users with gaming assets, like discounted bundles of game currency or rare virtual items, in exchange for downloading applications, watching advertiser content, or submitting personal

¹³⁹ See Anton Moiseienko & Kayla Izenman, *Gaming the System: Money Laundering Through Online Games*, 39 ROYAL UNITED SERVICES INST. 1-2 (Oct. 2019), https://static.rusi.org/20191011_newsbrief_vol39_n09_moiseienko_and_izenman_web.pdf; Cloward & Abarbanel, *supra* note 81, at 107.

¹⁴⁰ See Moiseienko & Izenman, *supra* note 139, at 1-2; Cloward & Abarbanel, *supra* note 81, at 107.

¹⁴¹ "For the year ended December 31, 2023, total chargebacks to us from this fraud was approximately 3.11% of bookings. The total bookings for 2023 were \$3.5 billion." Roblox Corp. Annual Report (Form 10-K), *supra* note 14, at 40.

¹⁴² "Confirming the receipt of the order indicates that the buyer is satisfied with the purchase and finalizing the transaction, after which the payment will be released to the seller...Refunds will not be given for orders which are finalised and completed." See *How to Request for Purchase Order Cancellation?*, G2G, <https://support.g2g.com/support/solutions/articles/5000804285-refund-return-cancellation-policy> (last updated Mar. 14, 2024).

details.¹⁴³ These tactics potentially expose players to risks like credit card fraud, malware, and identity theft.¹⁴⁴

Several of these third-party websites collect a large amount of personally identifiable information including email addresses, gaming usernames, and log data, such as IP addresses and browser information. They may also need banking information to process payments through services like Stripe and PayPal.¹⁴⁵ Yet, these marketplaces have had a number of data breaches and hacks.¹⁴⁶ These incidents have also occurred at large gaming companies, pointing to an industry-wide security issue.¹⁴⁷ As these markets evolve, including functioning more and more like banking and payment systems, it is imperative that companies take appropriate data security steps.¹⁴⁸

5.4 Gaming specific financial products

Leveraging the value of gaming assets and the amount of commerce occurring on gaming platforms, some companies have begun exploring gaming-specific services that resemble traditional financial products. For example, J.P. Morgan recently expressed interest in an

¹⁴³ Matt Burgess, *A Huge Scam Targeting Kids with Roblox and Fortnite “Offers” Has Been Hiding in Plain Sight*, WIRED (Aug. 14, 2023), <https://www.wired.com/story/poison-pdf-scam-fortnite-roblox/>.

¹⁴⁴ People Make Games, *Roblox Pressured Us to Delete Our Video, so We Dug Deeper*, YOUTUBE (Dec. 13, 2021), <https://www.youtube.com/watch?v=vTMF6xEiAaY>. OP Rewards connects players who are looking to get gaming assets for free with companies who need users to quality control their mobile applications, “watch video advertisements, or fill out surveys.” OP Rewards takes money from these companies to purchase gaming assets and gives them to users for a fee. See *Earn Free Online Game Currencies and Gift Cards*, OP REWARDS, <https://oprewards.com/> (last visited Mar. 5, 2024).

¹⁴⁵ See, e.g., *Privacy Policy*, CS2GO, <https://us.cs2go.com/agreement/privacy> (last updated Nov. 25, 2022); *Privacy Policy*, PLAYERAUCTIONS, <https://www.playerauctions.com/about/policy/> (last updated May 27, 2023); *Gameflip Privacy Policy*, GAMEFLIP, <https://gameflip.com/about/privacy> (last updated July 15, 2020); *Privacy Policy*, G2G, <https://www.g2g.com/privacy-policy> (last updated Dec. 2022).

¹⁴⁶ See, e.g., Carly Page, *Traderie, a Marketplace for In-Game Items, Alerts Users to Data Breach*, TECHCRUNCH (Sept. 7, 2023), <https://techcrunch.com/2023/09/07/traderie-a-marketplace-for-in-game-items-alerts-users-to-data-breach/>; Sead Fadilpasic, *Top Online Marketplace Leak Sees Thousands of User Accounts Exposed*, TECHRADAR (Apr. 6, 2023), <https://www.techradar.com/news/top-online-marketplace-leak-sees-thousands-of-user-accounts-exposed>.

