

The State of Video Gaming in 2025

January 2025 Last Updated: 7 May 2025



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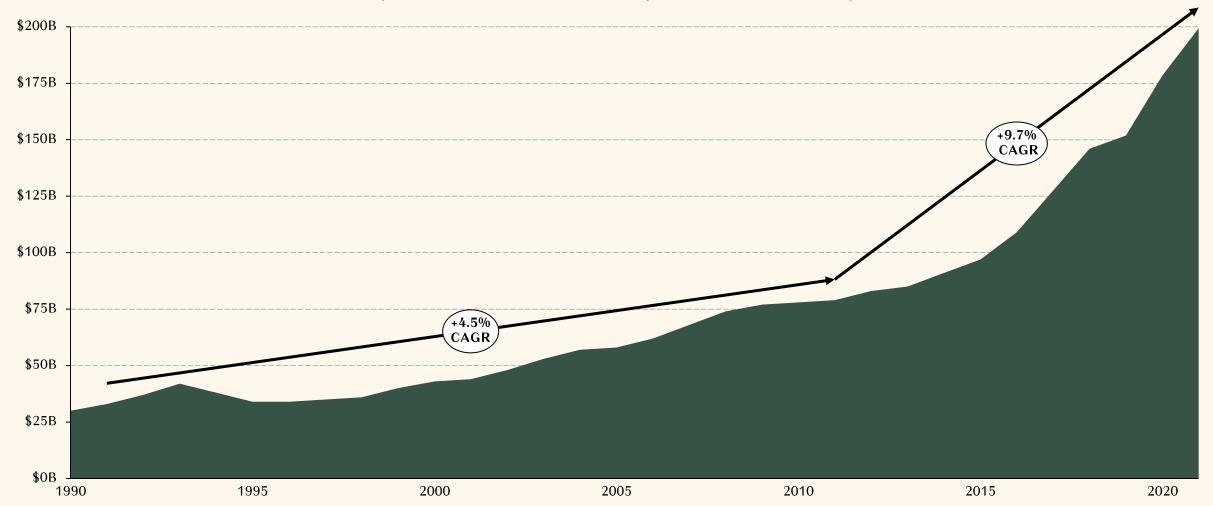
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From 2011 to 2021, video gaming soared. Spending grew at over twice the rate of the preceding 20 years, with annual revenues up 150% overall (from \$80B to \$200B)



Worldwide Consumer Spending on Video Game Content



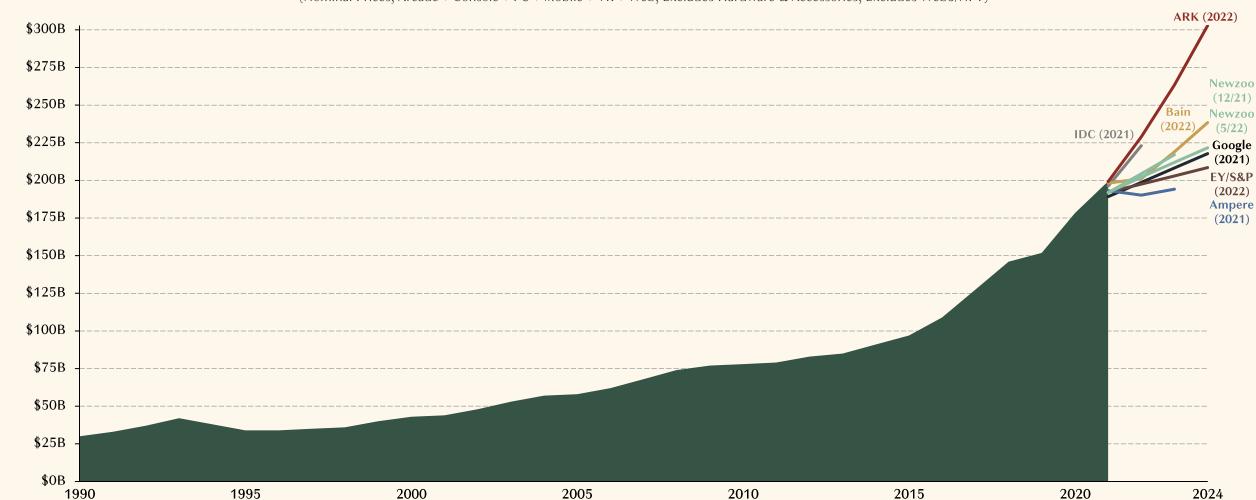
Gaming's 2011 to 2021 growth didn't just beat its historical averages, it significantly outpaced global growth benchmarks (e.g. 3.4x the rate of world *real* GDP)



Though a few anticipated a slowdown or even a pullback after COVID, most expected that gaming's growth would continue at high rates — if not accelerate



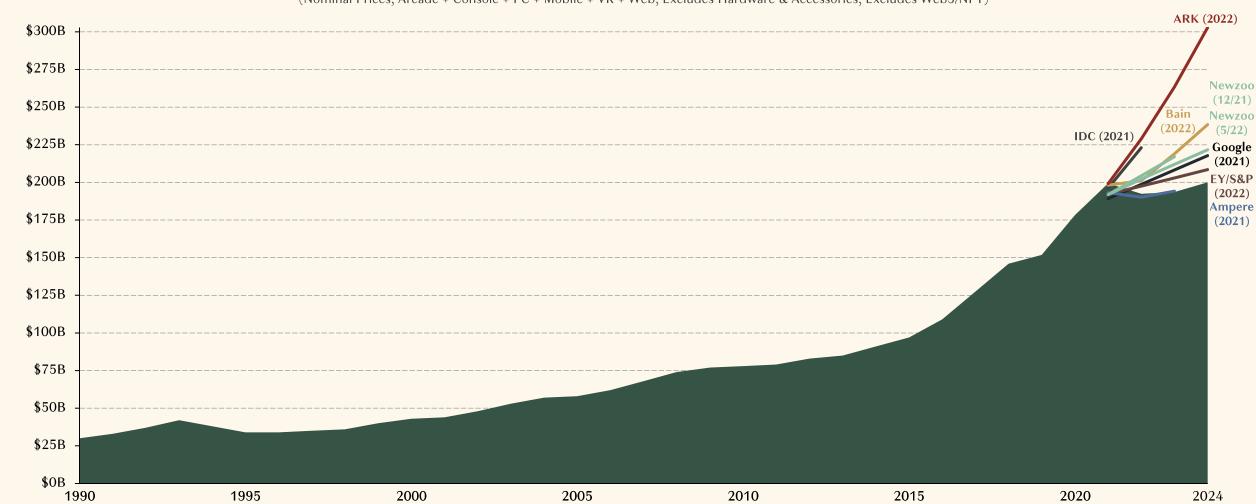
Worldwide Consumer Spending on Video Game Content, Plus Select External Forecasts For Growth¹



Instead, spend fell by ~3.5% in 2022, then barely grew in 2023 & 2024, finishing flat over 3 years — and thus billions of player hours and dollars short of forecasts



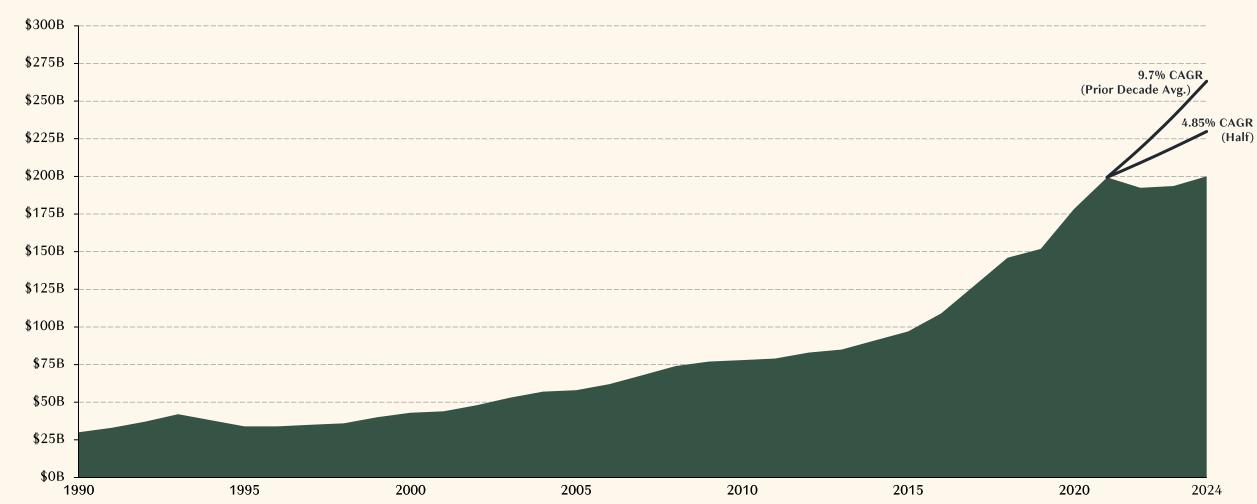
Worldwide Consumer Spending on Video Game Content, Plus Select External Forecasts For Growth¹



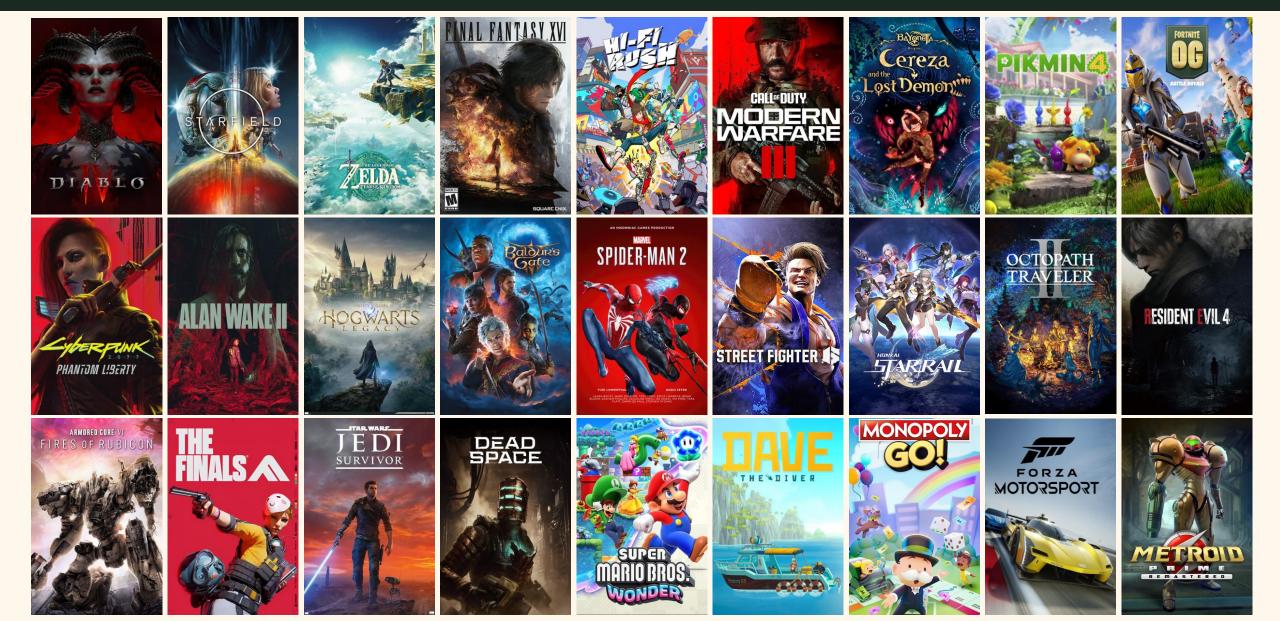
Had decade-long growth rates just *halved*, then 2022 would have added +\$10B in annual revenue, 2023 *another* \$10B (+\$20B v. actual), 2024 *another* \$11B (+\$30B)



Worldwide Consumer Spending on Video Game Content



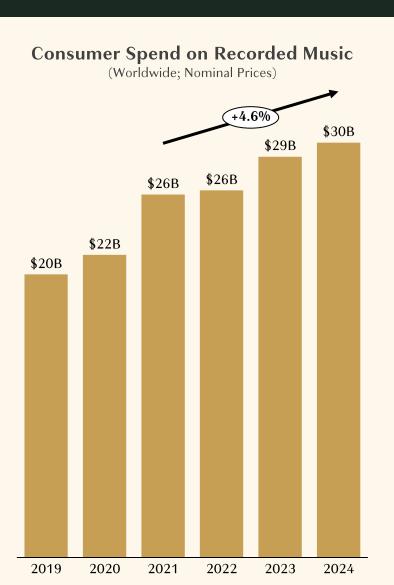
The decline also occurred despite the end of console/GPU shortages in mid-2022, and in 2023, arguably *the* best content release slate in the industry's 70-year history

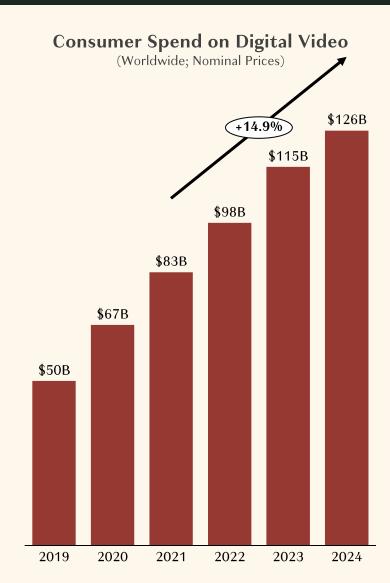


A post-pandemic pullback is an insufficient explanation for gaming's contraction and stall. Spending on books, music, and video (esp. digital) continued to grow



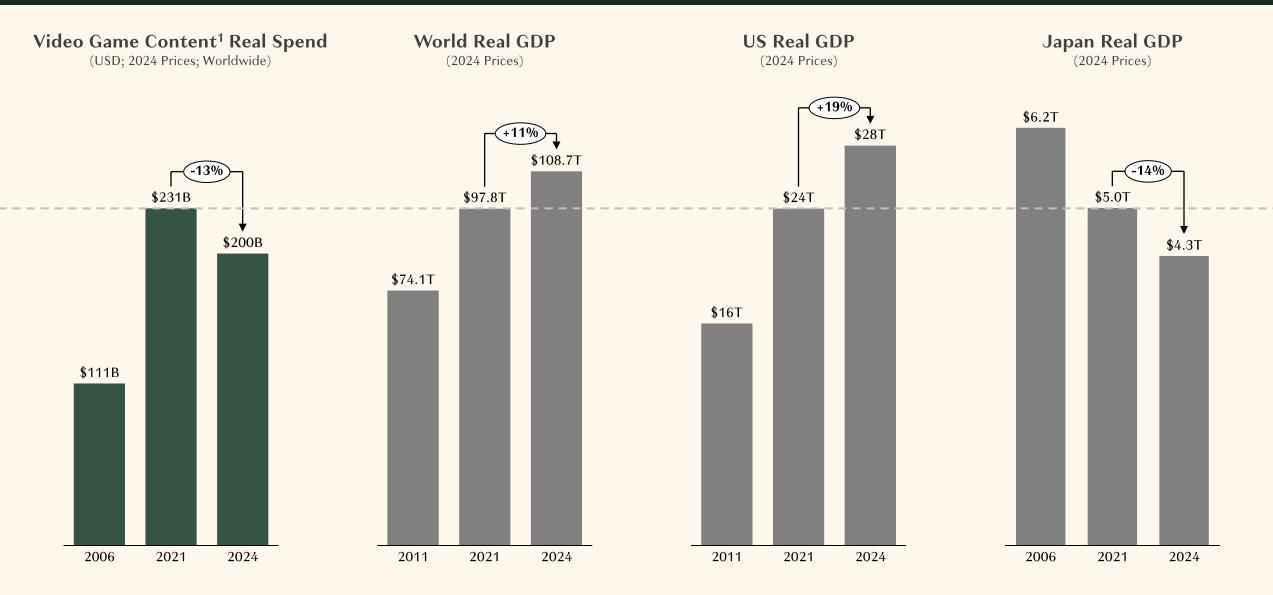






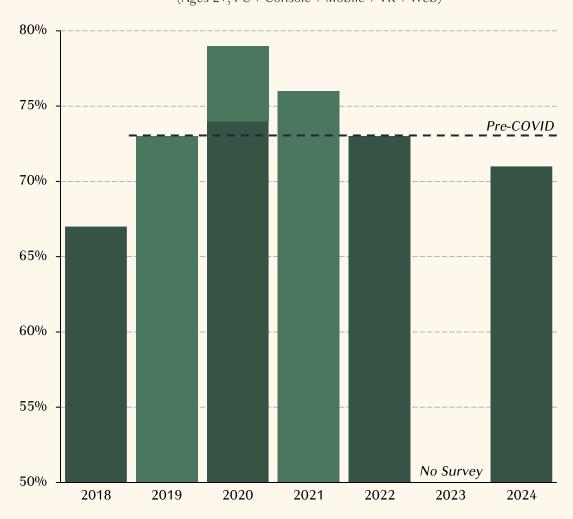
And so not only does the video gaming industry now fall short of global growth benchmarks, it's actually shrinking in real terms — down roughly 13% since 2021



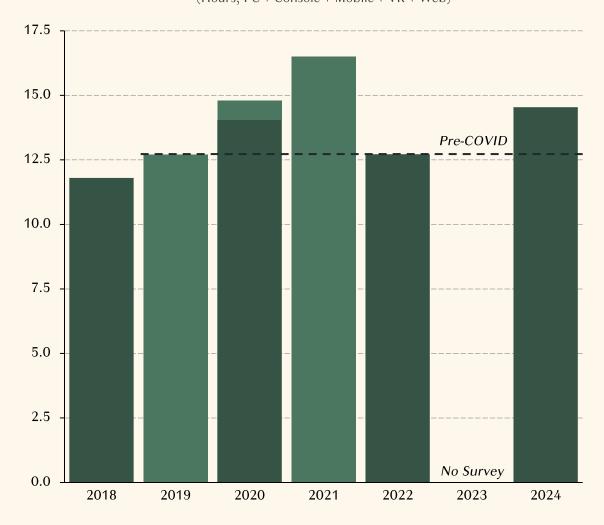


In the U.S., active players are now below pre-pandemic levels. Average playtime per player is up, but mostly because lower engagement players no longer play

Share of U.S. Population That Regularly Plays Video Games (Ages 2+, PC + Console + Mobile + VR + Web)

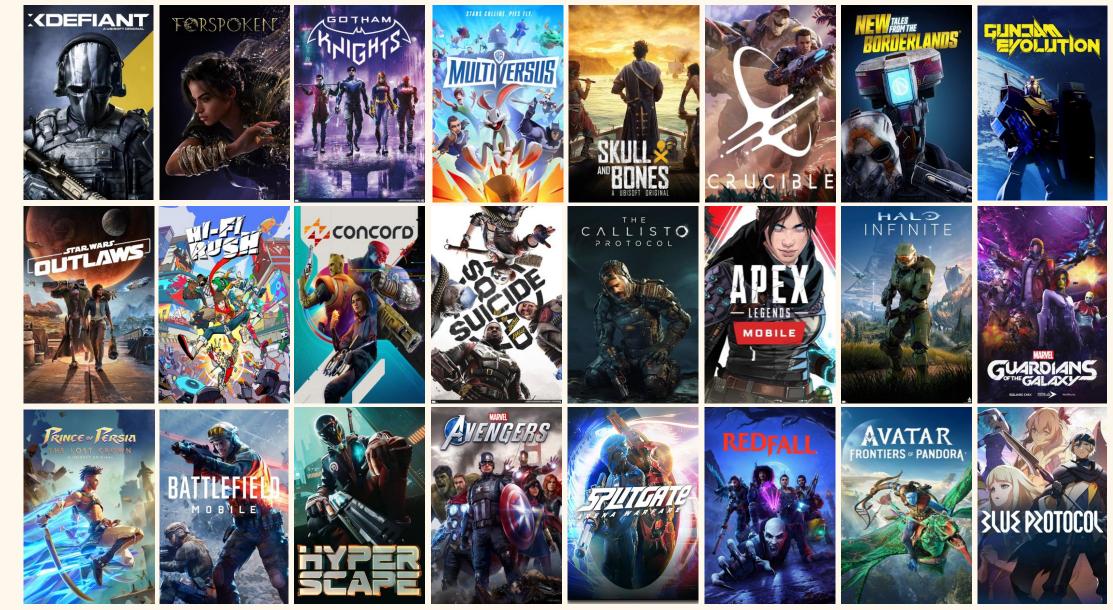


Avg. Weekly Video Game Play Hours Among U.S. Gamers (Hours, PC + Console + Mobile + VR + Web)



The shortfall of players, dollars, and hours versus forecasts (and even vs. 2021) is partly behind the unprecedented number of commercial disappointments/flops





Rising failure rates have also led gamemakers to cancel scores of in-production titles, having lost faith in the business cases they had approved only a few years ago

Naughty Dog cancels its The Last of Us multiplayer game

The Last of Us Online scrapped after years of development

Take-Two says cancelled games weren't 'core franchise' titles

THE PUBLISHER'S RELEASE SLATE HAS DROPPED BY 12 TITLES, FOLLOWING GAME CANCELLATIONS

Take-Two sells Private Division and almost all its games

New *Deus Ex* Game Reportedly Canceled By *That* Gaming Company

Swedish holdings company Embracer Group has seemingly canceled an in-development *Deus Ex* game at Eidos-Montréal

Bandai Namco Reveals It Canceled at Least Five In-Development Games

11 Bit Studios lays off unknown number of staff, cancels Project 8 console game

Studio president said title was "conceived under very different market conditions"

Bungie's Canceled Project Payback Was A Third-Person Spinoff Set In Destiny Universe

The project was canceled two months ago, with most of Bungie now reportedly working on Marathon.

People Can Fly lays off more than 120 employees as it cuts back on in-development games: 'We need to tailor our plans to our financial capacity'

Epic says Fortnite's Rocket Racing is ending 'themed updates'

THE PSYONIX-DEVELOPED GAME LAUNCHED LESS THAN A YEAR AGO

Ubisoft Cancels The Division Heartland

The company will move resources to "bigger opportunities" such as XDefiant and Rainbow Six

Microsoft Cancels New Blizzard Video Game After Six Years of Development

Paradox cancels life sim Life by You, CEO says they gave the studio 'a fair shot' but now 'believe it is better to stop'

Paradox says "the road leading to a release that we felt confident about was far too long and uncertain" to continue.

Sony cancels two live service projects including God of War title

Niantic lays off 230 employees, cancels NBA and Marvel games

EA Cancels Respawn *Star Wars* Shooter Amid Mass Layoff

The game was announced in 2022 as part of a larger partnership between EA and Lucasfilm $\,$

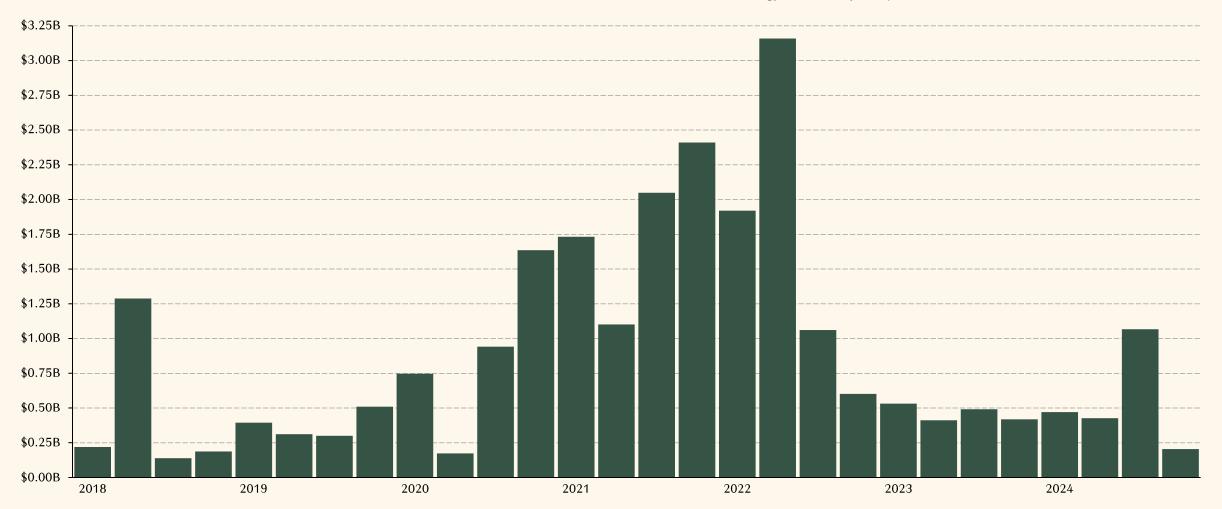
Battlefield Mobile Canceled To Better Deliver On "Vision" For The Franchise

XDefiant Is Being Shut Down, Developer Closed

VCs, seeing no growth and few breakouts, retreated. Content funding is down 77% vs. H2'21-H1'22 and back to 2018-19 levels (even though spend is up 34% or \$51B!)

Worldwide VC Funding In Video Gaming Content Development Studios/Publishers by Quarter

(Nominal Prices; Excludes Investments In Video Game-Related Technology and Delivery Companies)

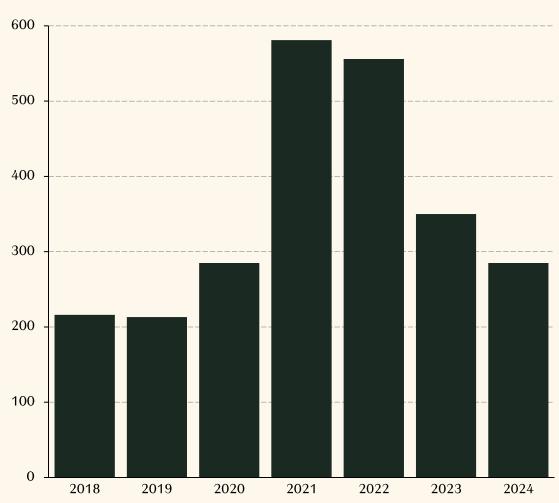


The collapse in venture investment dollars comes not just from smaller average investment rounds, but also far fewer rounds and from far fewer investors



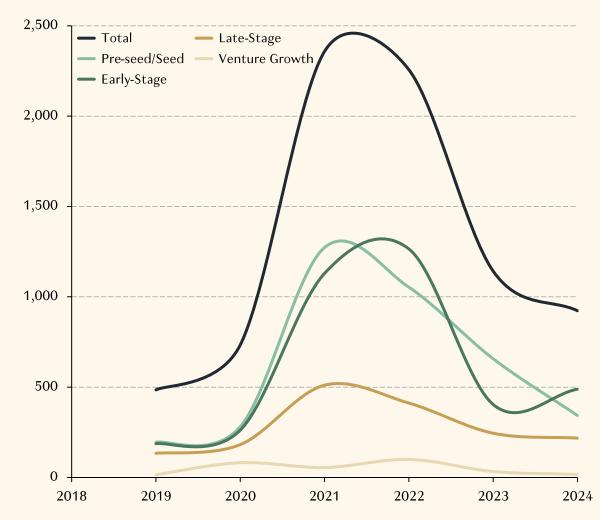
Total VC Deals in Video Game Content Studios/Publishers

(Worldwide; Content-Related Investments; Excludes Venture Growth Rounds)



Active VCs in Video Game Content Studios/Publishers by Year

(Worldwide; Content-Related Investments; At Least One Investment Made in Year)



Many of the independent studios founded since 2019 are now closing because they can't find the VC or publisher funding needed to finish their games





Jar of Sparks

4,315 followers

Earlier today, we notified our team that Jar of Sparks will be halting work on our current title as we search for a new publishing partner who can help bring our creative vision to life. Throughout this journey, our passionate, driven, and innovative team took bold risks and pushed boundaries, striving to create something truly new and exciting for the industry. We couldn't be prouder of the groundwork we've laid together.

Deviation Games Is Shut Down Before It Can Ship a Game

Lightforge Community,

Beginning today, LFG is downsizing to a skeleton crew at the end of the month – a tough message for us to deliver. This means we are pausing the development of Project O.R.C.S. The remaining staff will regroup to determine what a viable path may be for the project and studio.

After a lengthy period of regularly meeting with potential investors and game publishers we were unable to secure the necessary funding to finish creating Project O.R.C.S.



Humanoid Origin

3,105 followers

1w • 🕃

Earlier today, we informed our staff that Humanoid Origin will be shutting down. Despite efforts to shield the studio from broader challenges in the industry, an unexpected shortfall of funding left us unable to sustain operations.



Worlds Untold

4,273 followers

1w • **G**

It's hard to find the right words for this, but I wanted to share that we've made the very difficult decision to pause operations at Worlds Untold while we search for a new partner to help bring our vision to life. This was not a decision we made lightly —it's been a deeply personal journey, and we're all so proud of everything this team has built together.

All Events > Orphan Age Events >

The Sea is Quiet

Ahoy mateys,

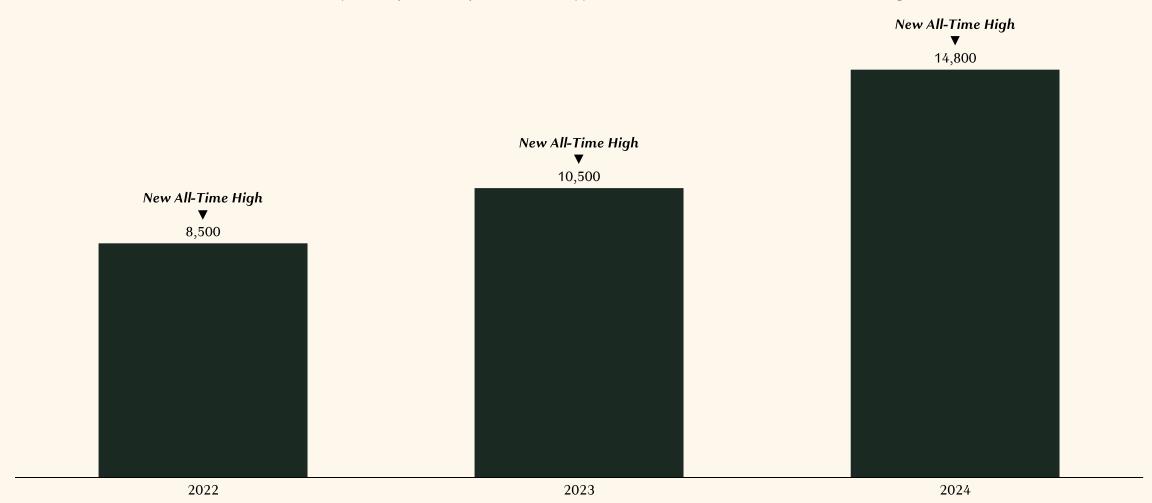
Dropping the nautical jargon for clarity, the last few months we've been going through bankruptcy procedures in France. This started when communication broke down between us and our publisher, leading to payments not continuing. Alas, with our publisher not continuing funding and no other sources of continued funding to finalize the game, the French government has elected to shut down the studio effective immediately. (Like at the end of the work day today we cannot legally continue working.)

Employees have been hit hard, suffering back-to-back-to-back record layoffs. Layoffs might help short-term margins, but they won't restore industry growth



Annual Gross Reported Layoffs in the Video Game Industry

(Excludes Unreported Layoffs and Layoffs Where the Approximate Headcount Is Not Known; Not Net of Hiring)

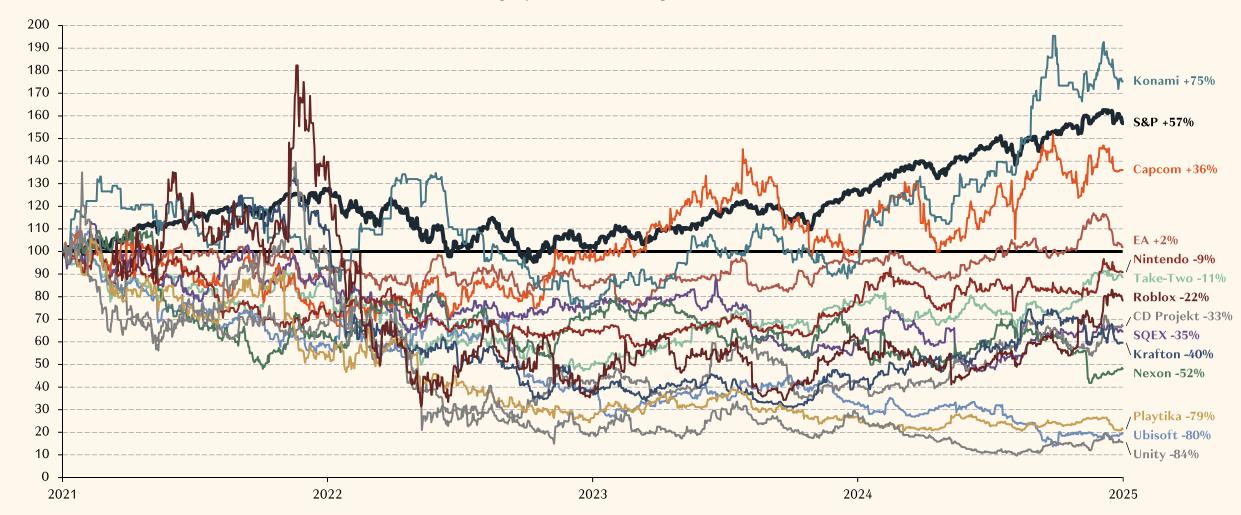


And what gamemakers *need* is growth. Gaming stocks have underperformed the market by 19–140% since 2020; most have lost 10–80% of value outright



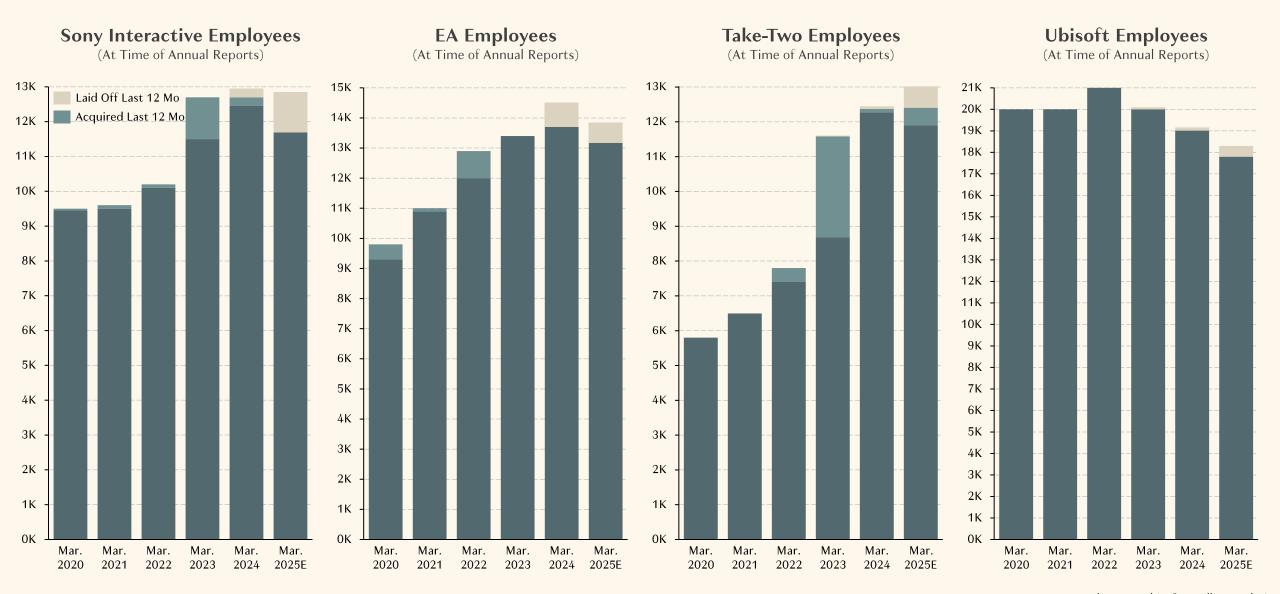
Indexed Share Prices of Major Independent Game Publishers

(Indexed to First Trading Day of 2021 or IPO Closing Price; Based on USD Price)



And behind the headline layoffs there is still meaningful hiring. Most publishers will have more employees in 2025 than in 2022 — even net of acquisitions







So, What's Going On?

No industry has a "right" to grow several times faster than global real GDP — let alone for a decade. Gaming achieved it through several concurrent growth engines





These several growth engines grew the video gaming industry's players + playtime + spend, while strengthening network effects and often amplifying one another

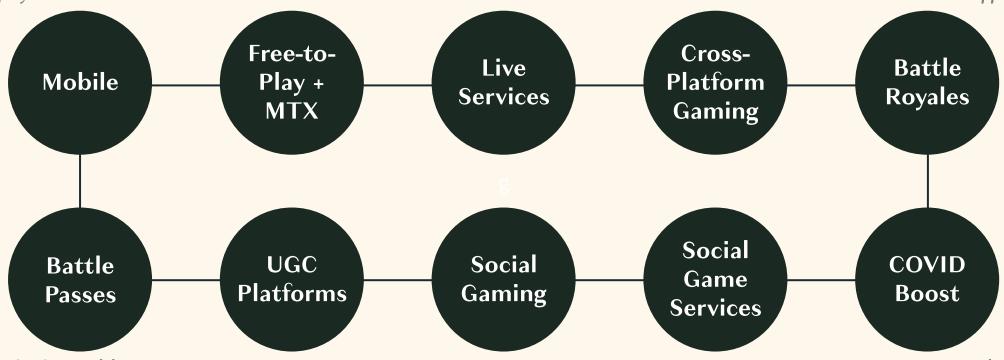


Billions of new players & new hours per day to play Reduced barriers to playing; expanded games' social graphs; unlocked "whale monetization"

Lifted engagement and the monetization ceiling for all games — especially the biggest

Expanded every multiplayer game's social graph (and thus appeal, playtime, and spend)

Highest-grossing game genre in history; most popular AAA genre in history; expanded cultural appeal/range of games



Brand new monetization model that increased the paying share of FTP gamers and encouraged more player spend

Most popular experiences of all time

Led "non-gamers" to take up video gaming to connect with friends/family

YouTube, Discord, Twitch created a new "meta-layer" that enriched gaming, aided game discovery, and strengthened social play Helped normalized video gaming; aided game discovery; "pulled forward" revenues

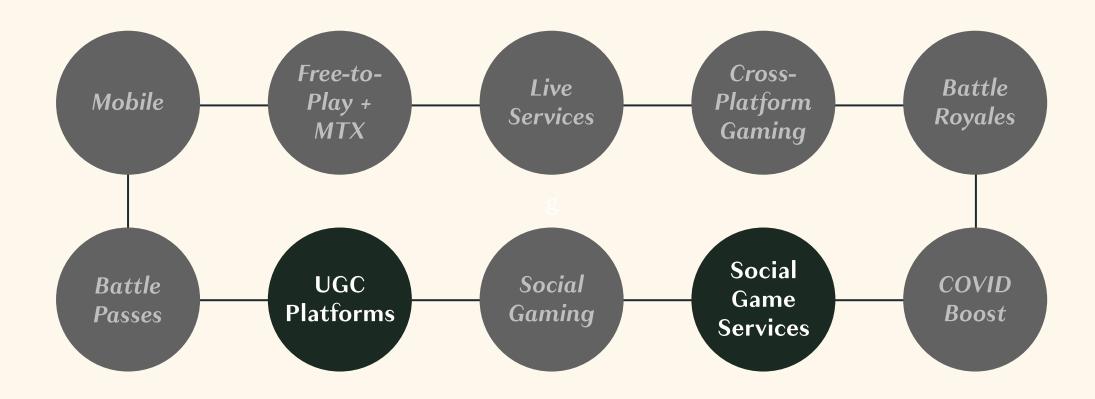
Nearly all of the top games of the last 15 years have taken advantage of several growth engines simultaneously. Many pioneered them outright.





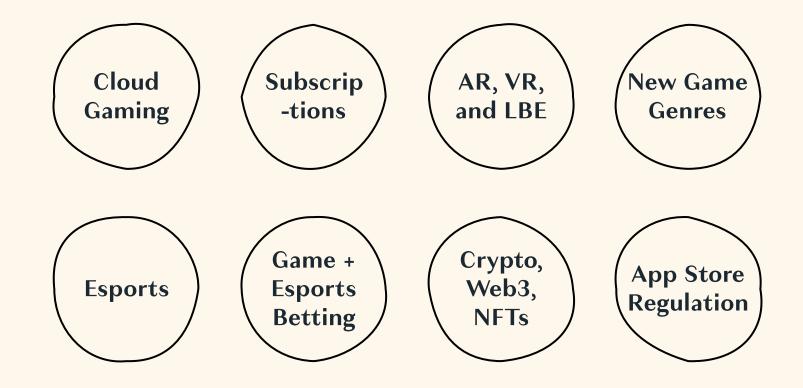
Yet the old growth engines are mostly exhausted. There are few high-value mobile players left to add, no new playtime to find, few games to add battle passes, etc.





And the many would-be growth engines have yet to drive real revenue or player growth — let alone generate new market leaders





With video gaming's growth engines slowing, it's less surprising that participation, engagement, and spend are all waning. The 2011–2021 era is getting old.





Meanwhile, the industry is facing many new challenges — all while the old challenges have intensified







A Rough Three Years and the End of the 2011–2021 Growth Wave

The Mobile Marketplace in 2025

A (Brief) Review of AR/VR Forecasts and Disappointments

How Much (and Where) Console/PC Has Grown

The Relevance of China (and Other Emerging Markets)

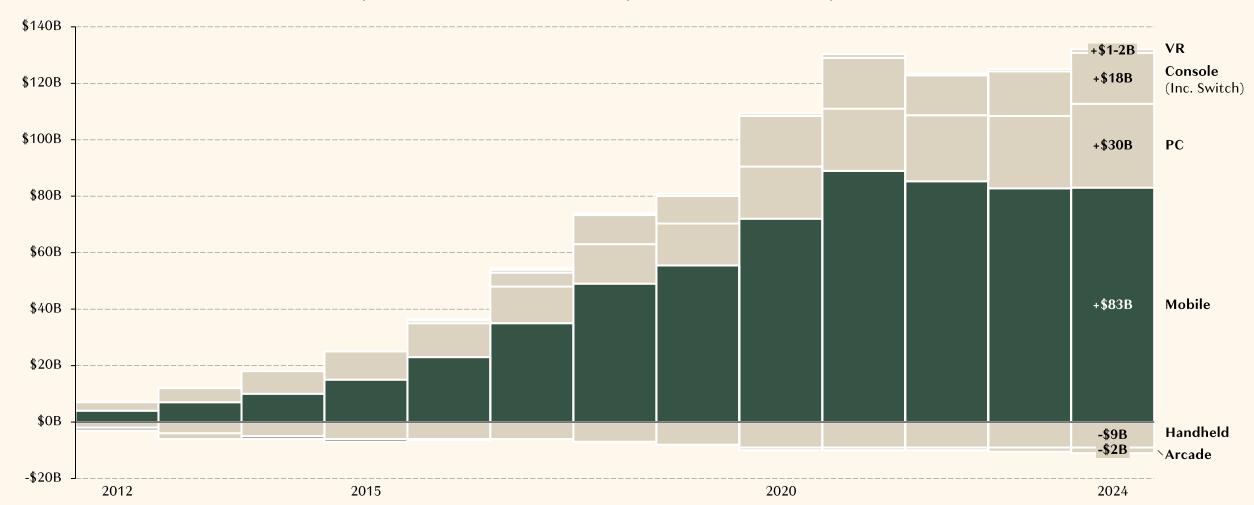
The Hostility of the Modern Console/PC Content Marketplace

How Player, Playtime, and Player Spend Might Return to Growth

Gaming's growth is driven by mobile's growth — the form factor is over two thirds of new spend since 2011 and is now 55% of the total market, up from 32%



Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011



The iPhone led to billions of new players and hours. But after 18 years, growth now relies on population growth and smartphone adoption in (very) low ARPU markets



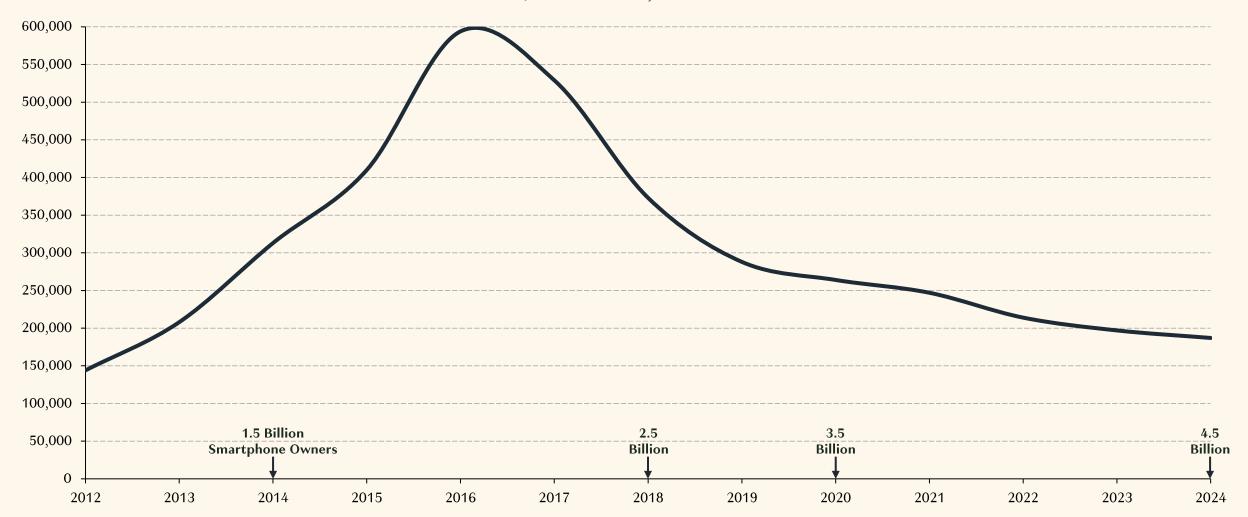


And though smartphone users and mobile gaming spend have both tripled since 2014 (1.5B to 4.5B, \$35B to \$105B), the number of mobile games is at a decade low



Number of Unique Mobile Games in the iOS App Store

(Worldwide; Had to Generate Any Revenue or Downloads in Year)

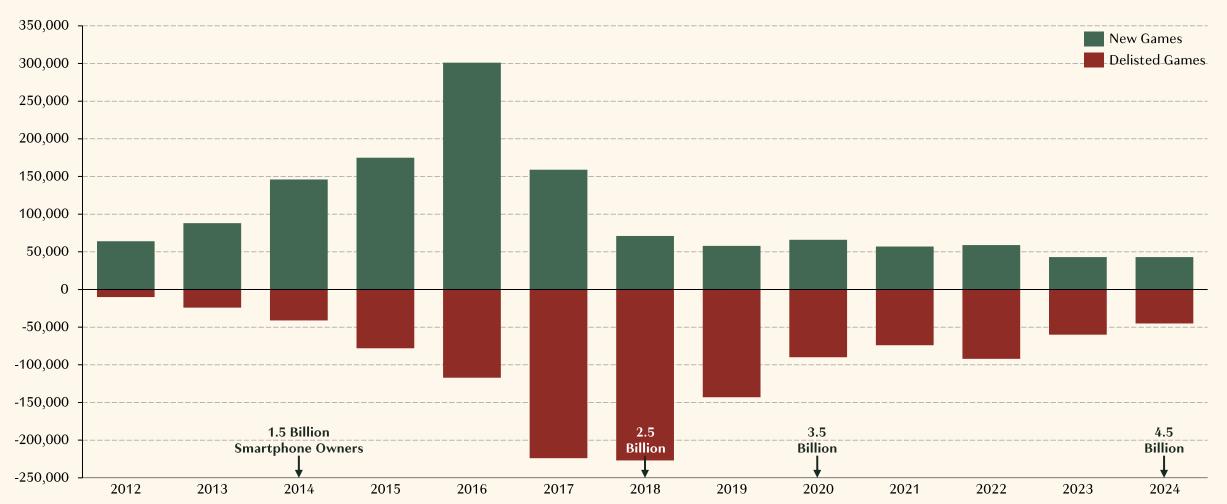


Behind shrinking mobile catalogues is not just annual de-listings, but a consistent trend of fewer and fewer new titles launching; success is too elusive