¹⁴⁷ See, e.g., Lorenzo Franceschi-Bicchierai, *Hackers Steal Activision Games and Employee Data*, TECHCRUNCH (Feb. 21, 2023), <https://techcrunch.com/2023/02/21/hackers-allegedly-steal-activision-games-and-employee-data/>; Zack Whittaker, *Nintendo Now Says 300,000 Accounts Breached by Hackers*, TECHCRUNCH (June 9, 2020), <https://techcrunch.com/2020/06/09/nintendo-accounts-affected-breach/>; *Insomniac Games Leaks over 1.6tb of Player Data*, SC MEDIA (Dec. 20, 2023), <https://www.scmagazine.com/brief/insomniac-games-leaks-over-1-6tb-of-data-in-rhysida-ransomware-attack>; Robert Lemos, *Rockstar Games Confirms ‘Grand Theft Auto 6’ Breach*, DARKREADING (Sept. 19, 2022), <https://www.darkreading.com/cyberattacks-data-breaches/rockstar-games-confirms-grand-theft-auto-6-breach>.

¹⁴⁸ See CFPB, CONSUMER FINANCIAL PROTECTION CIRCULAR 2022-04, INSUFFICIENT DATA PROTECTION OR SECURITY FOR SENSITIVE CONSUMER INFORMATION (Aug. 11, 2022), <https://www.consumerfinance.gov/compliance/circulars/circular-2022-04-insufficient-data-protection-or-security-for-sensitive-consumer-information/>.

“embedded payment ecosystem” for gaming, meaning a “wallet, that can serve as a central hub for anything related to a player: gaming credentials, in-game currency balances and transactions and spending history.”¹⁴⁹ J.P. Morgan Payments has also provided strategic investment to Tilia, a payment processor and subsidiary of Linden Lab.¹⁵⁰ Tilia was created to provide financial services to virtual worlds in the form of in-game transactions, payouts to creators, and conversions of in-game currencies to fiat currency, including USD. “Tilia is currently partnered with several virtual worlds, online games, and NFT marketplaces, including Second Life, Upland and Avatus.”¹⁵¹

Similar products have also emerged by technology companies. ZELF launched in the US in June 2022 as a banking service for virtual worlds with the intention of easing the transfer of money between the online world and the offline world, as well as trading gaming assets between players.¹⁵² This was done through an instant and virtual Visa credit card secured by a deposit account, known as a ZELF Account, that could be opened within 30 seconds using only the applicant’s name, email, and phone number.¹⁵³ Once issued, users could deposit crypto-assets, NFTs, and gaming assets to then be converted into fiat currency.¹⁵⁴ Additionally, ZELF’s marketing suggests that its intended target audience was Gen Z and young people.¹⁵⁵ According to reporting, the ZELF Account aimed to provide young people the ability to facilitate borrowing

¹⁴⁹ *Revolutionizing the Gaming Industry Through Embedded Payments*, *supra* note 61.

¹⁵⁰ *J.P. Morgan Provides Strategic Investment to Tilia and Sightline*, J.P. MORGAN (Oct. 17, 2022), <https://www.jpmorgan.com/insights/payments/mobility-payments-solutions/tilia-and-sightline>.

¹⁵¹ Takahashi, *supra* note 70.

¹⁵² See ZELF, *Zelf, “Bank of the Metaverse”, Launches in the US Bridging Dollars, NFTs, and Gaming Loot*, PR NEWSWIRE (June 21, 2022), <https://www.prnewswire.com/news-releases/zelf-bank-of-the-metaverse-launches-in-the-us-bridging-dollars-nfts-and-gaming-loot-301571526.html>.

¹⁵³ According to ZELF’s Account Terms before shutting down in December 2022, the virtual ZELF credit card was secured by a deposit account and linked to a line of credit that was set based on the funds available in the deposit account. The credit limit for the card can fluctuate based on the amount deposited in deposit account. The card could not be used to debit the user’s deposit account. See *Zelf Account Agreement*, <https://zelf.co/en-US/terms/agreements> [<https://web.archive.org/web/20221127053554/https://zelf.co/en-US/terms/agreements>] (last visited Mar. 7, 2024); see also Julie Muhn, *Remembering Fintech Ghosts: Four Companies that Haunt Our Memories*, FINOVATE (Oct. 25, 2023), <https://finovate.com/remembering-fintech-ghosts-four-companies-that-haunt-our-memories/>; ZELF, *ZELF Launches Anonymous Debit Card with Crypto Recharge*, PR NEWSWIRE (Dec. 8, 2022), <https://www.prnewswire.com/news-releases/zelf-launches-anonymous-debit-card-with-crypto-recharge-301698055.html>; Alex Johnson, *Make It Dumber*, WORKWEEK (Dec. 9, 2022), <https://workweek.com/2022/12/09/make-it-dumber/>.