Annual Changes in Mobile Games on the iOS App Store

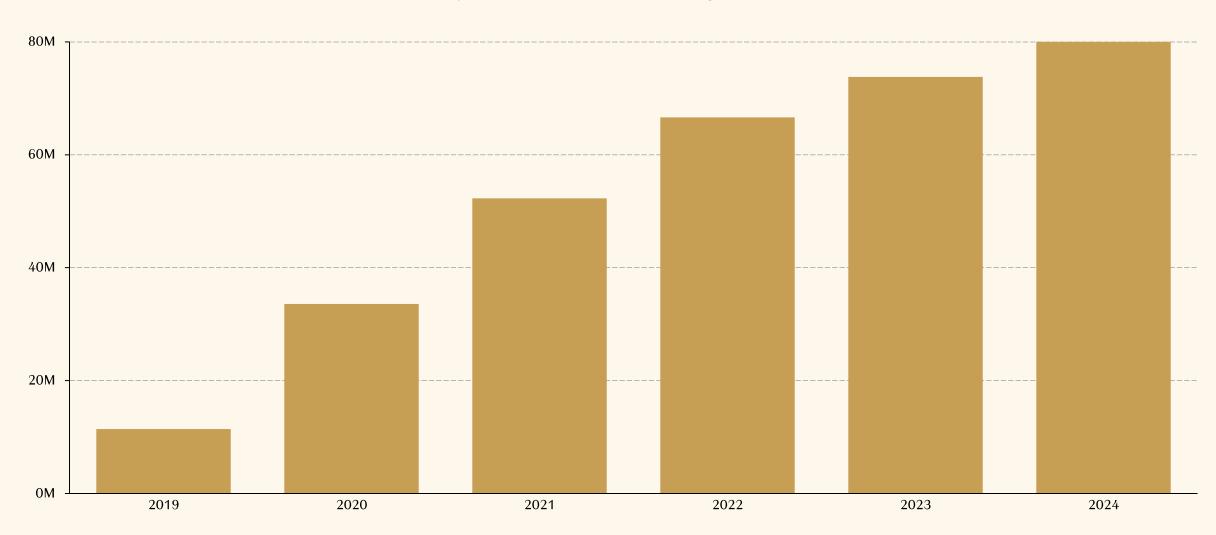
(Worldwide; Games that Generated No Revenue or Downloads in Year Counted as Delisted)



And social video is eating leisure time: just in the U.S., <u>adults</u> spend 35MM more hours a *day* watching TikTok than in H2'20/H1'21 (peak of mobile gaming spend)

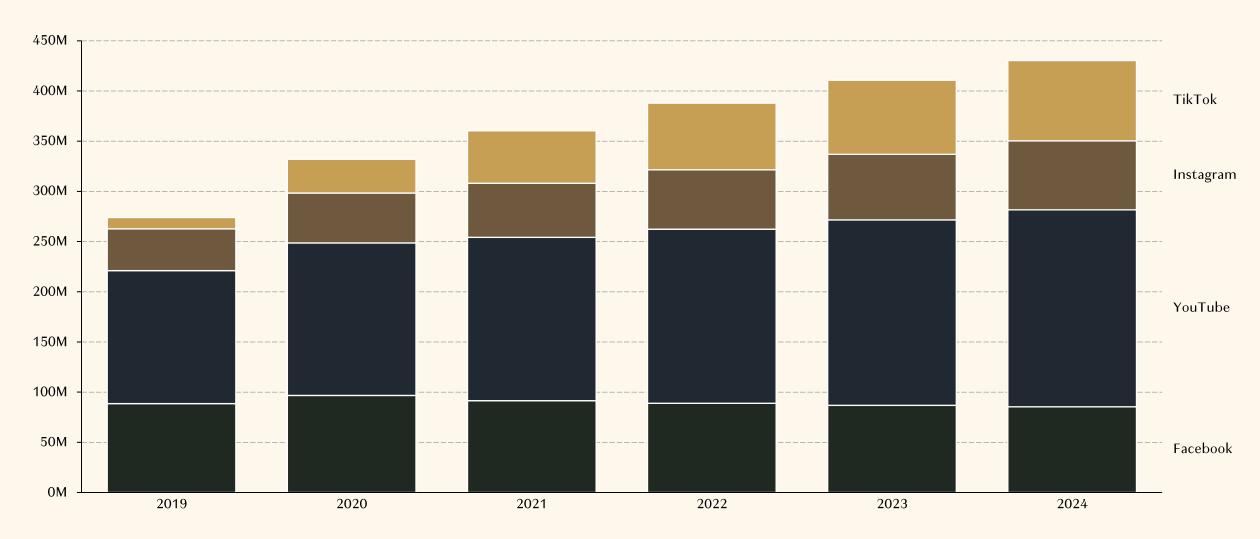


Daily Hours of TikTok Use Among All U.S. Adults



TikTok's growth hasn't cannibalized other social video platforms — U.S. adults have grown their use of the category by over 100 million hours $a\ day$ since 2020/21

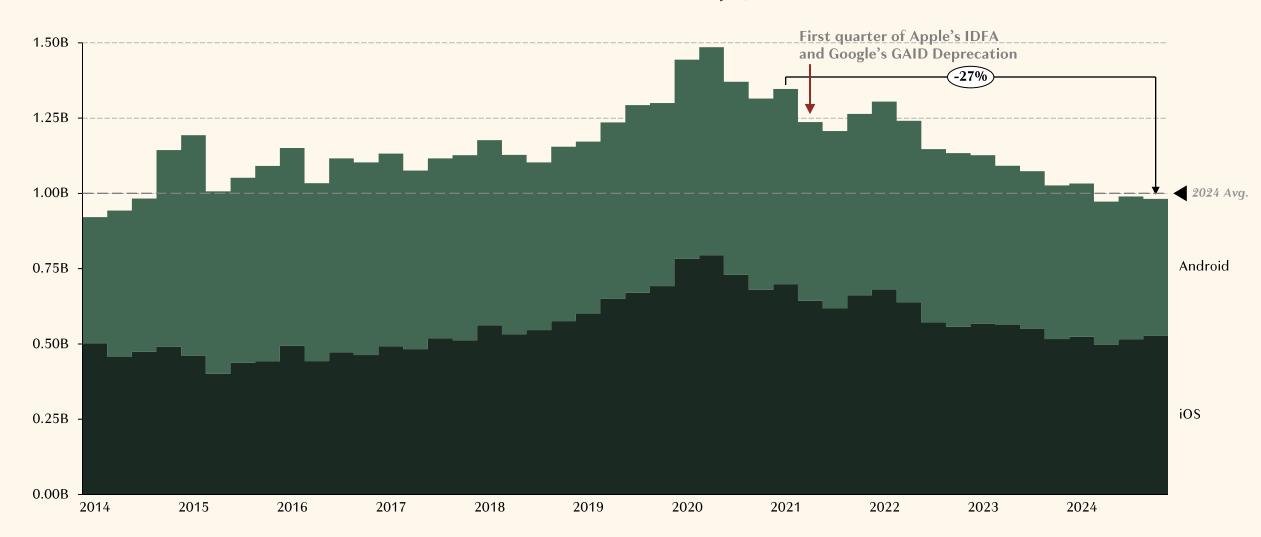
Daily Hours of Use Among All U.S. Adults



Apple's IDFA created a new vicious cycle: install down + costs up >> player time, spend, ad revenue fall >> UA is even costlier >> install volumes go down more, etc.



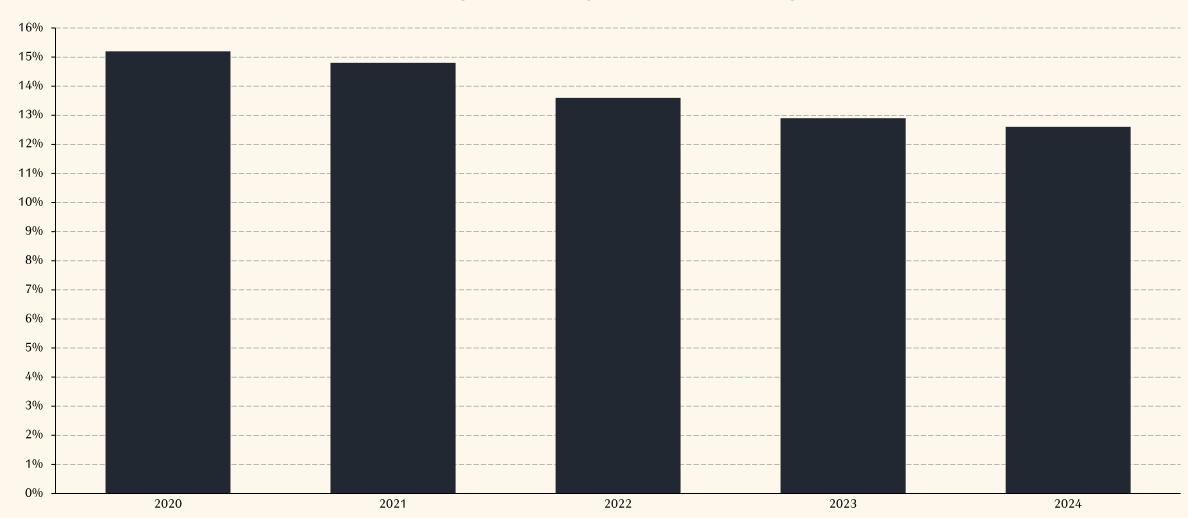
U.S. Mobile Game Downloads by Quarter



Altogether, mobile gaming has lost 2.6 percentage points of its share of all digital media time among U.S. adults since 2020 (a ~17% drop in share)



Mobile Gaming's Share of Digital Media Time Among U.S. Adults

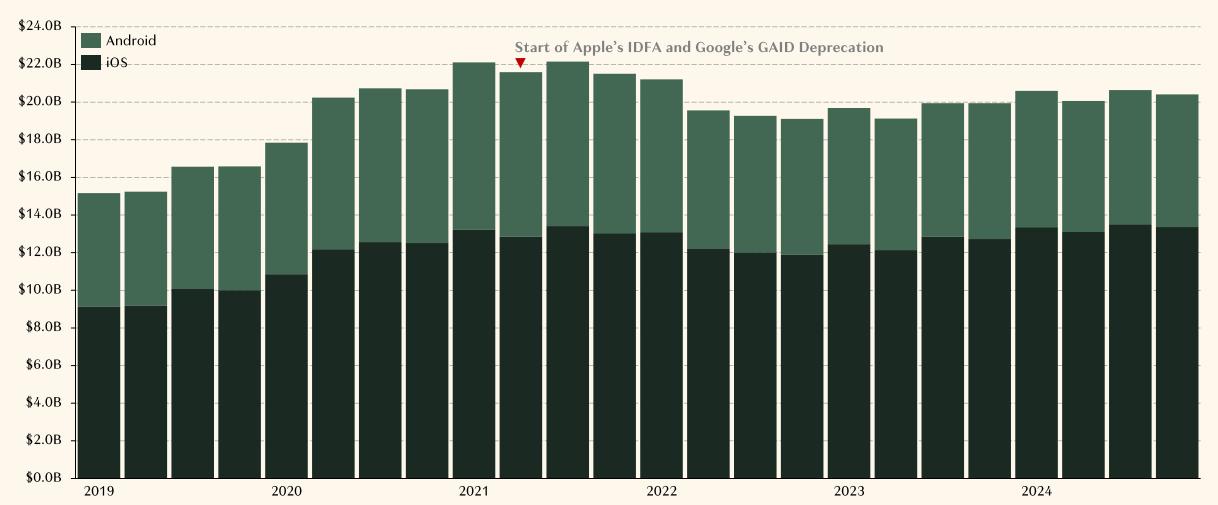


After three years, global mobile gaming spending remains down 8% from its peak (real spending is down 23%). The competitive consequences are even greater...



Worldwide Mobile Game Revenues by Quarter

(Sensor Tower Measured Markets and Platforms)

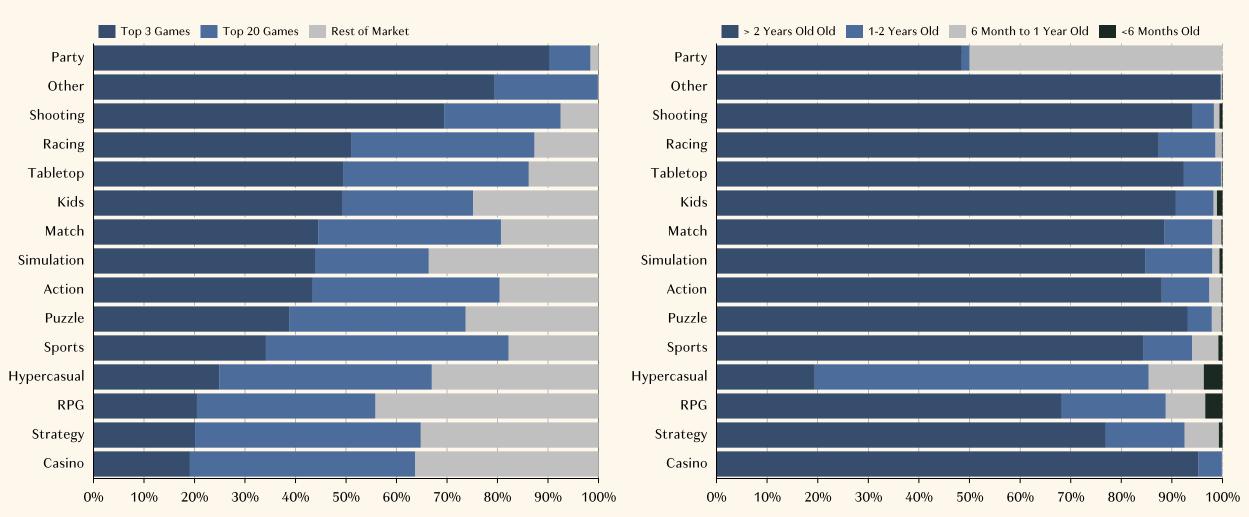


With discovery, downloads, and revenues stagnated, competition further ossified. The top 3 titles in the U.S. by genre hold 40% of spend; titles 2+ years old are 70%



Share of U.S. Mobile Game Revenues by Title Genre and Rank (2023)

Share of U.S. Mobile Game Revenues by Title Genre and Age (2023)



Consider that the biggest new game since 2020, *Monopoly Go!*, hit \$2B in revenue in 11 months — but also spent \$500MM on user acquisition (or 36% of net revenue)

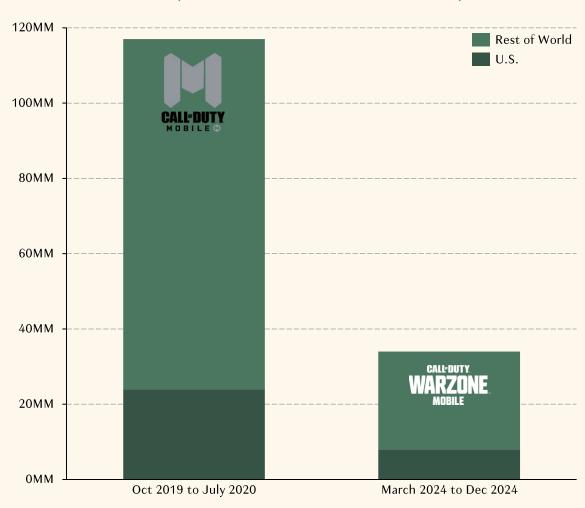


Even Call of Duty is struggling to launch new mobile titles. 2024's Warzone has only 30% of the downloads of 2019's Mobile after 9 months — and 5% of the spend



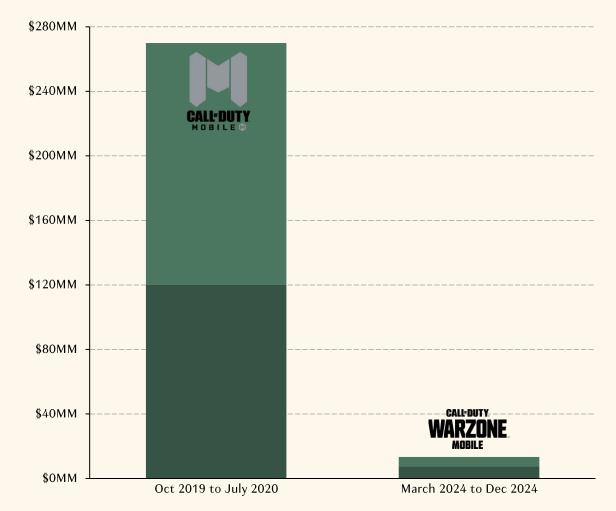
Worldwide Downloads in First 9 Months After Launch

(Sensor Tower Measured Markets and Platforms)



Worldwide Revenue in First 9 Months After Launch

(Sensor Tower Measured Markets and Platforms)

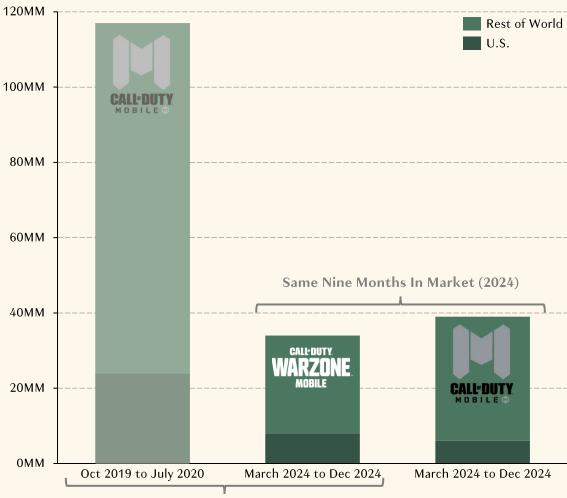


Fortunately, part of *Call of Duty: Warzone*'s challenge is that *Mobile* is still thriving. Yet this exemplifies the stickiness of aged titles versus newer, "better" substitutes



Worldwide Downloads Over Nine Months

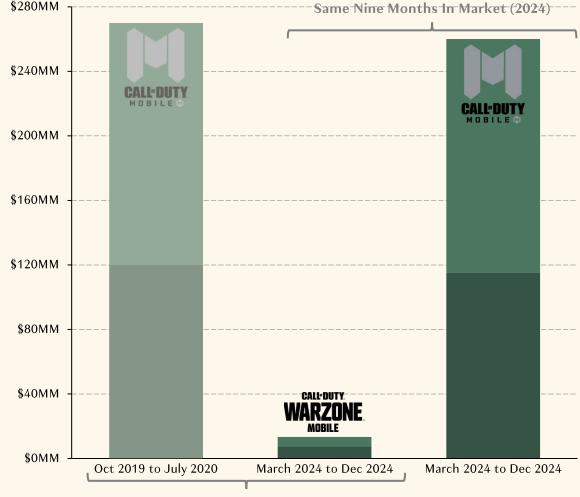
(Sensor Tower Measured Markets and Platforms)



First Nine Months In Market (2019/2020 v. 2024)

Worldwide Revenue Over Nine Months

(Sensor Tower Measured Markets and Platforms)



Given mobile gaming's overall stall, app stores, which net ~\$24B per year from mobile game developers, face renewed scrutiny over their commissions and policies

Total Worldwide App Store Revenue from Video Game Commissions

(Nominal Prices; Revenue Typically Estimated at 75–85% Profit Margins)

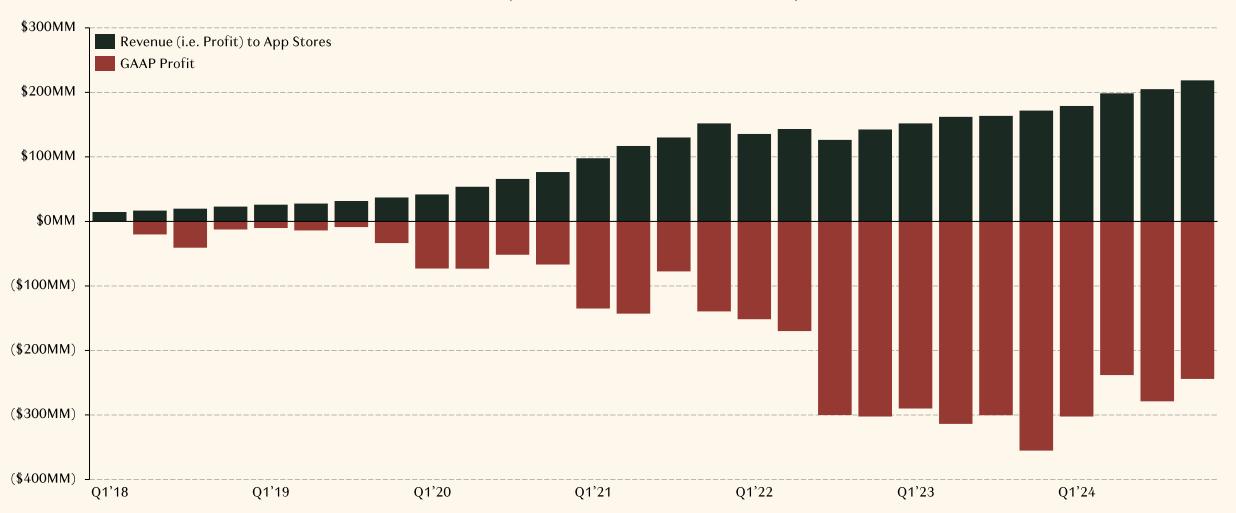


Take Roblox, the top mobile game *ever*. For every \$100 in player spend, Roblox pays app stores \$22 (a sum that's nearly all profit for Apple/Google) and loses \$35



Roblox Quarterly Payments to App Stores and Losses

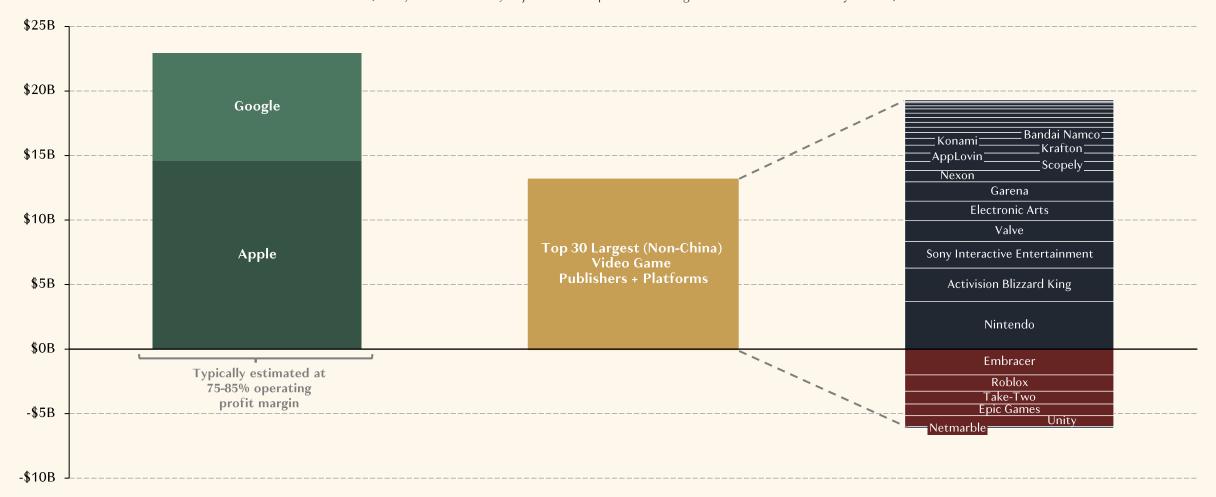
(Blended / Based on Revenues from All Platforms)



Indeed, Apple and Google likely net more in profit from mobile game sales than all (non-China) mobile and non-mobile publishers and platforms combined



2023 App Store Commissions from Mobile Games vs. Operating Income of Top 30 (Non-China) Video Game Publishers + Platforms
(2023; Nominal Prices; Adjusted for Impairment Charges and Other Extraordinary Events)





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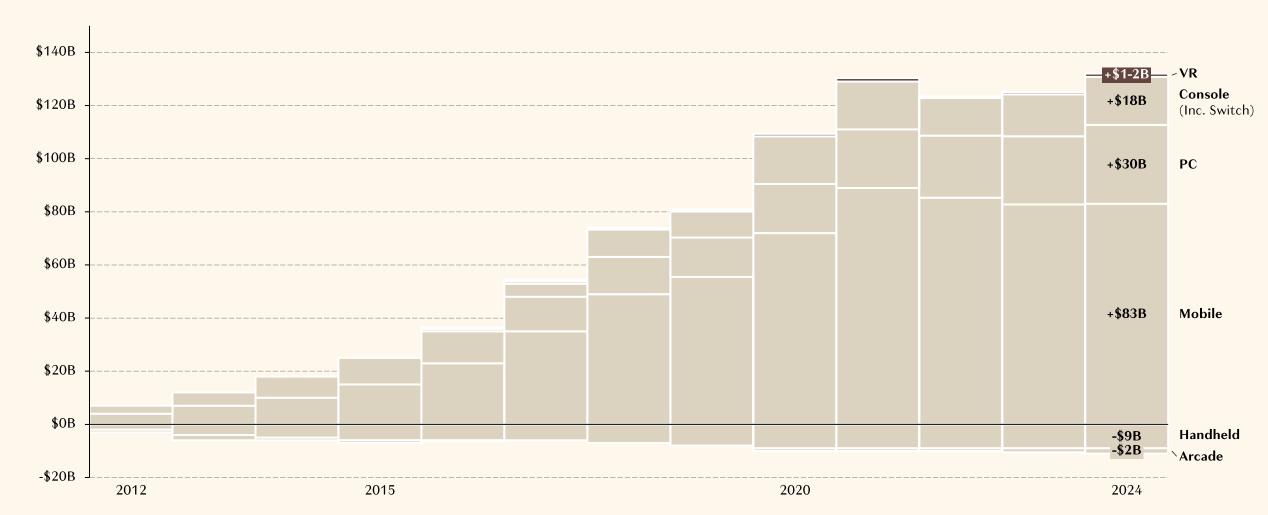
How Player, Playtime, and Player Spend Might Return to Growth