¹⁵⁴ See Bernard Marr, *Banking in the Metaverse – The Next Frontier for Financial Services*, FORBES (Nov. 16, 2022), <https://www.forbes.com/sites/bernardmarr/2022/11/16/banking-in-the-metaverse--the-next-frontier-for-financial-services/?sh=4e5112f022d1>; Johnson, *supra* note 153.

¹⁵⁵ ZELF’s Twitter account has marketing references to Gen Z, and it even retweeted a “Kids & Teen Neo-Banks Around the World” list that included itself. See ZELF (@zelfco), TWITTER, <https://twitter.com/zelfco> [<https://web.archive.org/web/20220301125649/https://twitter.com/zelfco>] (retweeting Fintech Switzerland (@FintechCH), TWITTER (Mar. 18, 2021, 6:03 AM), <https://twitter.com/FintechCH/status/1372488915152740353>). ZELF also marketed ZELF accounts to young people. See Johnson, *supra* note 153.

against gaming assets by holding game currency in escrow and providing players with payday loans.¹⁵⁶ The ZELF Account¹⁵⁷ was shut down within two days of publicly launching.¹⁵⁸

In 2023, MetaLend announced a program that would allow “Axie Infinity players to take out loans against their in-game crypto-based assets.”¹⁵⁹ Further, in 2022, an international technology company offered a two-year loan for approximately \$30,000 to a Decentraland gamer. The loan was used to purchase digital land in the crypto-based virtual world and many reports at the time referred to the loan as the first mortgage of the metaverse. In the loan, the technology company owned the land and the borrower had to pay monthly payments to use the land. Once paid, the land would transfer to the borrower.¹⁶⁰

The role of banks and consumer finance products within gaming is evolving, but there appears to be a trend towards introducing services that are similar to traditional consumer financial products that rely on the value of gaming assets and the digital transactions that are happening on gaming platforms.

¹⁵⁶ ZELF aimed to embed a banking system in the metaverse that exchanged value from virtual worlds to the real world. ZELF intended to offer a service to players to hold their game currency in escrow and provide them with a payday loan in real USD. “If the player couldn’t repay, ZELF would sell the game tokens on its marketplace to other players to compensate for the loss.” See Penny Crosman, *4 Ways Banks Are Experimenting in the Metaverse*, AM. BANKER (Mar. 21, 2022), <https://www.americanbanker.com/list/4-ways-banks-are-experimenting-in-the-metaverse>.

¹⁵⁷ See ZELF Launches Anonymous Debit Card with Crypto Recharge *supra* note 153.

¹⁵⁸ ZELF (@zelfco), TWITTER (Dec. 10, 2022 5:21 AM), <https://twitter.com/zelfco/status/1601522467062763520?s=20&t=Nok4p5Yi4hvVJaPh2BPGSQ>.

¹⁵⁹ *Introducing: MetaLend on Ronin!*, THE LUNACIAN (Feb. 2, 2023), <https://blog.axieinfinity.com/p/introducing-metalend-on-ronin>.

¹⁶⁰ Kate Murar, *Tech Firm Closes First Metaverse Mortgage for Acquisition in Decentraland*, BISNOW (Jan. 27, 2022), <https://www.bisnow.com/national/news/technology/tech-firm-closes-first-metaverse-mortgage-for-acquisition-in-decentraland-111659>.

6. Conclusion

For several years, the most popular video games have included immersive virtual worlds that offer the storage and exchange of valuable assets. Gaming companies have created digital marketplaces that facilitate the buying, selling, and trading of these assets with limited consumer protections, which has led to potentially harmful practices for players including financial losses due to theft and scams.

Consumer protection laws apply to banking and payment systems that facilitate the storage and exchange of valuable assets. The CFPB is monitoring non-traditional markets where consumer financial products and services may be offered, including where such products and services are provided by or in connection with proprietary gaming platforms.

Additionally, the vast accumulation of data collected from consumers by gaming companies raises questions as to whether privacy rules are being adhered to and whether consumers, especially young ones and their parents, are fully aware of how their data is being collected and used across the industry. The CFPB will continue to work with other agencies to monitor companies that assemble and sell sensitive consumer data, such as a consumer's payment history, especially when this data is harvested and monetized without the user's awareness.

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Only complaints sent to companies for a response are published in the [Consumer Complaint Database](#). Many complaints about gaming assets or accounts are not, but complaints that are not sent to the company for response are often referred to other regulatory agencies for handling under applicable law. The CFPB will continue to monitor evolving gaming markets and the costs and risks incurred by consumers.



If you suspect a scam, you can contact your state attorney general and file a consumer complaint. Visit the [National Association of Attorneys General](#) for the contact information of each state attorney general.



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