Annual AR/VR content spend is up from \$0 in 2011 to about \$1–2B today, but this sum remains too small (and stagnant) to attract much gamemaker investment



Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



And though AR/VR devices have improved substantially in performance and form factor, sales are down-to-flat (especially after accounting for periodic upgrades)



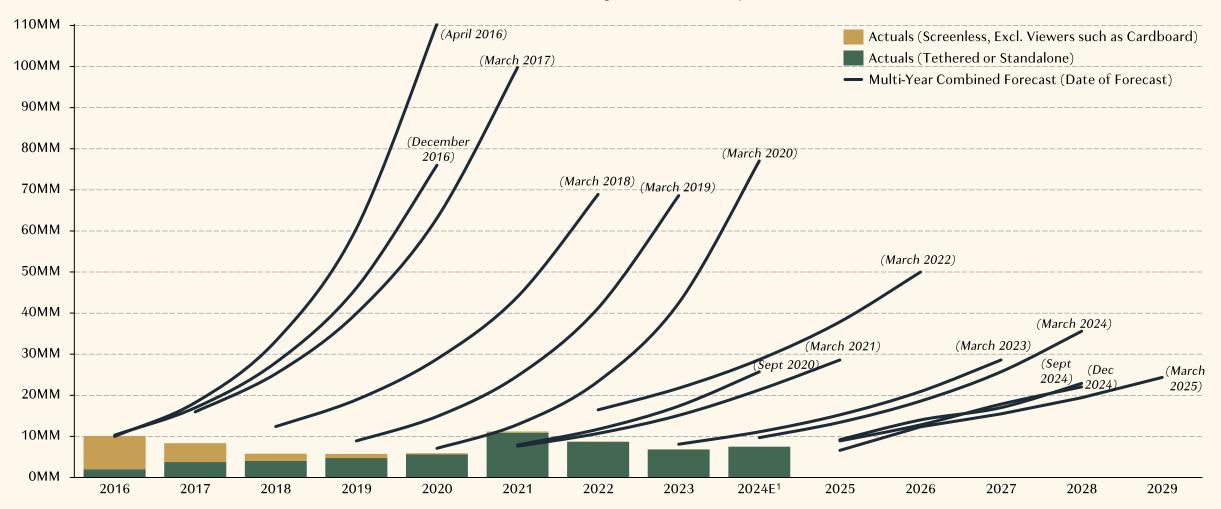
Annual AR/VR Headset Shipments, Actuals and Forecasts by Year (Worldwide)



AR/VR sales are also way behind forecasts. IDC now estimates 6.5MM headsets sold in 2025. Only a few years ago, IDC predicted 6-7MM per quarter (if not month)

Annual AR/VR Headset Shipments According to IDC, Actuals and Forecasts by Year

(Worldwide; Including MR and XR; As of 7 April 2025)

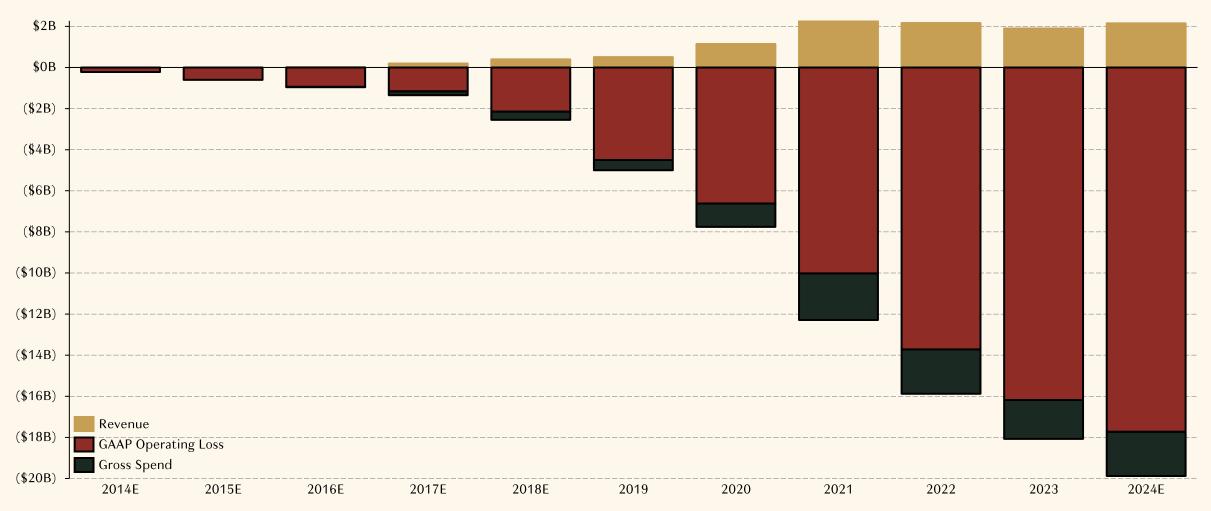


Though focused on building a general-purpose computing platforms (vs a gaming console), Meta's Reality Labs has now spent ~\$85B on AR/VR, with ~\$74B in losses



Annual Meta Reality Labs Annual GAAP P&L¹

(Worldwide)





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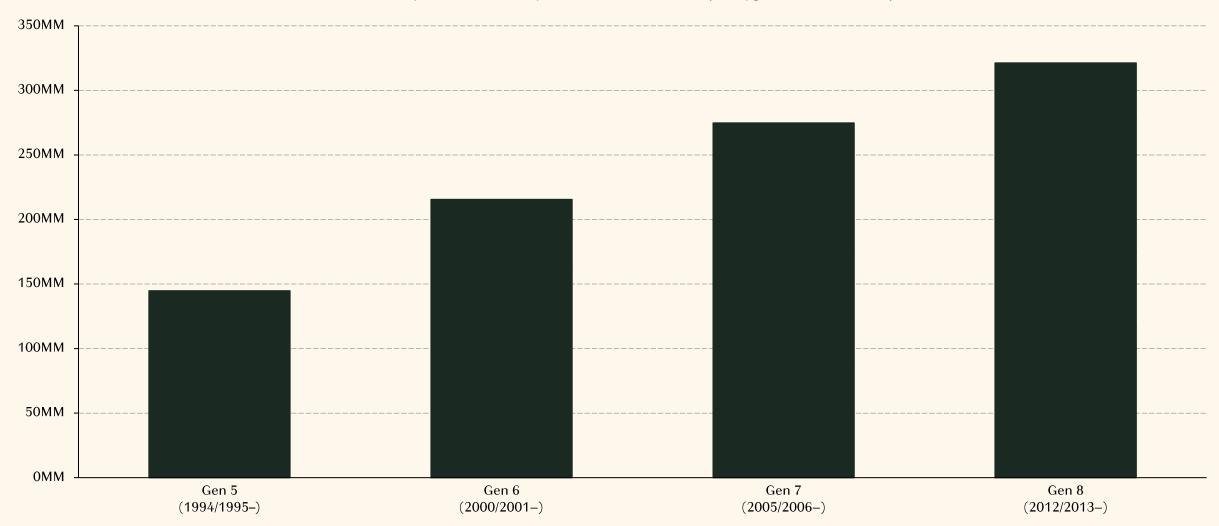
How Player, Playtime, and Player Spend Might Return to Growth

The billions spent on each console generation on R&D, subsidies, content, etc., do seem to be growing penetration. Gen 8 outsold Gen 6 by over 50%



Worldwide Console Sales by Platform by Generation

(Not Deduplicated; Includes Replacement Devices and Mid-Cycle Upgrades; As of 15 January 2025)

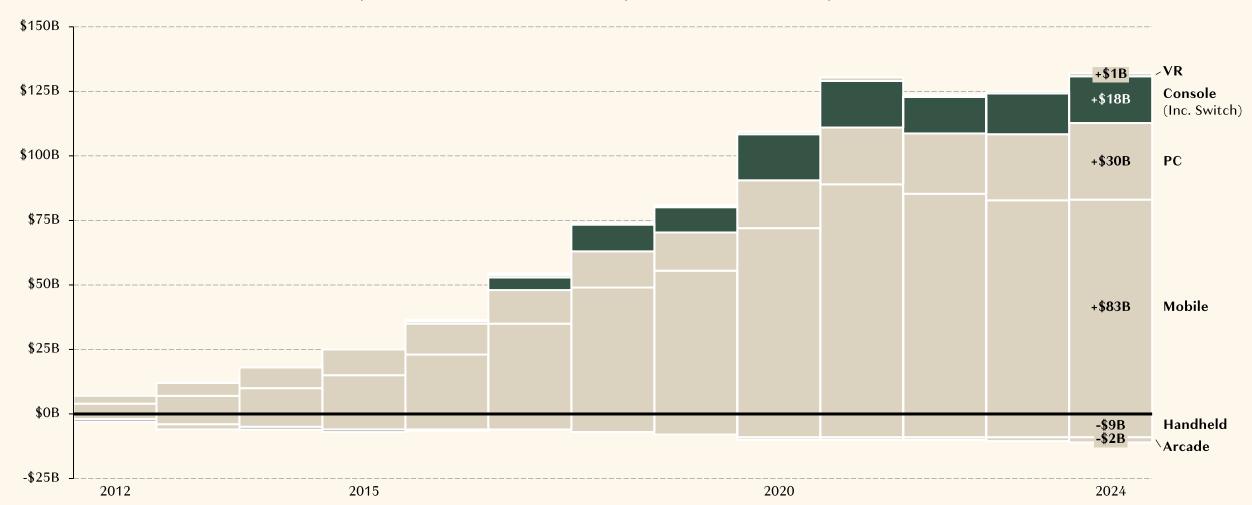


And total console content spend is also \$18B higher in 2024 than it was in 2011, a roughly 75% increase



Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)

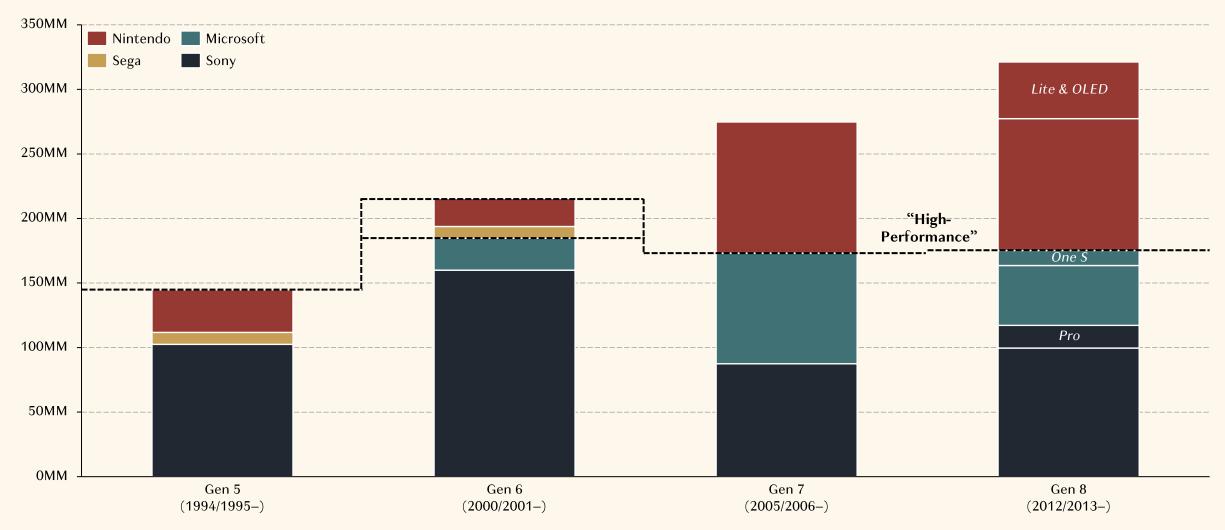


Yet all Gen 7+8 growth is Nintendo. Gen 7+8 sales were also boosted by a lengthier cycle (more replacements + household growth) and Gen 8 from mid-gen upgrades



Worldwide Console Sales by Platform by Generation

(Not Deduplicated; Includes Replacement Devices and Mid-Cycle Upgrades; As of 15 January 2025)

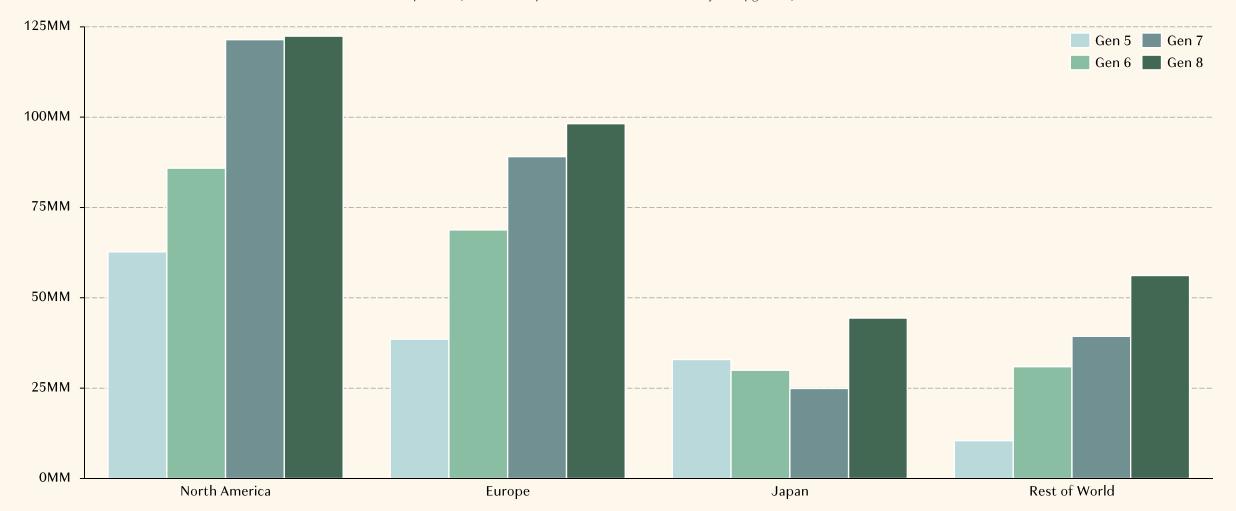


And even with more upgrades and replacement buys, total American and European console sales are ~flat versus a decade ago. Only Japan and ROW materially grew



Regional Console Sales by Platform by Generation

(Not Deduplicated; Includes Replacement Devices and Mid-Cycle Upgrades; As of 15 December 2024)

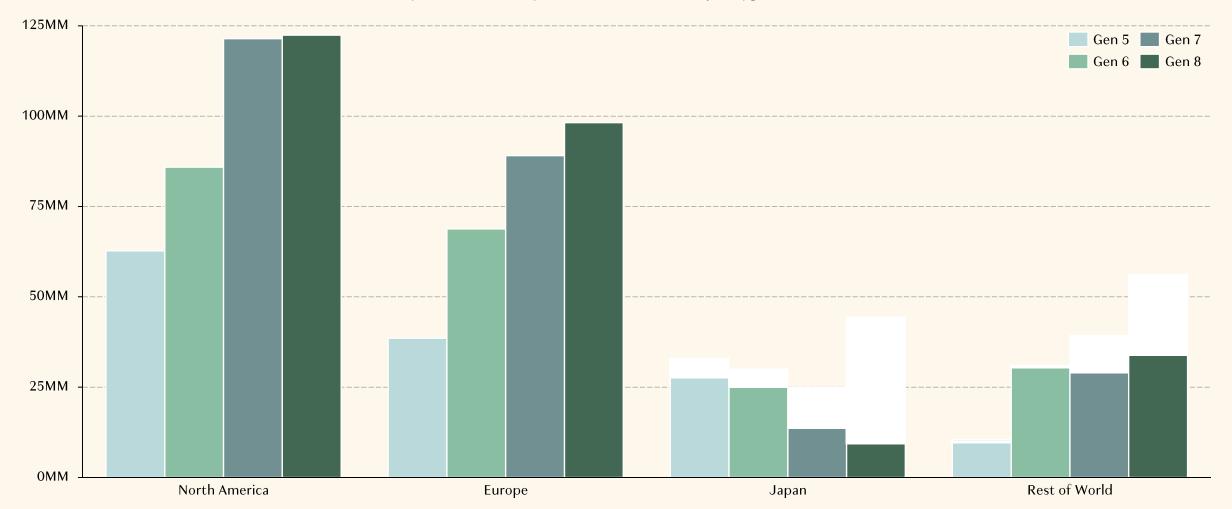


...But the *entirety* of Gen 6–8 console growth in Japan and ROW is Nintendo. And in Japan, both PlayStation and Xbox declined in Gen 8



Regional Console Sales by Platform by Generation

(Not Deduplicated; Includes Replacement Devices and Mid-Cycle Upgrades; As of 15 December 2024)



And Switch mostly benefits Nintendo. Switch users buy 25–33% fewer games than PS/Xbox owners, and over half of sales are Nintendo's games (vs. 10% on PS/Xbox)



Proportion of Gross Software ("Content") Sales on the Nintendo Switch that are 1st-Party (i.e. Nintendo) Titles

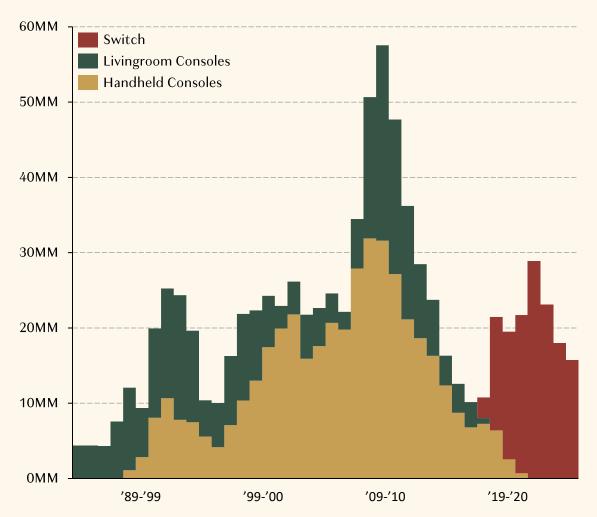
(By Fiscal Year)



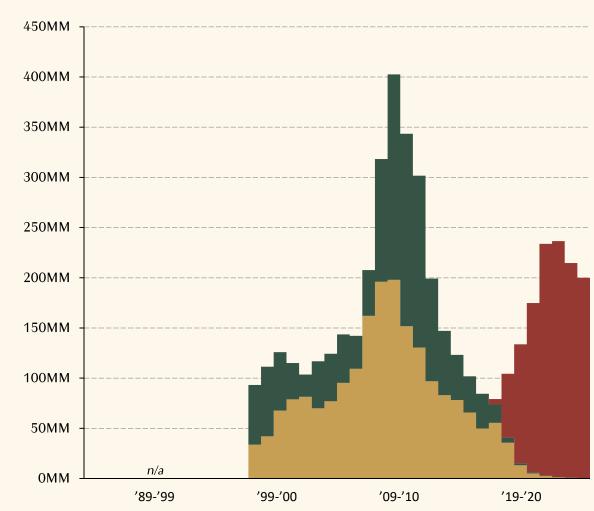
Switch's extraordinary sales are, for the most part, not from net new players but from the cannibalization of two console form factors (livingroom and handheld)







Nintendo Annual Software Unit Sales by Platform Type (Worldwide)

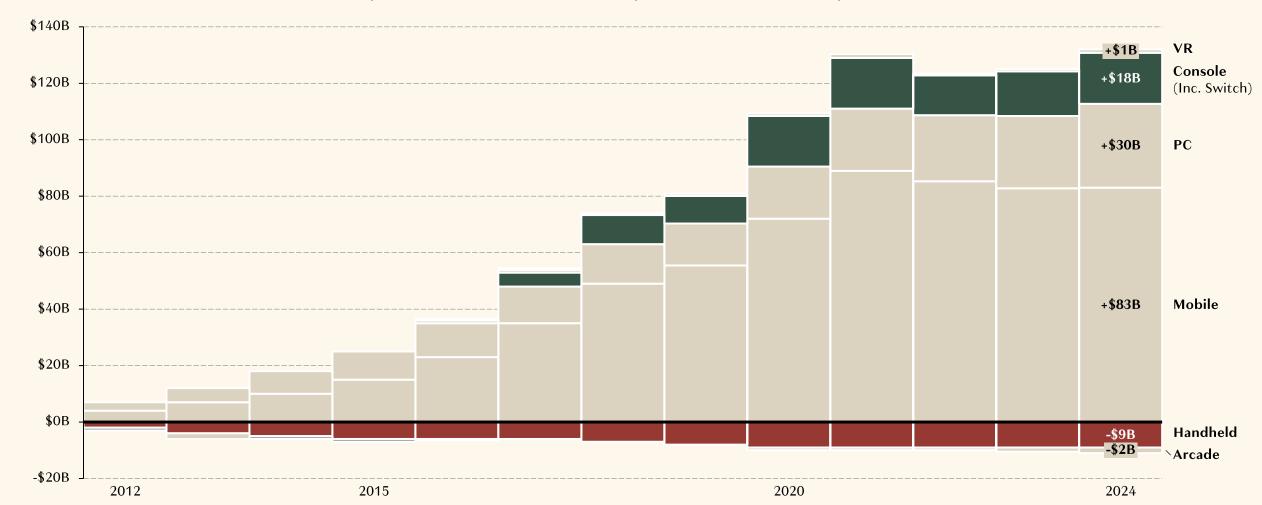


The decline of handheld revenues (-\$9B since 2011) also offsets roughly half of livingroom growth (\$18B). Combined console is up a more modest \$9B, or 28%



Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

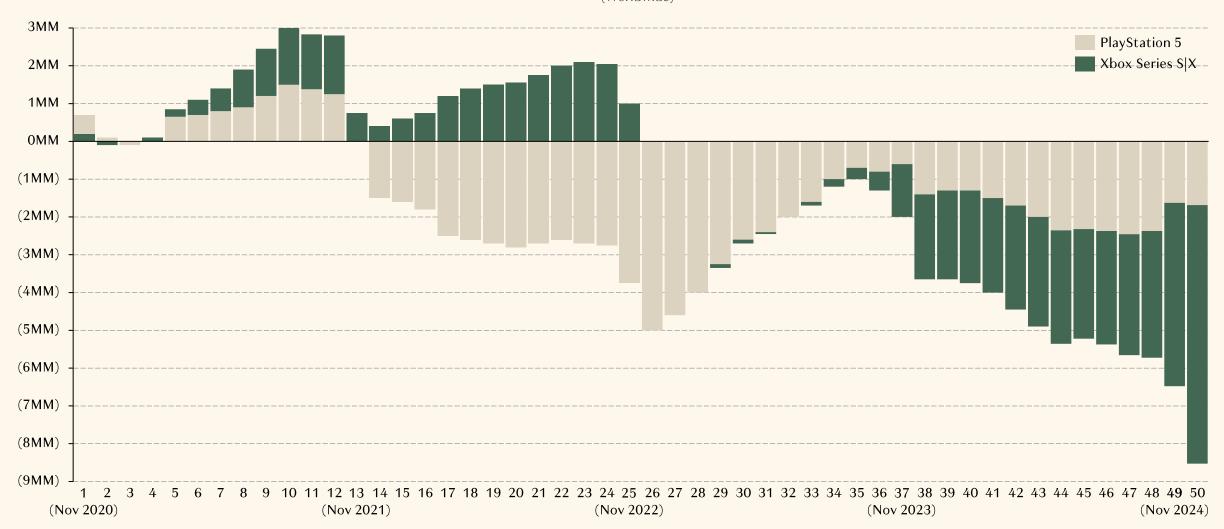
(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



And while Switch 2 is a likely mega-hit, Gen 9 PlayStation & Xbox sales are both down versus Gen 8 after 50 months — now a combined 8.7MM shortfall (or -7.6%)





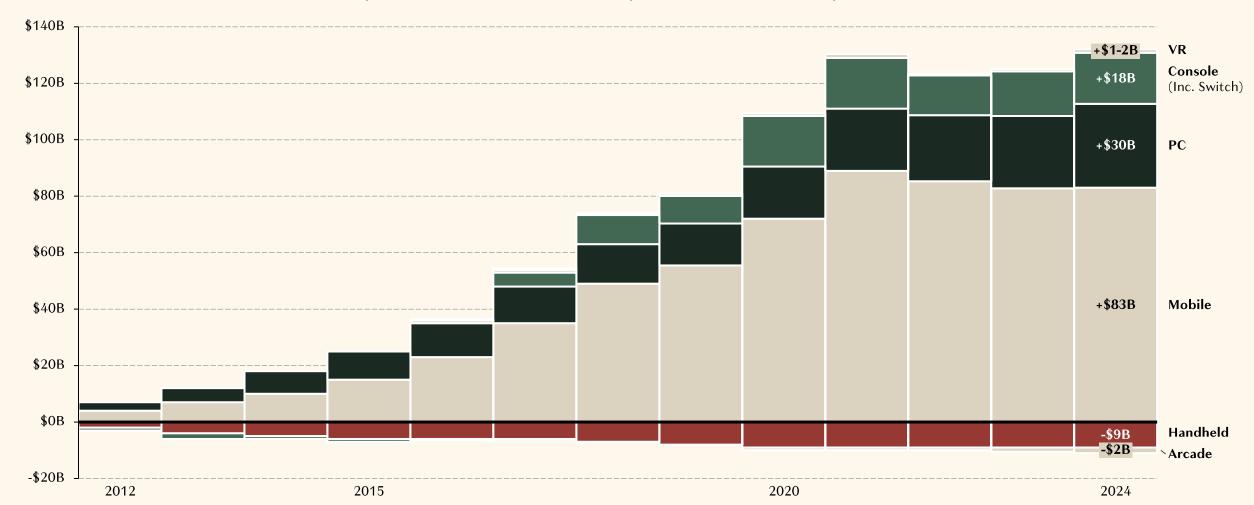


PC is a big bright spot, adding 65% more content spend than livingroom console since 2011 and 225% more than combined console, or \$30B in total



Share of Growth in Worldwide Consumer Spending on Video Game Content Since 2011

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)

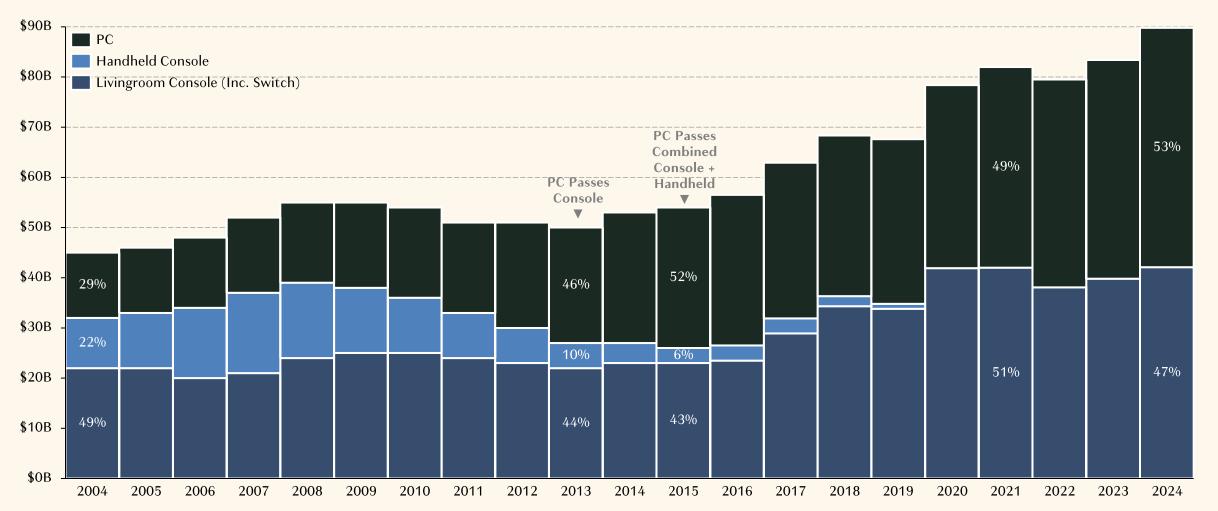


Twenty years ago, PC's share of non-mobile content spend was 29%. It's now ~53%. And while console has stagnated since 2021, PC has grown 20%



Worldwide Non-Mobile Video Game Content Spend

(Excludes Web3/NFT)



The PC ecosystem benefits from many compounding advantages over the console ecosystem — and its momentum is still growing



Existing PC Advantages

- Much larger library than any one console (or all consoles combined), and with near full backwards compatibility
- Much larger social graph than any one console (and often reaching into consoles)
- Ability to multi-task (e.g. Alt-Tab to YouTube for tips and tricks, read Game Guides, use WhatsApp, etc.), run full Discord natively, livestream with full OBS/editing suites, etc.
- Lower entry price point than consoles and higher top-range of performance than high-performance consoles
- Greater competitive capability (i.e. keyboard/mouse)
- Ability to play nearly every Early Access title in "Early Access"

Intensifying PC Advantages

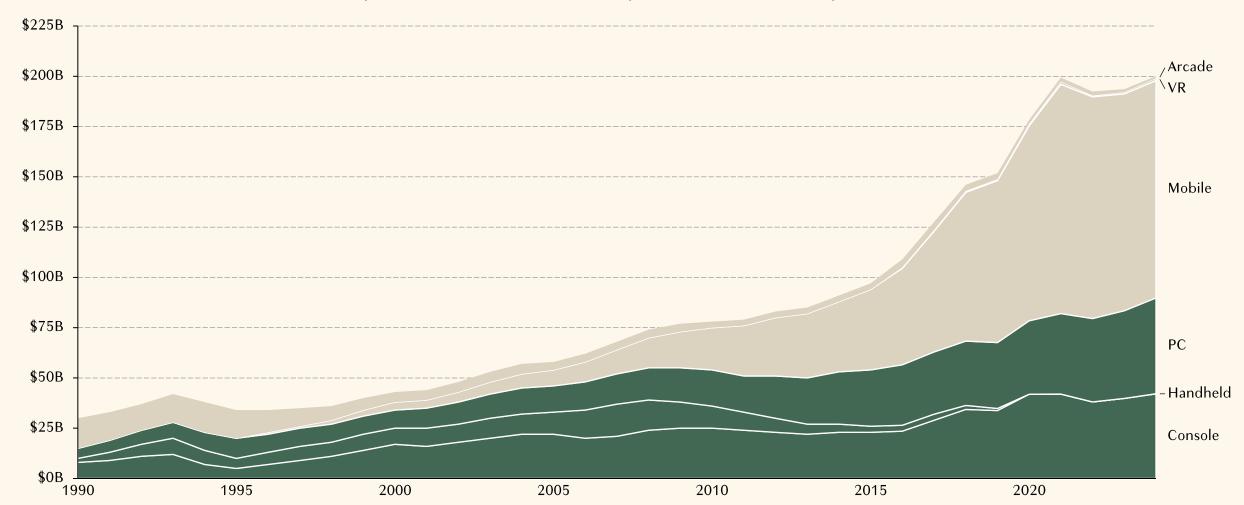
- More annual game releases (thus a compounding library advantage)
- PlayStation now releases its "exclusives" on PC (albeit in second window), as Xbox now does with all titles
- Premium Roblox games can only be bought on PC
- Hundreds of millions of children growing up on Roblox are unlikely to ask for a \$500 console to play AAA games
- Portable Windows-based gaming devices are growing in popularity and have access to full Steam/PC catalogues and entitlements

Even with the 2021 to 2024 stall, Console/PC spend grew 4.4% annually — short of mobile's 12%, which was powered by *billions* of new players — but still healthy



Worldwide Consumer Spending on Video Game Content

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)

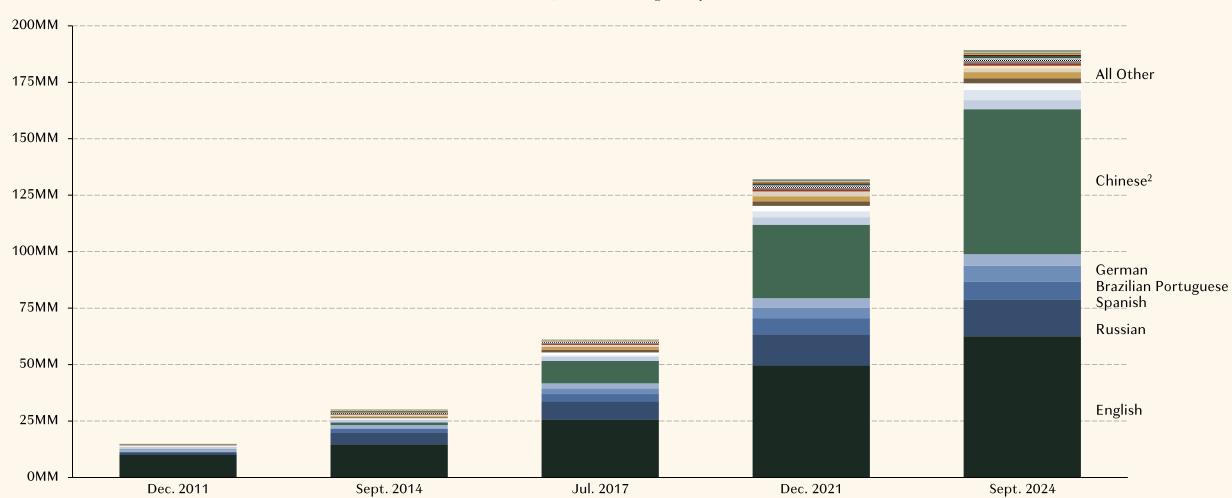


But Steam's consolidation of the PC gamers provides insight into who is driving the category growth. In 2024, Steam's APAC MAU exceeds its total MAU in 2017



Steam Monthly Active Users By Client Language¹

(Worldwide; Based on Trailing 90 Days)



The *largest* share of Steam users now use Chinese as their default client language (which probably *underrepresents* China's total share of Steam users)





(Worldwide; Trailing 90 Days)

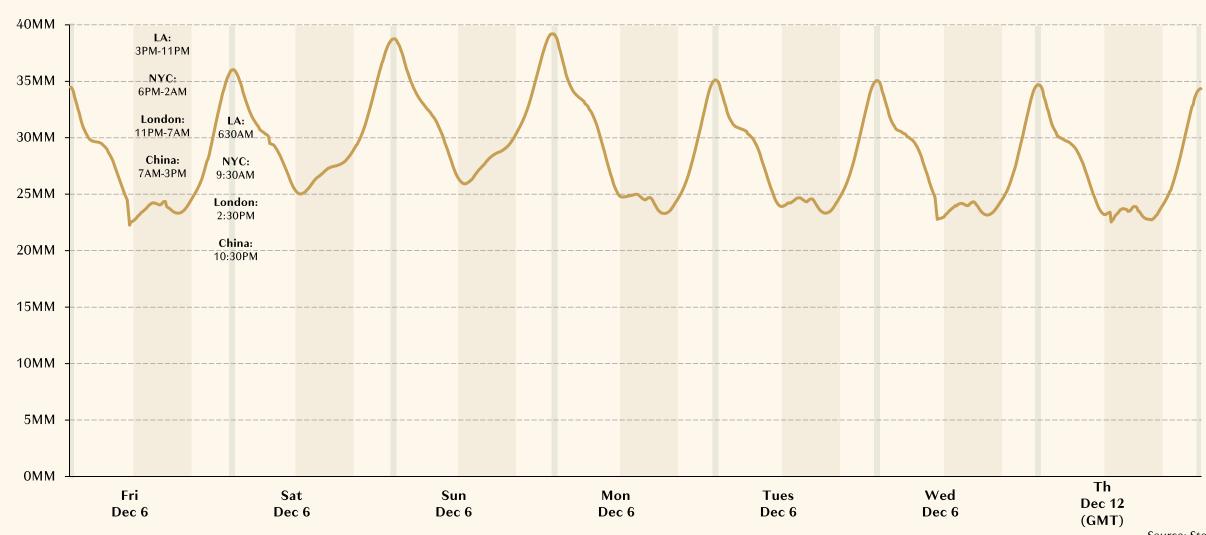


Notes: ¹Valve's hardware survey collects data based on the language the user has set their Steam client to, rather than the user's first or preferred language. As such, it's likely that, as an example, many Chinese users choose to use Steam in English, thereby exaggerating English's share; ²Includes all registered Sinitic languages and dialects

CCUs affirm APAC's role in Steam user growth: CCUs peak when America sleeps and China gets home and bottom when America is off work but China is at work



Steam Concurrent Users (CCUs) by 10-Minute Intervals from 5 December 2024 to 12 December 2024 (Worldwide; GMT Dateline)





A Rough Three Years and the End of the 2011–2021 Growth Wave

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A (Brief) Review of AR/VR Forecasts and Disappointments

How Much (and Where) Console/PC Has Grown

The Relevance of China (and Other Emerging Markets)

The Hostility of the Modern Console/PC Content Marketplace

How Player, Playtime, and Player Spend Might Return to Growth

Since 2011, consumer video game spend in China has grown by \$39B — roughly a third of global growth (and to 22% of the total market)



Consumer Spending on Video Game Content in China

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)

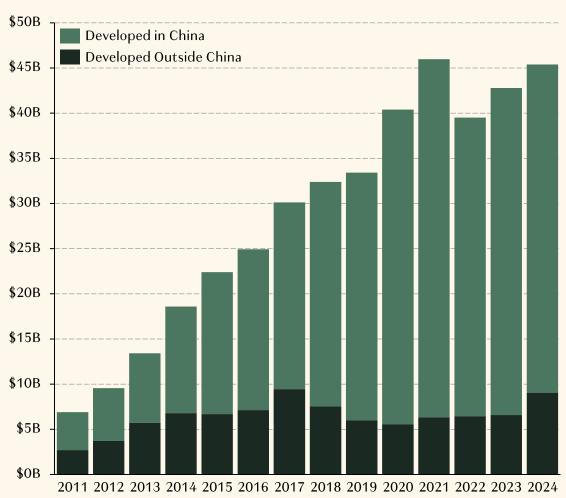


But only 20% of China's domestic spend goes to foreign titles (many of which are banned). Total spend is up 50% since 2017 alone, yet imported spend is down 5%



China Spend on Video Game Content by Country of Origin

(USD; Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)



China-Made Games' Share of China Video Game Content Spend

(Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)

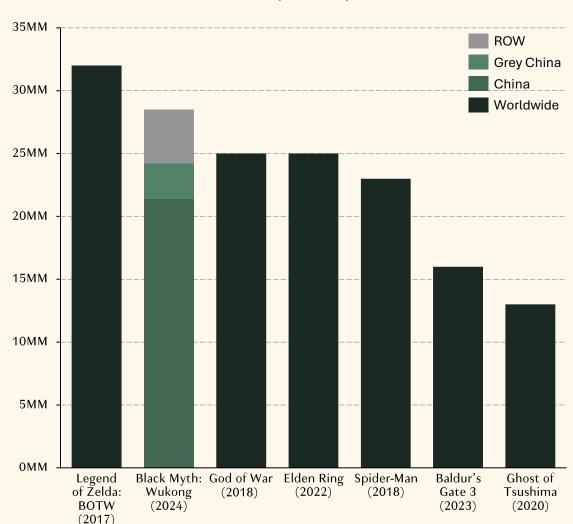


And AAA games from China and for China are now achieving sales figures in China that challenge the worldwide sales of the most acclaimed Western AAA titles



Unit Sales for Major 1P AAA Titles

(Worldwide)





Black Myth: Wukong, made by Chinese developer Game Science, is based on the 16th-century Chinese folktale of the Monkey King Wukong, and is set in a world of gods from the Chinese pantheon, intermixed with famous realworld Chinese landmarks and locations.







- Winner: Game of the Year
 Nominee¹: Innovation Award (Players' Voice)
- Nominee: Game of the Year
 Nominee¹: Best Technology
- Nominee: Best Direction
- Nominee: Best Art Direction
 Nominee1: Game of the Year
- Winner: Best Action Game
 Nominee¹: Best Design
 - Nominee¹: Best Narrative

 - Nominee¹: Best Visual Art
- Winner: Game of the Year
- Winner: Best Visual Design



- Winner: Grand Award ("GOTY"
- Winner: Best Visual Design



- Winner: Outstanding Art Direction
- Nominee¹: Game of the Year
- Nominee¹: Action Game of the Year



STEAM AWARDS

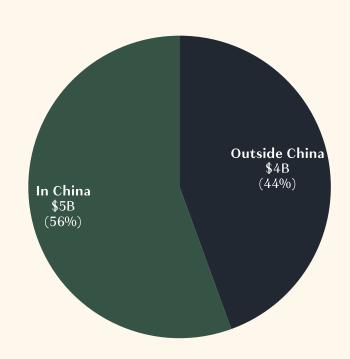
- Winner: Game of the Year
- Winner: Best Game You Suck At
- Winner: Best Story-Rich Game

China's exports are soaring, too. *Genshin* is one of few titles to gross over \$9B—almost half was *outside* China; *Marvel Rivals* is one of the biggest releases in years



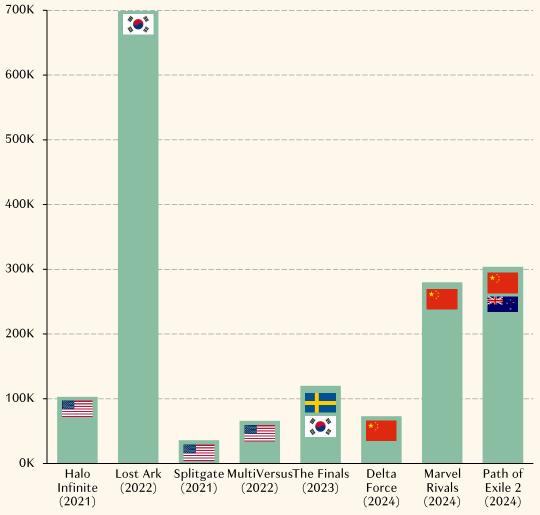
Consumer Spend on Genshin Impact

(Worldwide through September 2024)



Debut Avg. Steam CCUs, Select FTP Multiplayer Titles

(Does not reflect all players, only Steam players, which has an unequal effect per title)



Sources: Niko Partners, Steam Charts, Epyllion analysis

Altogether, China's developers have grown their share of *non-*China content spend from 0.5% to 13% in 13 years, or from \$360MM a year to \$19B



Total Video Game Content Spending Outside of China

(USD; Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)



Chinese Video Games' Share of Non-China Content Spend

(USD; Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)

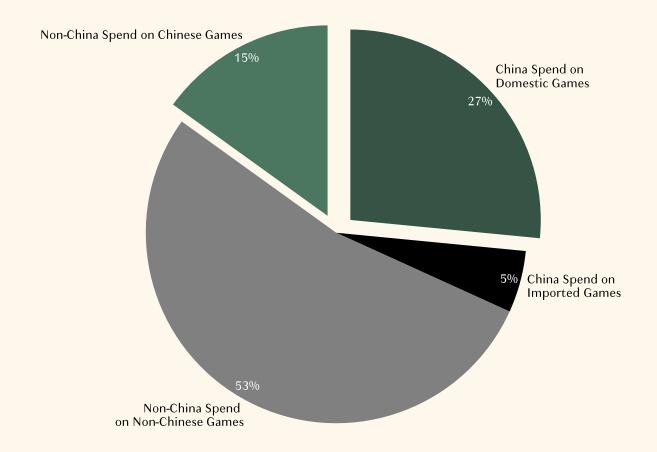


In total, 42% of worldwide consumer spending growth since 2011 went to Chinese developers (split 2:1 on domestic spend on Chinese titles v. exports of them)



Breakdown of Worldwide Net Growth in Consumer Content Spending on Video Games Since 2011

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)

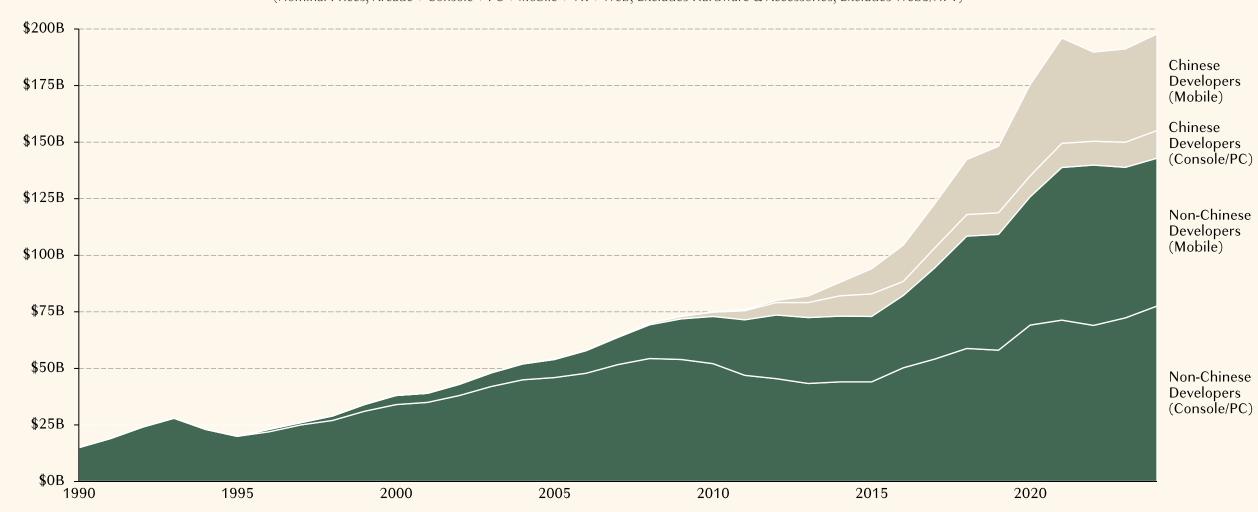


And so total growth for non-Chinese developers since 2011 is less than headlines suggest. Mobile added \$41B (not \$83B), while Console/PC grew \$31B (not \$39B)



Worldwide Consumer Spending on Video Game Content

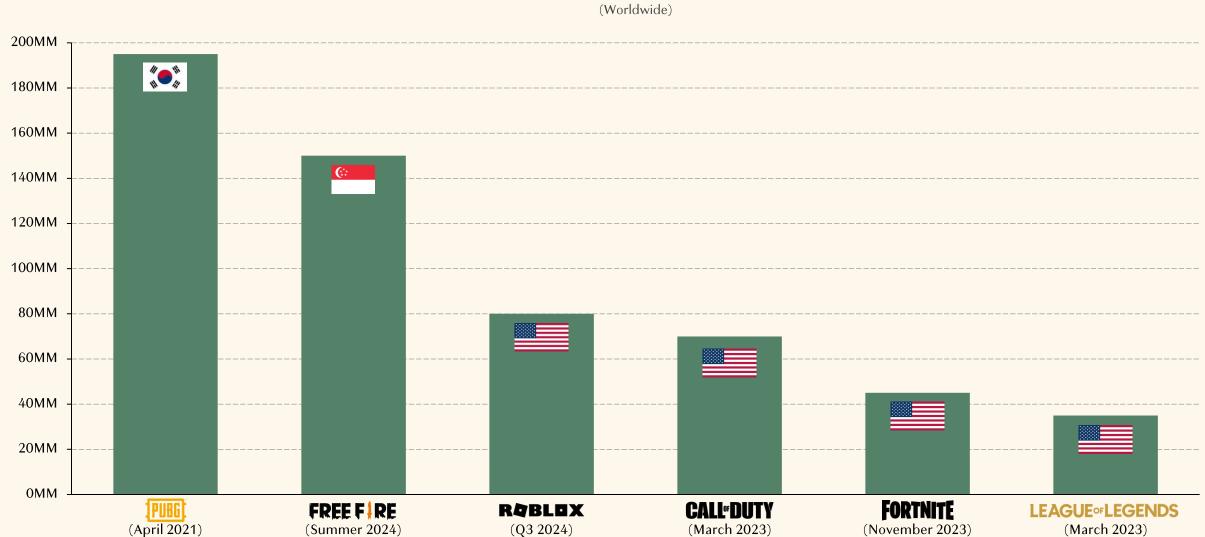
(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



And while China is the largest, most mature, and regulated non-Western market, it's no outlier. The most played AAA titles worldwide are Korean and Singaporean







These non-Western titles thrive partly by focusing on lower device specifications, but also by investing in and *prioritizing* different cultural events and tones



Fortnite Battle Royale Events
(Selection)





PUBG Battle Royale Events
(Selection)





Free Fire Battle Royale Events
(Selection)

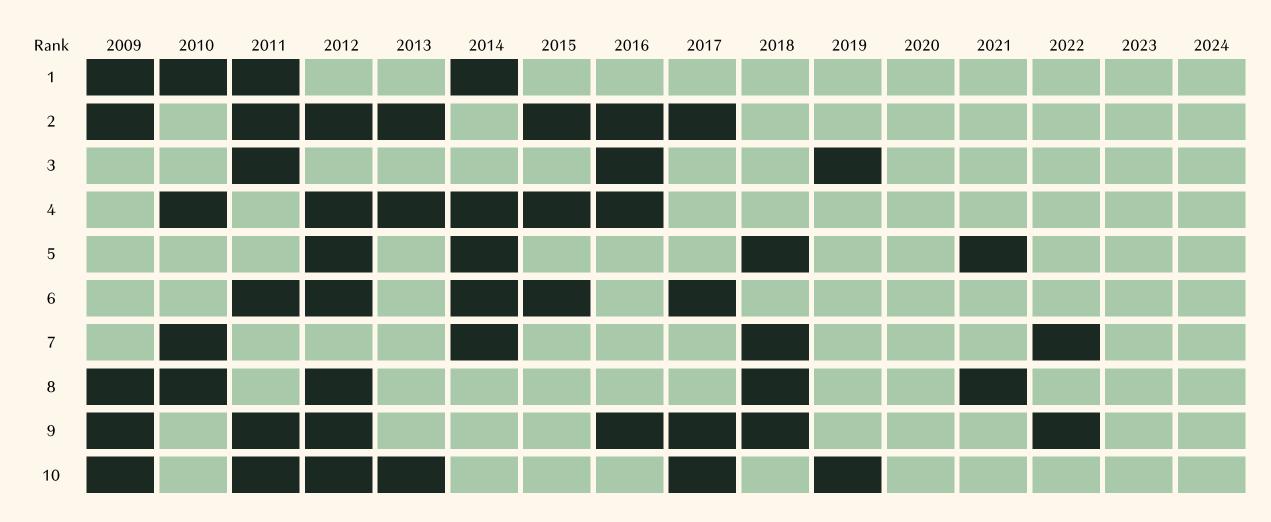




As foreign markets grow, their domestic production capabilities and supply grow, too, and this always results in national preferences then shifting to local product



10 Highest-Grossing Films in China per Year by Country of Origin



The films that now top the Chinese box office are not just "made in China"—they are fundamentally of China and for Chinese audiences



Wolf Warrior II
(2017, \$875MM)



A Rambo-style action film in which the muscled and jaded Chinese hero rescues Africa from American imperialism and bioterror. The bad guy is played by New York-born Frank Grillo (previously an evil mercenary in Captain America) and is scolded by the hero for America's role in the slave trade. The hero also announces Chinese frailty to be a thing of the past, while asserting its role as global protector

Wandering Earth (2019, \$700MM)



A metaphor for climate change in which Chinese scientists leading the nations of the world — with the notable absence of the U.S. — to save the planet, which will soon be engulfed by the sun. The film takes the virtues of collectivism as self-evident and is sharply critical of selfishness.

Ne Zha (2019, \$743MM)



A family-oriented film that resembles animated Disney hits, particularly *Frozen*. Like *Wukong*, *Ne Zha* focuses on 16th-century Chinese folklore about a mischievous but misunderstood boy born from a powerful spirit pearl. *Ne Zha* is a rousing story in the shenmo (gods and demons) genre, with humor that is decidedly non-Western

As Nollywood has developed, Nigerian-made films (including those released during COVID!) toppled former chart toppers like Avengers: Endgame and Avatar



A Tribe Called Judah

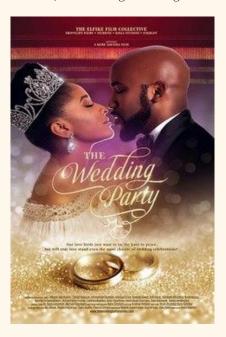
(2023, 1.2x Avengers: Endgame)



Centers on Jedidah Judah, a single mother of five sons from different fathers and tribes. Facing financial strain due to her chronic kidney disease, her sons plan a heist to fund her treatment, leading to unforeseen complications.

The Wedding Party

(2016, 1.1x Avengers: Endgame)



Classic "romcom" focused on the extravagant and chaotic wedding of Dunni and Dozie as they navigate meddling families, uninvited exes, and unexpected drama.

Omo Ghetto 2: The Saga

(2019, 1.1x Avengers: Endgame)



A gangster comedy that focuses on a tough ghetto leader caught between her gangster crew and her affluent family. Chaos ensues when a heist goes wrong, putting Lefty (the protagonist) in-between law enforcement and rival gangs, while forcing her to confront her complex identity and loyalties.

India has always had a strong domestic film industry. As a result, only 3 of the 50 highest-grossing films of all time come from outside Bollywood



Top 50 Highest-Ever Grossing Films at the Indian Box Office by Home Market

(Crore; Inflation Adjusted to 2024 Prices; All Films from 2013 to 2024)



And so, as Console/PC continue to grow primary through APAC/ROW, there will be more Garenas, Game Sciences, MiHoYos — and they'll take share in the West, too



Consumer Spending on Video Game Content in Major Foreign Markets and Regions

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)





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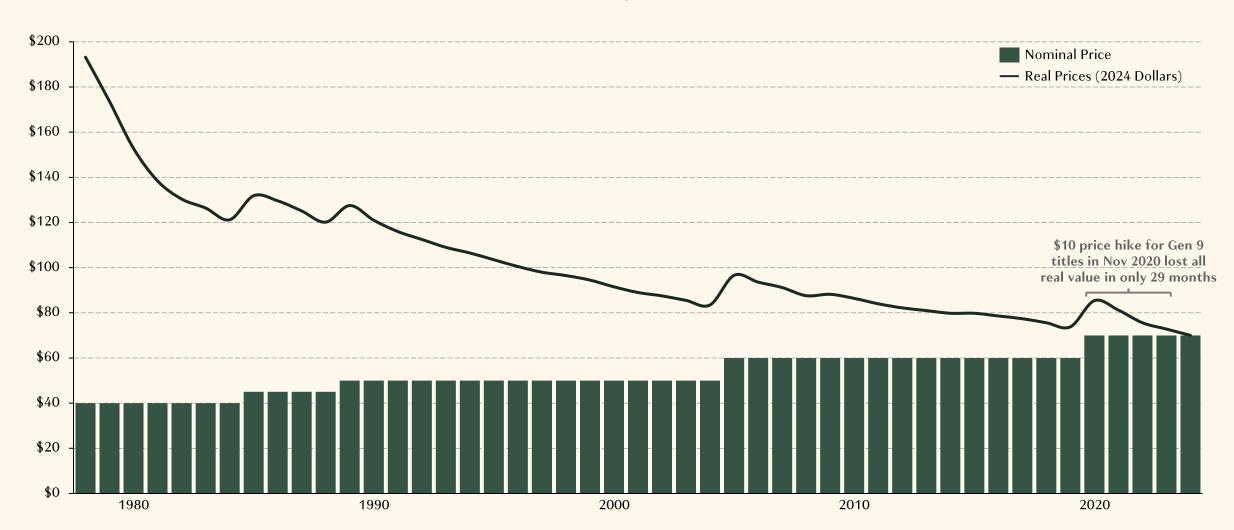
The Hostility of the Modern Console/PC Content Marketplace

How Player, Playtime, and Player Spend Might Return to Growth

Without many new players, Console/PC growth relies on pricing — yet publishers struggle to keep them. Each decade, packaged prices fall 10–20% in real terms



Standard U.S. Prices for Packaged Video Games, Initial Release



In 1992, Mortal Kombat, NBA, and Street Fighter each cost \$70, Mario Paint \$60, Spider-Man and Monopoly \$55. In 2024 prices, they would be \$157, \$134, and \$123



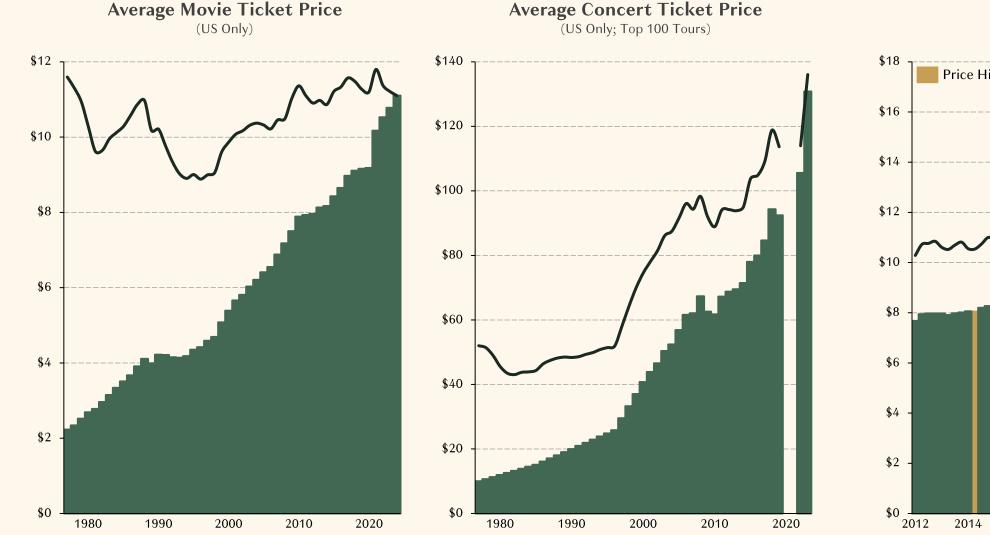
1992 U.S. Toys 'R' Us Ad with Nominal and Inflation-Adjusted Prices

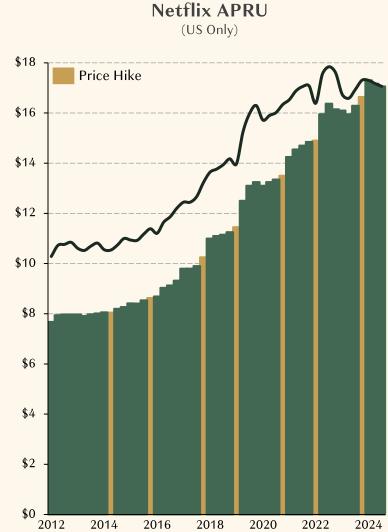




In nearly all media categories, consumers expect (and digest) annual inflation adjustments. Several categories have massively *increased* real pricing over time





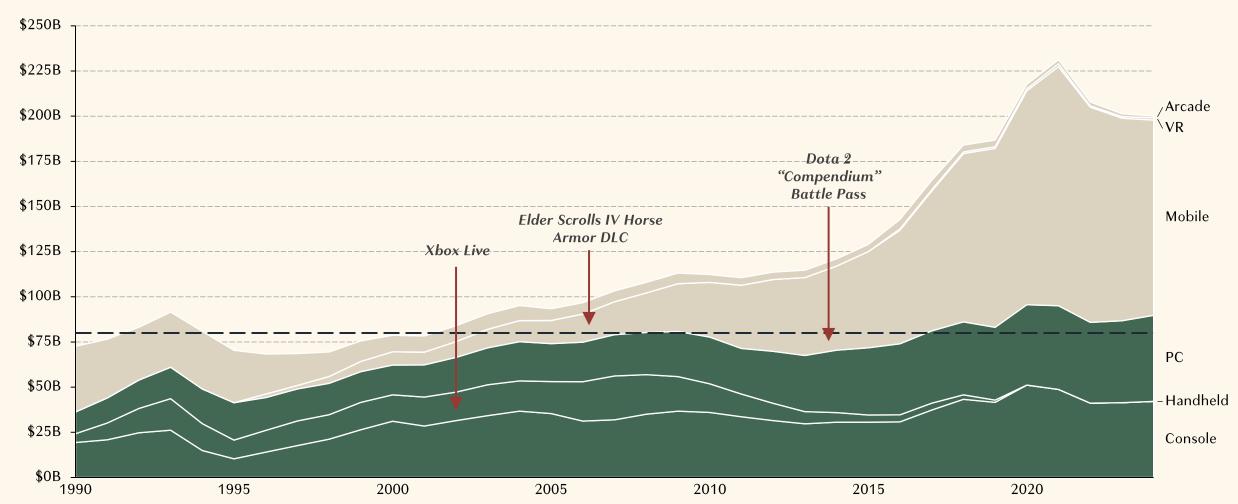


Packaged prices matter less given DLC/MTX/Live Services, which raise the spend ceiling. Yet *real* spending has grown only modestly despite these innovations



Worldwide Consumer Real Spending on Video Game Content

(2024 Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



There are a few explanations for video gaming's inability to maintain inflationadjusted prices, let alone grow them — and many are unique to the category



Challenge #1:
Anchored Expectations

After forty years with \$10 increases every other generation (~15 years), game prices (and customer expectations for them) are quite "sticky" and heavily scrutinized.

Challenge #2: Grey Market & Piracy Publishers lose billions annually in private game trades, sales, and piracy – and know that any price hike on packaged sales will spark more of this behavior, thereby cannibalizing the benefit of the price hike

Challenge #3: Free-to-Play Dynamics

The most popular and profitable games globally are typically free-to-play. This makes it difficult for rival games to push up pricing, while reducing the incentives of the market leaders (which have the most pricing power) to do the same. FTP also constrains consumer perceptions on what a great game should cost

Challenge #4:
Maximizing DLC Funnels

DLC tends to have far better economics than the "base game," but requires upfront sales first. As such, publishers are reluctant to hike the "base games" price. Yet the price of DLC, which tends to offer fewer player hours than the base game, is also affected by the price of the base game

Challenge #5: Sale-Only Buyers Reports suggest that between 33-50% AAA gamers (skewing to PC gamers) wait until games are on sale before purchasing, offsetting the benefit of price increases and constraining value perceptions

Challenge #6: Strategic Underpricing While movies, albums, books, TV series, et al, do not have variable pricing by title or budget, many games do release at \$20-50 (versus \$60-70) to help drive sales, which again constrains the size of the market

The AA/AAA segment's player, playtime, and pricing struggles are a surprise. Who wouldn't have bet on high-fidelity gaming if they'd seen the games of 2024 in 1994?



WATCH: https://tinyurl.com/StateofVideoGaming2025-Matrix

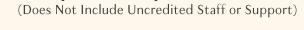
Unfortunately, improvements in game fidelity, scale, and capability have led to a massive increase in the resources required to build such a game

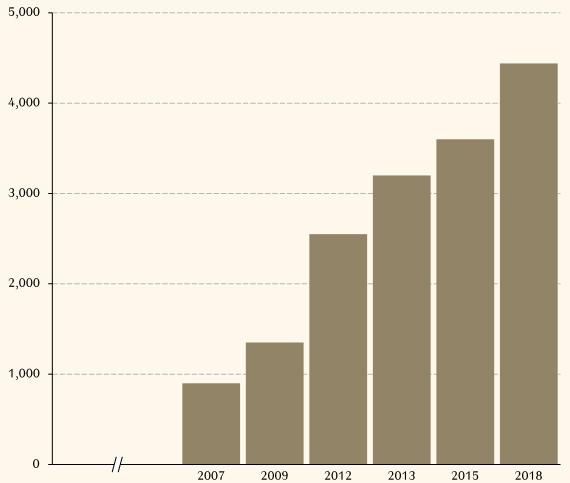


Avg. Filesize per AAA Open World Action Game



Avg. Credits per AAA Open World Action Game



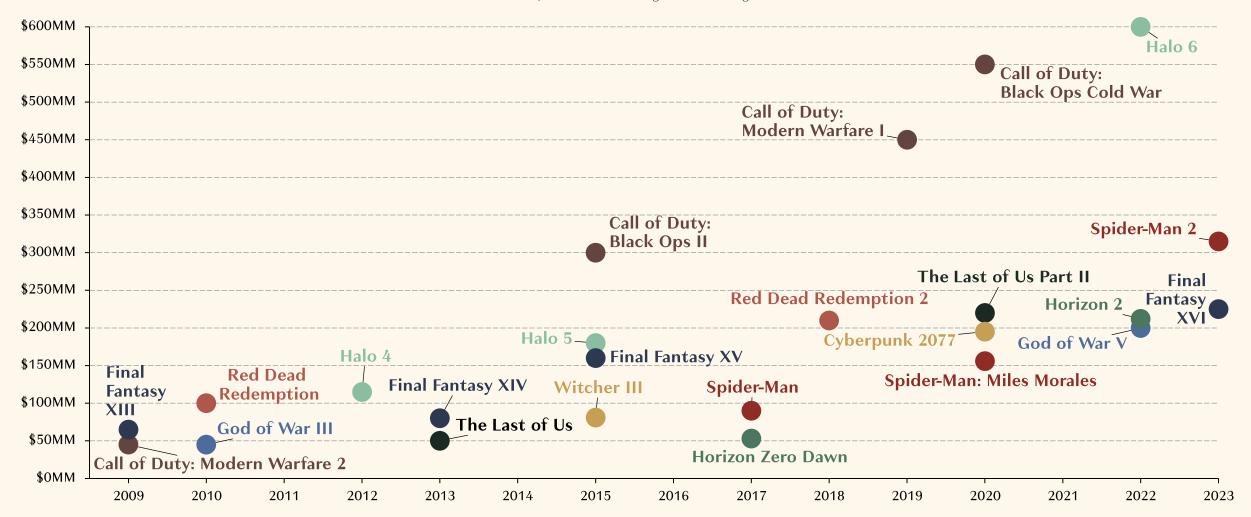


Franchises that cost \$50 million per title only 15 years ago, now run \$200-\$500 million or more to develop — and costs are still growing



Confirmed and Independently Reported Production Budgets for Select Franchise Releases, Excluding Live Service Content/Support

(USD, Excludes Marketing and Publishing Costs)



Inflation also hit 20+ year highs and surged at a pace not seen in 40+ years, leading to unanticipated debt costs and COLAs that have grown budgets another 10%+





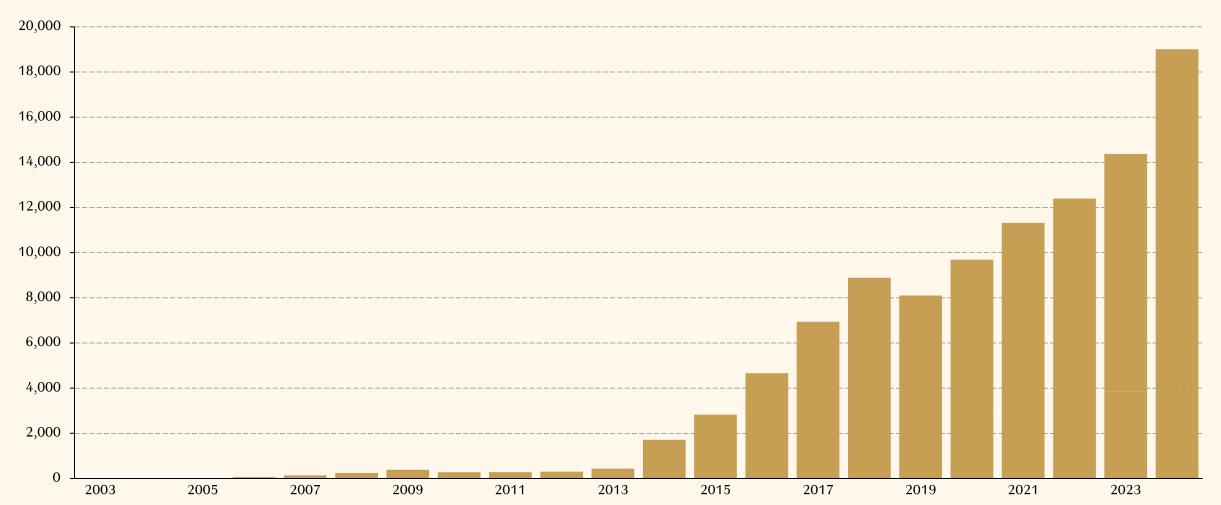
(Monthly Average)



What else has grown far faster than gamers or spend? The supply of games. In 2024, Steam released nearly as many games per *month* as it did in 2014 *overall*

Steam Game Releases by Year

(Released in At Least One Market)



And new releases compete not just against other new releases, but nearly all of the 100,000+ games *ever* released — a sum that has doubled in the last four years



Steam Game Releases by Year

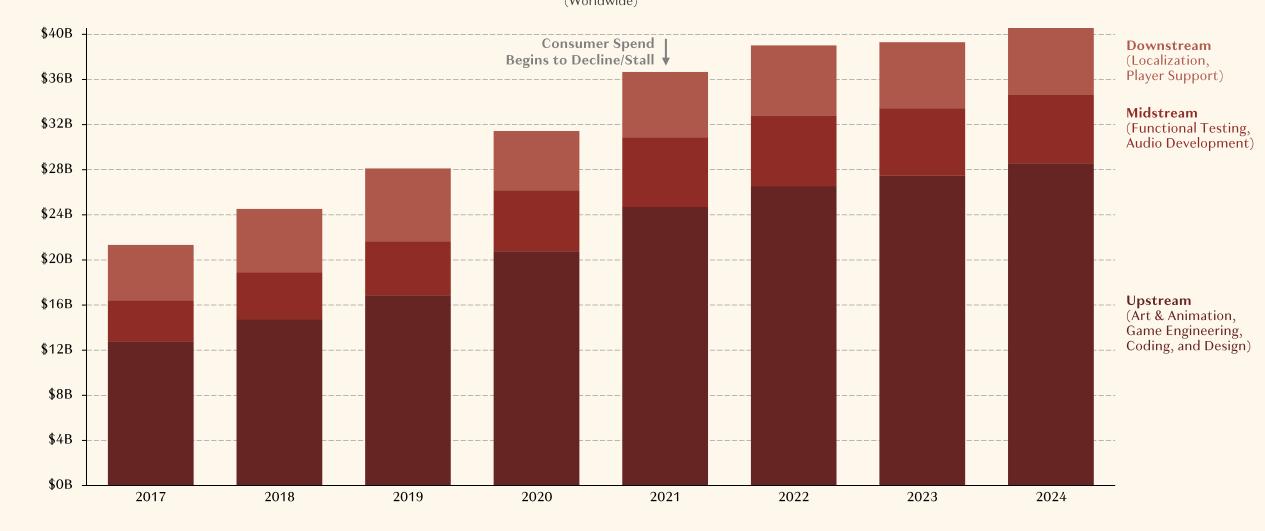
(Released in At Least One Market)



In total, industry-wide content development spend has surged 90% since 2017 — 1.6x the rate of consumer spend growth (and 2.1x that of Console/PC)



Total Video Game Content Development Spend (Worldwide)



With higher budgets and more competition, yet few new players, dollars, or hours, competition has become more zero-sum than ever — and break-evens even rarer



Major Packaged AAA Video Game Releases Targeting Roughly the Same Player



And of course, new releases exist in a market where many of the top games release annual or even quarterly updates



Major Packaged AAA Video Game Releases Targeting Roughly the Same Player, Including Top Annual Releases and DLC/Updates



And the top games in a given year? Well, they're almost always the top games in any given year



Best-Selling Packaged Games by Year by Packaged Sale Revenues

(US Only; Excludes Revenues From DLC and Microtransactions

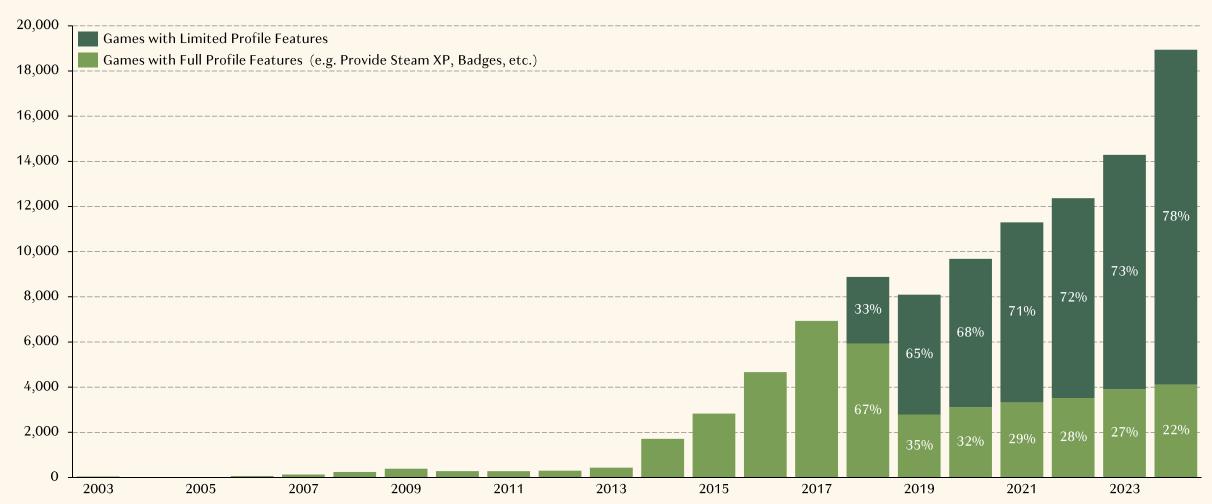
<u>Rank</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>2024</u>
1	Call of Duty: Modern Warfare 3	Call of Duty: Black Ops II	Grand Theft Auto V	Call of Duty: Advanced Warfare	Call of Duty: Black Ops III	Call of Duty: Infinite Warfare	Call of Duty: WWII	Red Dead Redemption II	Call of Duty: Modern Warfare	Call of Duty: Black Ops: Cold War	Call of Duty: Vanguard	Call of Duty: Modern Warfare 2	Hogwarts Legacy	Call of Duty: Black Ops 6
2	The Elder Scrolls V: Skyrim	Halo 4	Call of Duty: Ghosts	Destiny	Fallout 4	Battlefield 1	NBA 2K18	Call of Duty: Black Ops 4	NBA 2K20	Call of Duty: Modern Warfare	NBA 2K22	Elden Ring	Call of Duty: Modern Warfare III	EA Sports College Football 25
3	Madden NFL 12	Madden NFL 13	Madden NFL 25: 1989 – 2014	Grand Theft Auto V	Grand Theft Auto V	Tom Clancy's The Division	Destiny 2	NBA 2K19	Madden NFL 20	NBA 2K21	Call of Duty: Black Ops: Cold War	NBA 2K23	Madden NFL 24	Helldivers II
4	Battlefield 3	Assassin's Creed III	Battlefield 4	Madden NFL 15	Star Wars: Battlefront	NBA 2K17	Madden NFL 18	Super Smash Bros. Ultimate	Pokémon: Sword/Shield	Animal Crossing: New Horizons	Madden NFL 22	Madden NFL 23	Marvel's Spider- Man 2	Dragon Ball: Sparkling! Zero
5	Call of Duty: Black Ops	Borderlands 2	Assassin's Creed IV: Black Flag	Watch Dogs	Madden NFL 16	Madden NFL 17	Legend of Zelda: Breath of the Wild	Madden NFL 19	Borderlands 3	Madden NFL 21	Pokémon: Brilliant Diamond /Shining Pearl	God of War: Ragnarök	NBA 2K24	NBA 2K25
6	Just Dance 3	NBA 2K13	NBA 2K14	NBA 2K15	NBA 2K16	Grand Theft Auto V	Grand Theft Auto V	Marvel's Spider- Man	Mortal Kombat	Assassin's Creed: Valhalla	Battlefield 2042	LEGO Star Wars: The Skywalker Saga	The Legend of Zelda: Tears of the Kingdom	Madden NFL 25
7	Gears of War 3	Call of Duty: Modern Warfare 3	Call of Duty: Black Ops II	Super Smash Bros.	Mortal Kombat X	Pokémon: Sun/Moon	Tom Clancy's Ghost Recon: Wildlands	Far Cry 5	Star Wars: Jedi: Fallen Order	The Last of Us: Part II	Marvel's Spider- Man: Miles Morales	Pokémon: Scarlet/Violet	Diablo IV	Call of Duty III: Modern Warfare III
8	Batman: Arkham City	Just Dance 4	Pokémon X/Y	Titanfall	Destiny	Overwatch	Star Wars: Battlefront II	God of War	Super Smash Bros. Ultimate	Grand Theft Auto V	Mario Kart 8	FIFA 23	Call of Duty: Modern Warfare 2	EA Sports FC 25
9	Pokémon Black/White	Mass Effect 3	Disney Infinity	FIFA 15	Halo 5: Guardians	The Elder Scrolls V: Skyrim	Super Mario Odyssey	Monster Hunter: World	Kingdom Hearts III	Ghost of Tsushima	Grand Theft Auto V	Pokémon Legends: Arceus	Mortal Kombat 1	Elden Ring
10	Assassin's Creed: Revelations	Skylanders: Giants	Bioshock: Infinite	Minecraft	Batman: Arkham Knight	Call of Duty: Black Ops III	Mario Kart 8	hon: Let's Go	Tom Clancy's The Division 2	Doom Eternal	Resident Evil: Village	Horizon II: Forbidden West	Star Wars: Jedi: Survivor	EA Sports MVP Bundle
11	Mortal Kombat	The Elder Scrolls V: Skyrim	FIFA 14	Far Cry 4	Battlefield: Hardline	FIFA 17	Assassin's Creed: Origins	Grand Theft Auto V	Mario Kart 8	Mario Kart 8	MLB: The Show 21	Grand Theft Auto V	EA Sports FC 24	Hogwarts Legacy
12	NBA 2K12	FIFA Soccer 13	Skylanders: Swap Force	Call of Duty: Ghosts	FIFA 16	Final Fantasy XV	FIFA 18	Assassin's Creed: Odyssey	Grand Theft Auto V	Super Mario 3D All-Stars	Far Cry 6	WWE 2K22	Starfield	Dragon's Dogma II

Steam is best-in-class for game discovery. Still, 80% of 2024's 19,000 releases didn't qualify for Steam's full social feature functionality (~\$5K in sales in 2024)



Steam Game Releases by Year

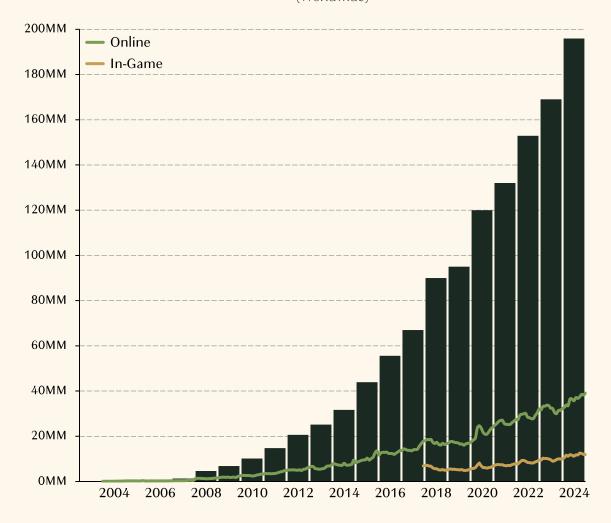
(Released in At Least One Market)



In fact, 150 fewer Steam new releases grossed >\$100,000 in 2024 than in 2016 — even though users are up 250%, new releases over 300%, and user spend up 200%

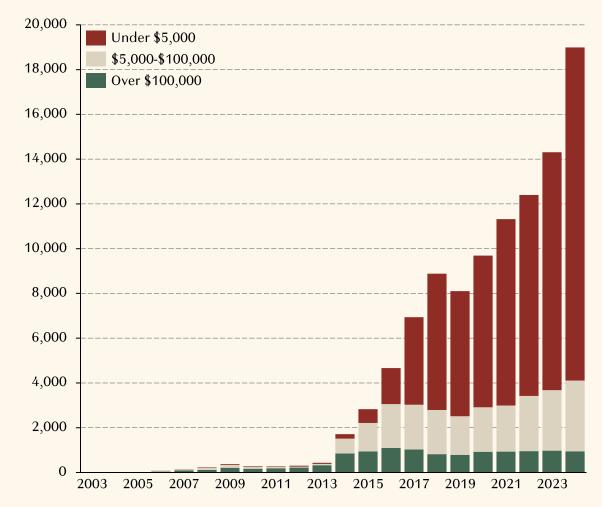


Estimated Steam MAUs and Peak CCUs by Month (Worldwide)



Steam Game Release by Year, First Year Sales

(Released in At Least One Market, Includes Microtransactions)

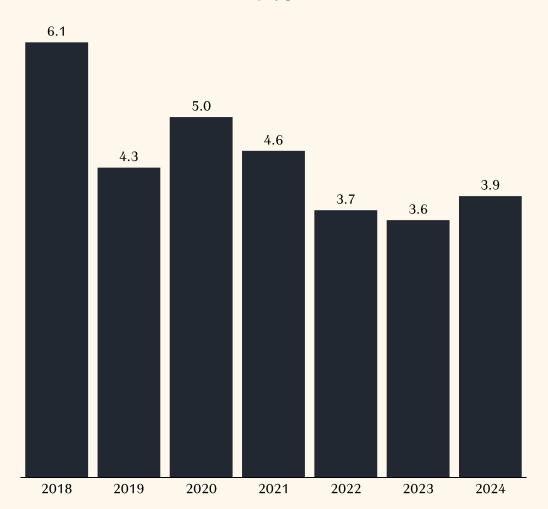


Overall game discovery has declined as Steam's player base and library grew. Game buys per user per year, as well as played per user, are at or near recorded lows

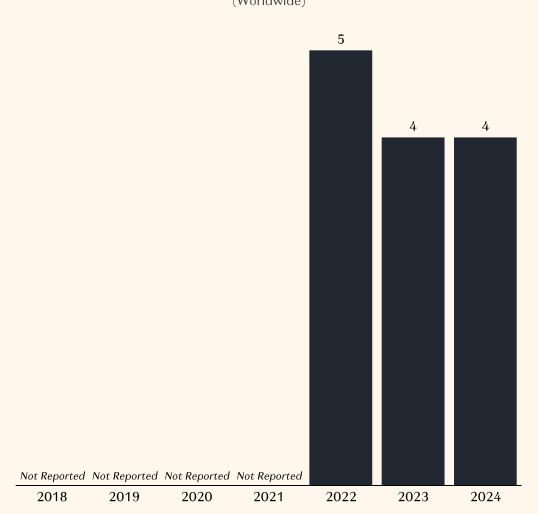


Steam Games Bought or Installed per MAU per Year

(Worldwide; Includes free-to-play games launched at least once)



Median Games Played per Steam MAU (Worldwide)

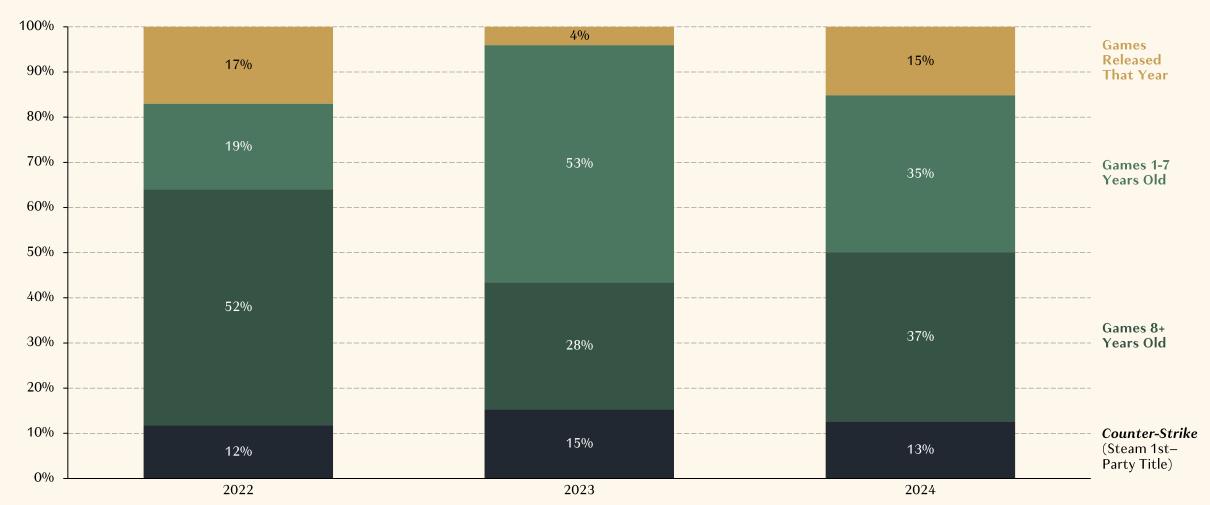


On Steam, 3rd-party games that are 8+ years old have 40% of total playtime and Counter-Strike takes another 13%; the 12-19,000 new releases get only 12%



Share of Total Steam Playtime by Year

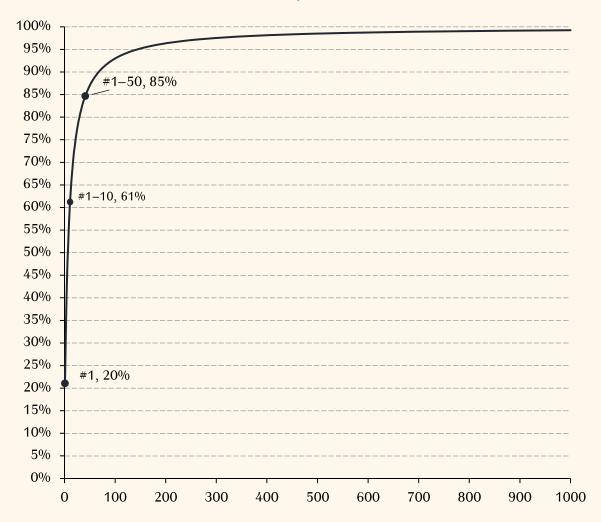
(Titles Released in At Least One Market)



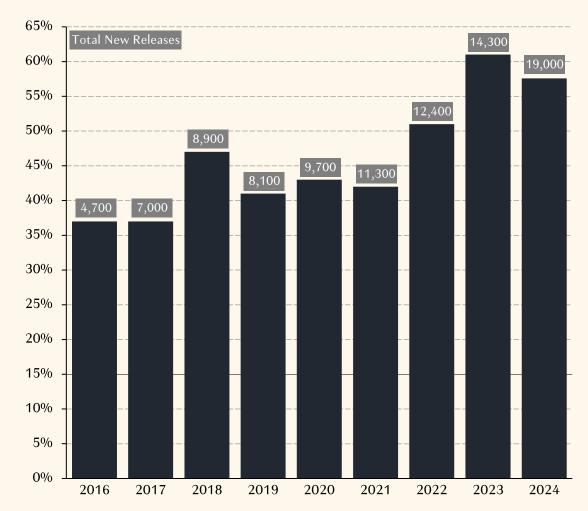
And among the thousands of annual releases fighting for 12% of playtime, #1 gets 20% of sales and #1–10 take 60% (a share that has grown even as output swelled)



Share of Total New Game Sales on Steam, Top N Releases (2023; Worldwide)



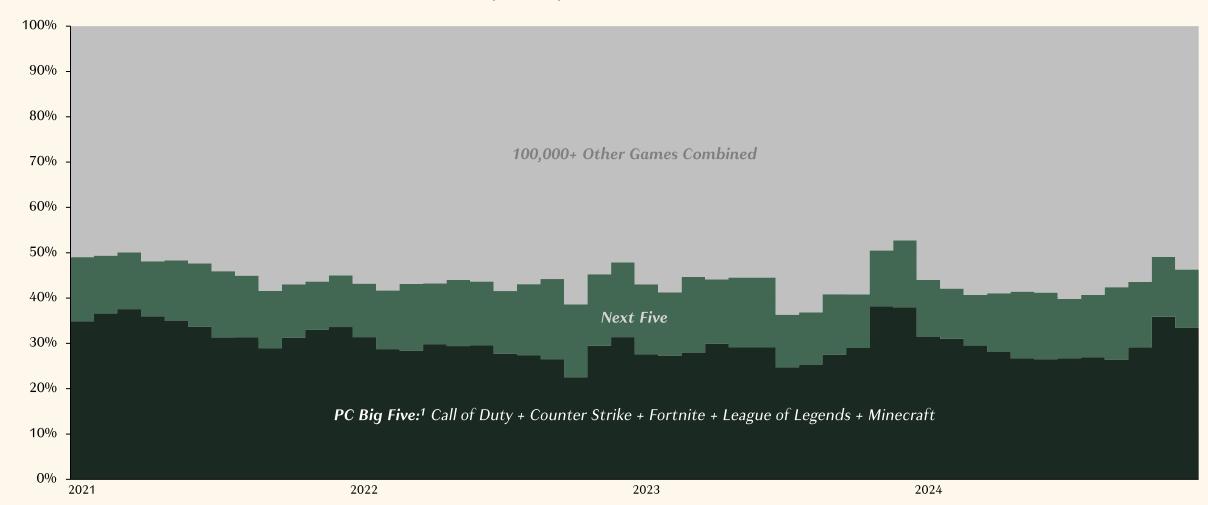
Share of Total New Game Sales on Steam, Top 10 Releases (Worldwide)



Altogether, the same five franchises on PC (franchises which are 6–22 years old) have averaged 30% of playtime for over 48 months straight



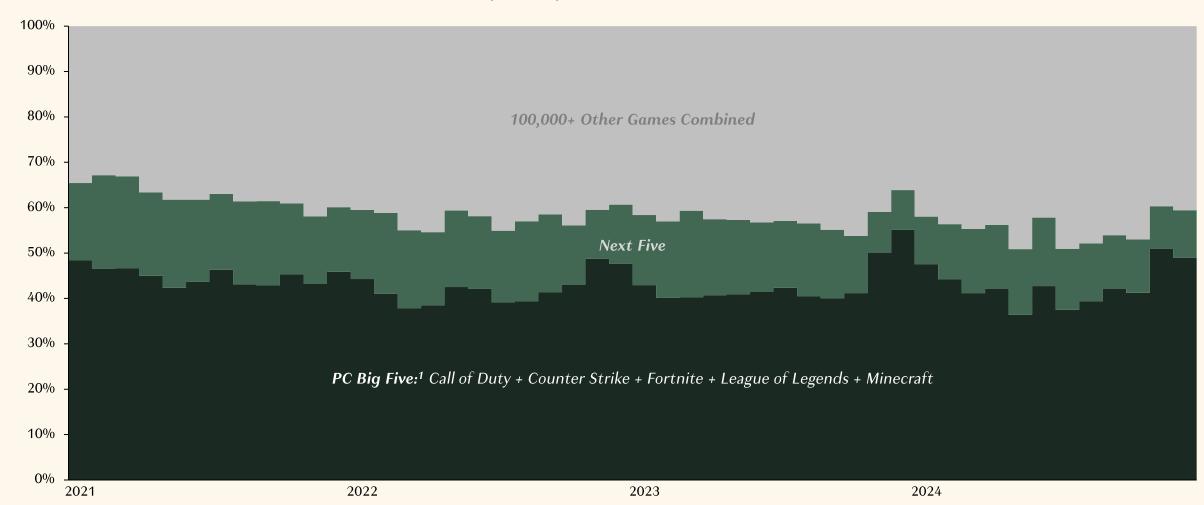
Share of PC Engagement



On PlayStation and Xbox, the concentration of engagement is even greater: The same five titles (7–31 years old) have averaged 43% for 48+ months



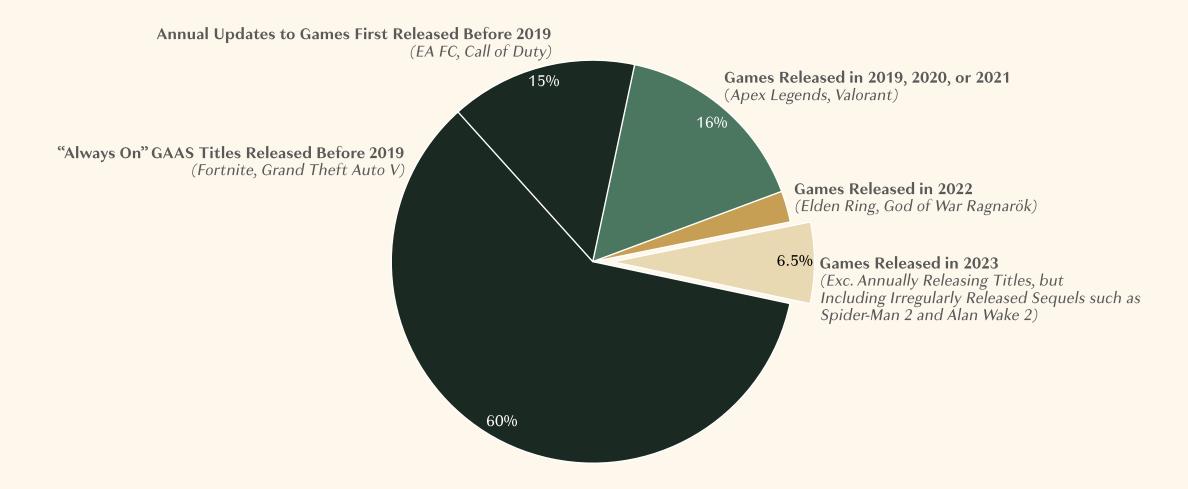
Share of PC Engagement



Excluding annual releases (NBA 2K) but including sequels (Spider-Man 2), only 6.5% of gametime in 2023 was for new games (a share that was high vs. 2021, 2022, 2024)



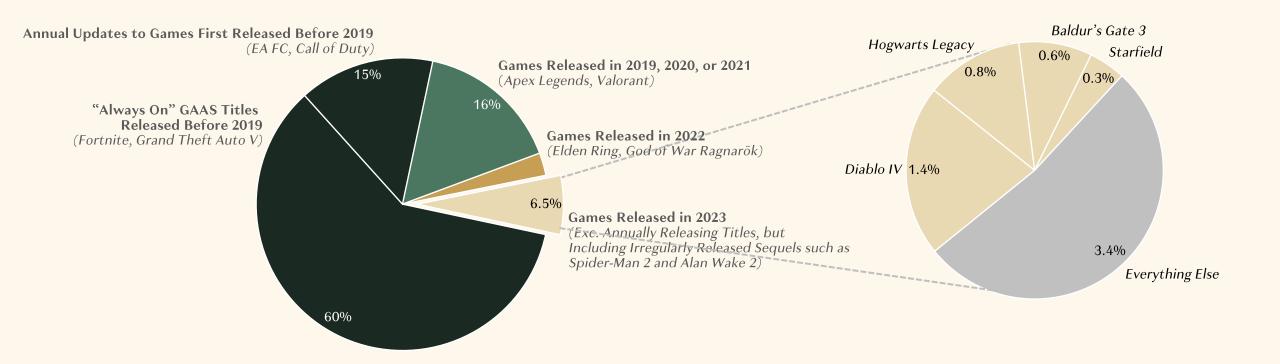
Share of Time Spent Playing PC and PlayStation/Xbox Games in 2023



Tens of billions in development and marketing investment and thousands of games competed for that 6.5% of total player hours (and four titles won half of it)



Share of Time Spent Playing PC and PlayStation/Xbox Games in 2023

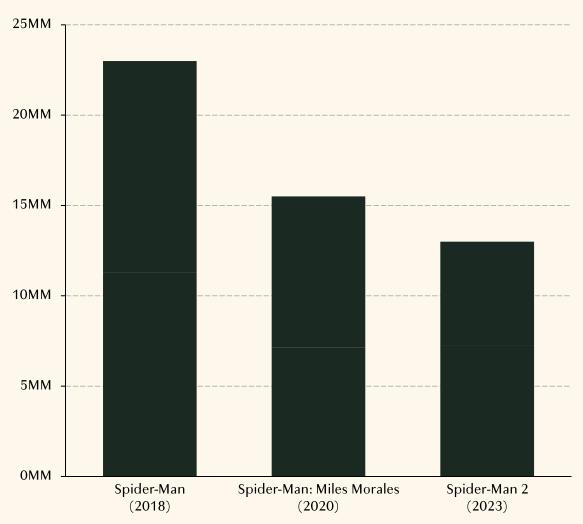


As supply grows but players stay stuck in top titles, even the best franchises often face falling sales but higher budgets across successive releases



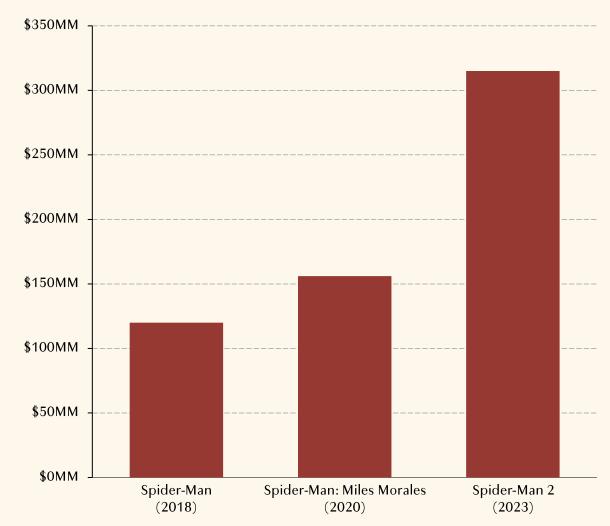


(Worldwide; Earlier Releases Benefit from More Years Available For Sale)



Production Budget for Insomniac's Spider-Man Series

(USD; Nominal Prices)

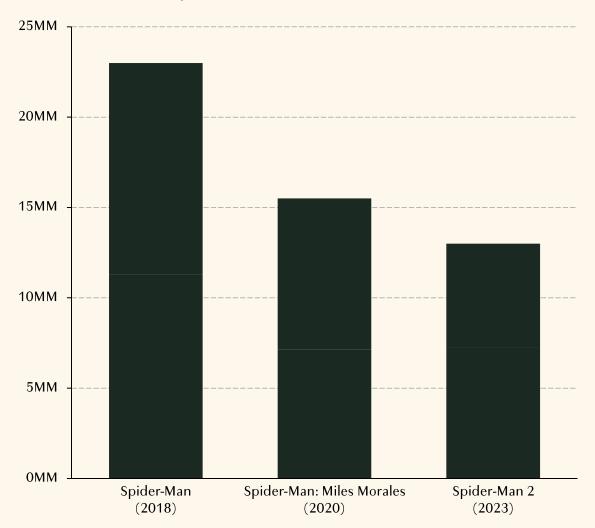


It's easy to argue that sequel budgets should be lower given the uncertainty of matching, let alone growing, the sales of the prior entry...



Life-to-Date Unit Sales for Insomniac's Spider-Man Series

(Worldwide; Earlier Releases Benefit from More Years Available For Sale)

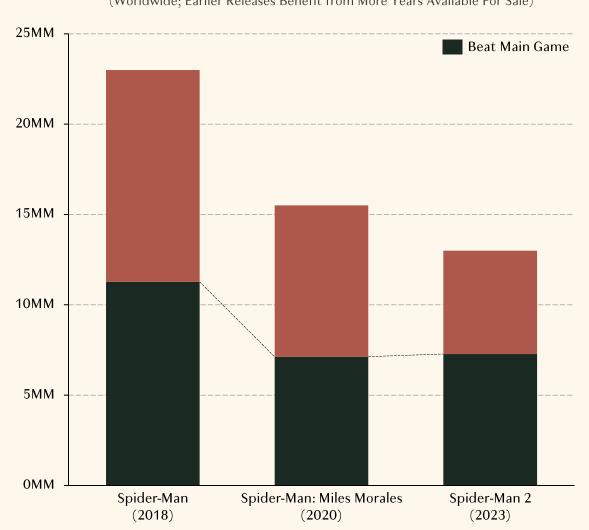




...But it's not easy to convince those who skipped or didn't finish a game to spend \$70 on a sequel — or earn another \$70 and 25 hours from those who did



Life-to-Date Unit Sales for Insomniac's Spider-Man Series (Worldwide; Earlier Releases Benefit from More Years Available For Sale)

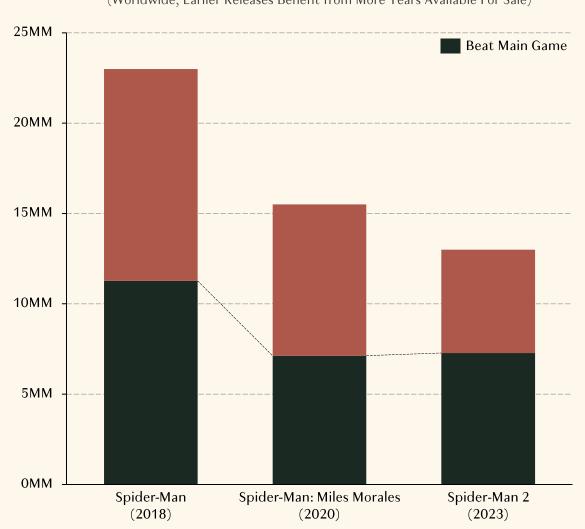


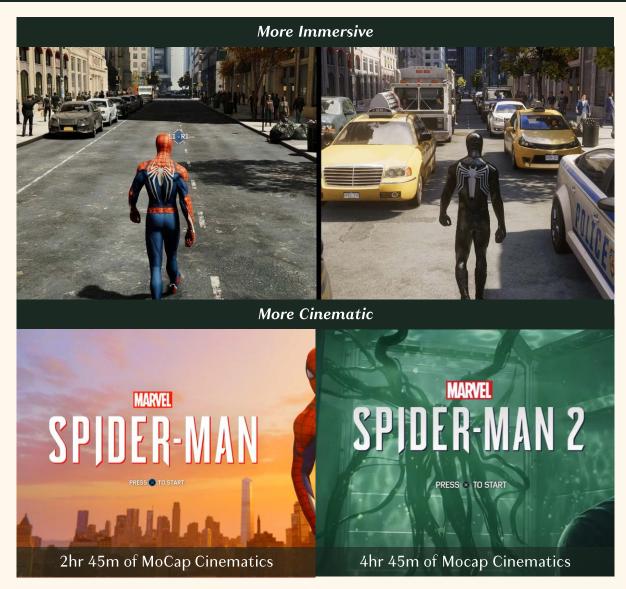


...And building a richer, deeper, and more expansive game is a natural response to a market that competes for increasingly scarce players, time, and spend



Life-to-Date Unit Sales for Insomniac's Spider-Man Series (Worldwide; Earlier Releases Benefit from More Years Available For Sale)



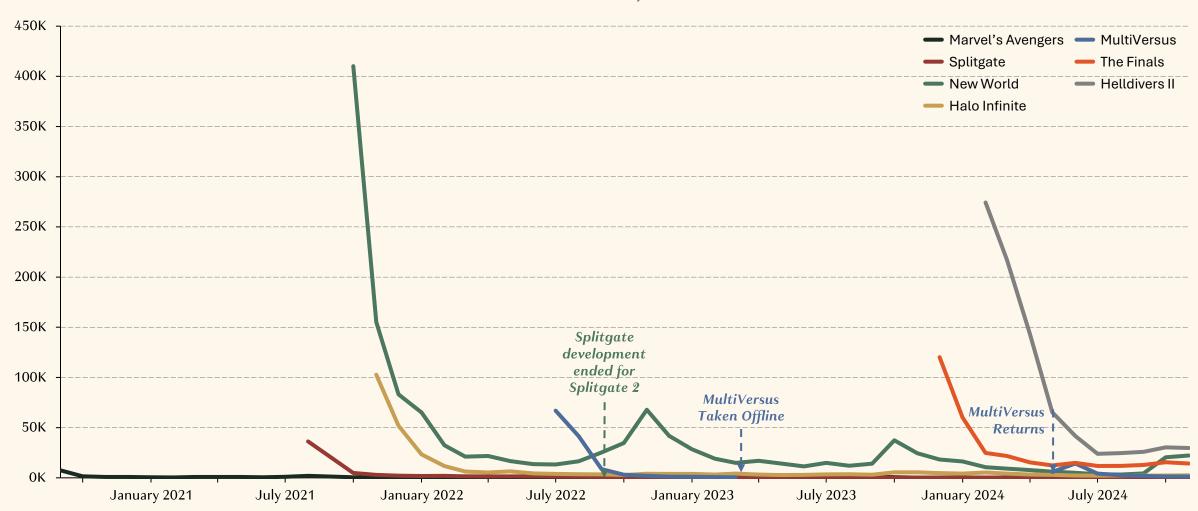


And to endure, live services titles need to *replace* a user's existing weekly-to-daily habit — which makes a feature/content-light launch an even greater challenge



Average Concurrent Players on Steam by Month

(Not All Titles Have the Same Player Concentration on Steam)

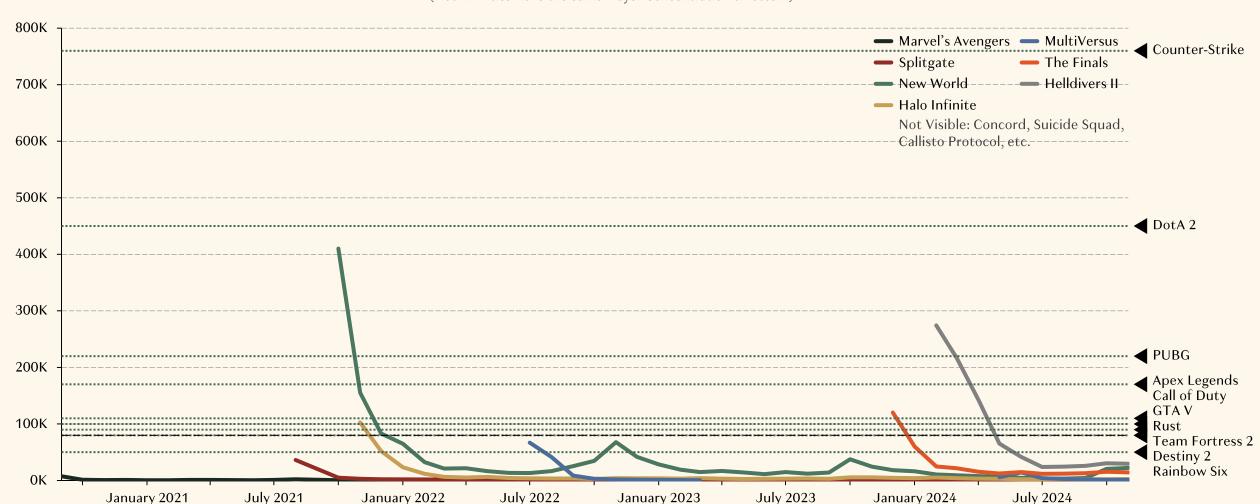


Even at their cultural peak, many would-be GAAS leaders have fewer players than many long-running GAAS leaders averaged over four-plus years



Average Concurrent Players on Steam by Month

(Not All Titles Have the Same Player Concentration on Steam)



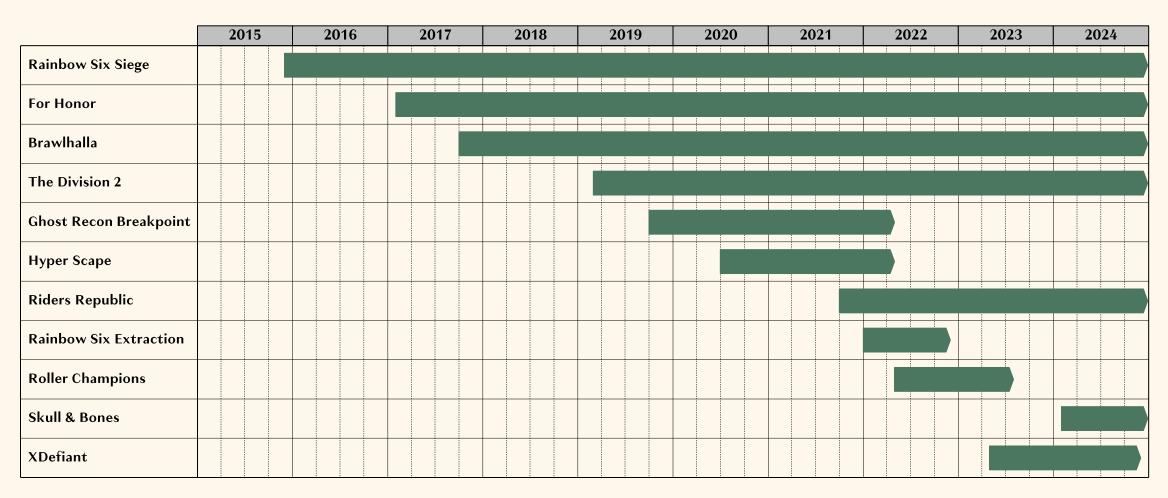
Source: Steam Charts

Faced with rising costs of operation, shrinking playerbases, and powerful competitors, new live service titles are forced to call it quits earlier than ever



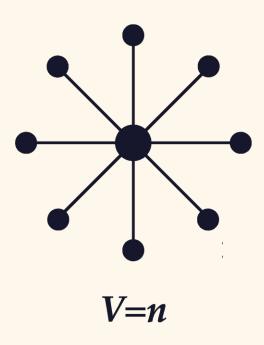
Ongoing Development Timeline for Ubisoft Live Services Titles

(Launches Since Q4 2015)

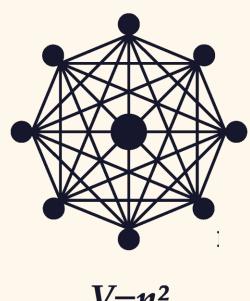




Sarnoff's Law

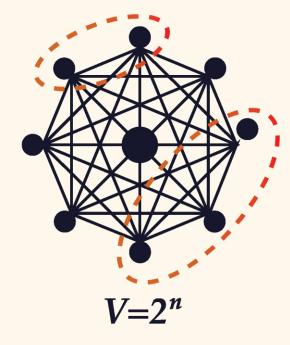


Metcalfe's Law



 $V=n^2$

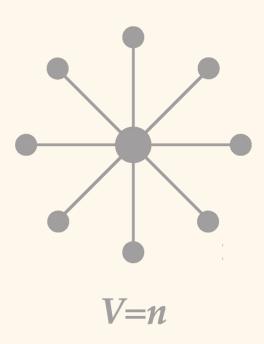
Reed's Law



Reed's Law observes network strength from not just network size, but also group and sub-group formation. An A+ game that lacks a player's squad is no A+ game.



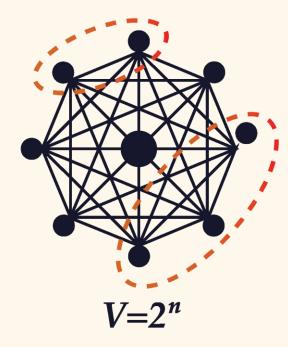
Sarnoff's Law



Metcalfe's Law

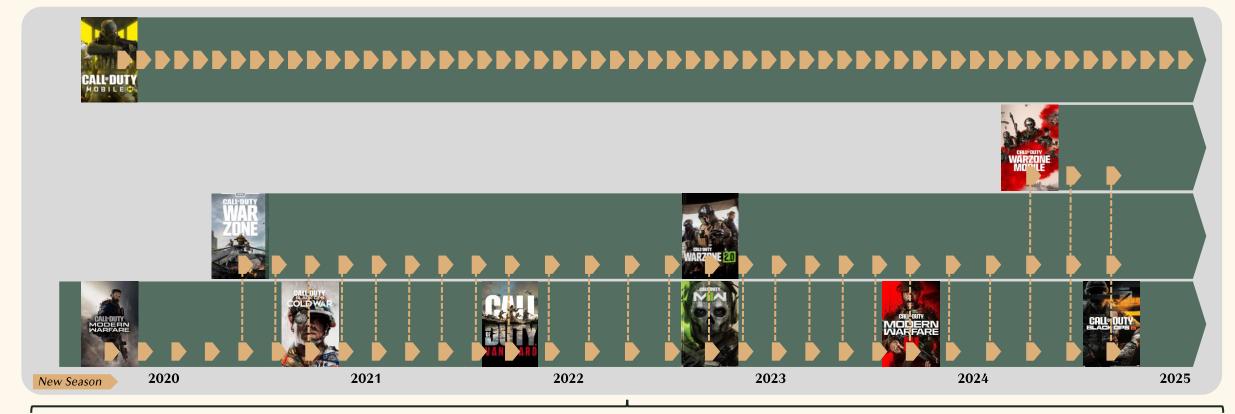


Reed's Law



To stay fun, sticky, and broadly appealing, market leaders also marshal unprecedented investments into their (constantly-refreshed) titles





3,000+ People Across 15+ Activision-Owned Studios & Units























... And these top titles are typically highly and reliably profitable.

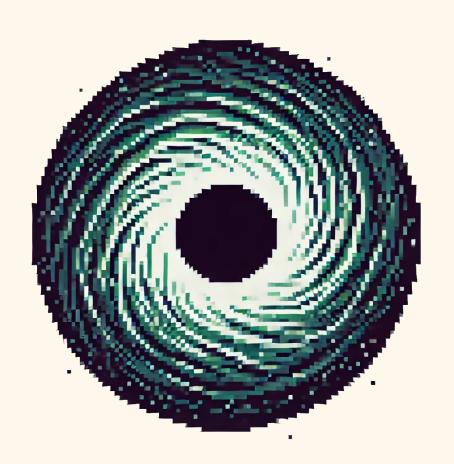


Activision P&L
(Worldwide; Segment-Specific Results; Effectively just Call of Duty)



"Black Hole Games" refers to a phenomenon whereby a massive franchise title has such a hold on players that it's nearly impossible for a new game to pull them away





To compete with a Black Hole game, a would-be competitor must offer an experience that can overcome a player's...

- 1. Hundreds or thousands of hours achieving skill mastery (and comfort)
 - 800MM+ Fortnite players have probably spent 125B+ hours playing the game
- 2. <u>Hundreds or thousands of dollars in purchased entitlements (avatars, outfits, items, skins, etc.)</u>, and much more in earned entitlements
 - Fortnite players have probably spent \$30B on cosmetics and items, much of which is on licensed IP (e.g. Star Wars, Marvel, John Wick, Neymar) that is not available in any other game
- 3. <u>Hundreds of millions (or billions) of player connections and playmates, only a fraction of which will be on another game</u>
 - Epic counts over 6 billion player connections across Fortnite, Rocket League, and Epic Games Store
- 4. <u>Hundreds of millions of hours and investment dollars (if not billions) in ecosystem development</u>
 - Creators have launched over 150,000 UEFN games on Fortnite, with Epic paying \$500MM to these creators since March 2023
- 5. <u>Confidence that their scarce time, money, effort, and social signaling will be durably rewarded</u>



So, What's Going On... In a Sentence?



So, What's Going On... In a Sentence?

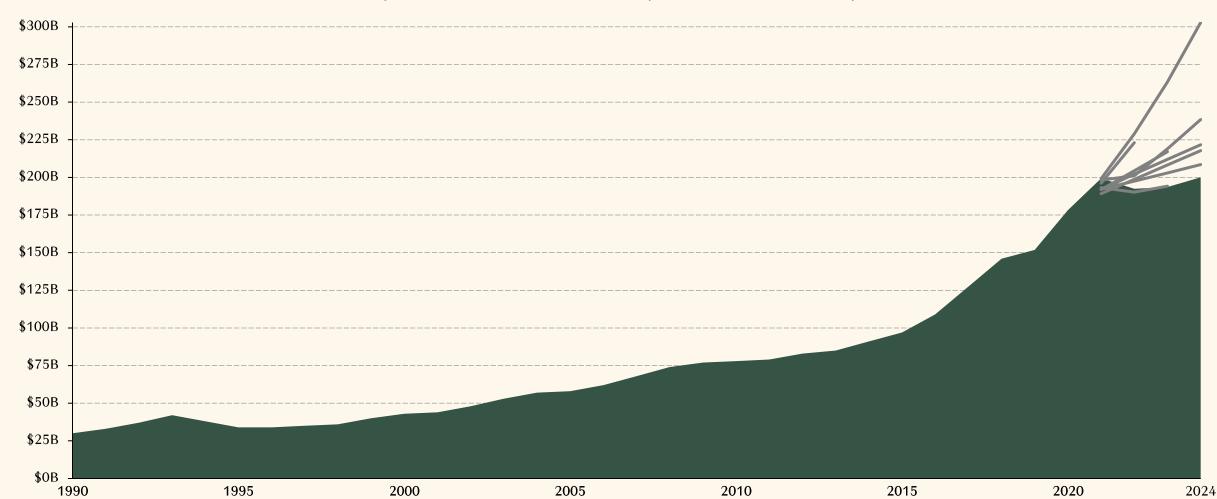
The exhaustion of decade-plus growth drivers that grew players, playtime, and spend... coincided with evolving user behaviors, changing monetization models, and growing "lock-in" effects... that exacerbated long-running competitive and budgetary escalations... while growth concentrated in foreign markets that shifted to local productions (and then took share abroad)... and occurred alongside acute macroeconomic financial events and epidemics... were worsened by microeconomic platform policy shifts... as well as the emergence of new and hyper-viral substitutes... and foreign-based competition... alongside too many would-be new growth drivers that have yet to deliver growth

This confluence of factors explains why the market stagnated, not just fell so very short of external and (not publicly available) internal forecasts



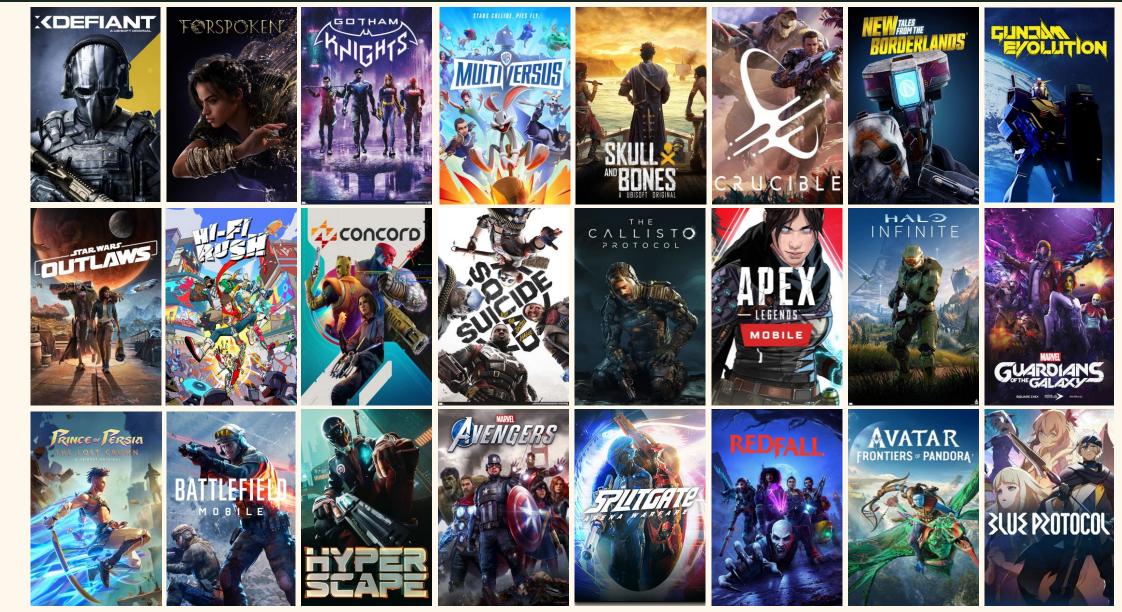
Worldwide Consumer Spending on Video Game Content, Plus Select External Forecasts For Growth¹

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



...And why so many titles have missed internal expectations (or even their production costs)





...And why so many gamemakers re-evaluated their development pipelines and, more often than not, cancelled scores of titles to instead refocus on existing hits



Naughty Dog cancels its The Last of Us multiplayer game

The Last of Us Online scrapped after years of development

Take-Two says cancelled games weren't 'core franchise' titles

THE PUBLISHER'S RELEASE SLATE HAS DROPPED BY 12 TITLES, FOLLOWING GAME CANCELLATIONS

Take-Two sells Private Division and almost all its games

New *Deus Ex* Game Reportedly Canceled By *That* Gaming Company

Swedish holdings company Embracer Group has seemingly canceled an in-development *Deus Ex* game at Eidos-Montréal

Bandai Namco Reveals It Canceled at Least Five In-Development Games

11 Bit Studios lays off unknown number of staff, cancels Project 8 console game

Studio president said title was "conceived under very different market conditions"

Bungie's Canceled Project Payback Was A Third-Person Spinoff Set In Destiny Universe

The project was canceled two months ago, with most of Bungie now reportedly working on Marathon.

People Can Fly lays off more than 120 employees as it cuts back on in-development games: 'We need to tailor our plans to our financial capacity'

Epic says Fortnite's Rocket Racing is ending 'themed updates'

THE PSYONIX-DEVELOPED GAME LAUNCHED LESS THAN A YEAR AGO

Ubisoft Cancels The Division Heartland

The company will move resources to "bigger opportunities" such as XDefiant and Rainbow Six

Microsoft Cancels New Blizzard Video Game After Six Years of Development

Paradox cancels life sim Life by You, CEO says they gave the studio 'a fair shot' but now 'believe it is better to stop'

Paradox says "the road leading to a release that we felt confident about was far too long and uncertain" to continue.

Sony cancels two live service projects including God of War title

Niantic lays off 230 employees, cancels NBA and Marvel games

EA Cancels Respawn *Star Wars* Shooter Amid Mass Layoff

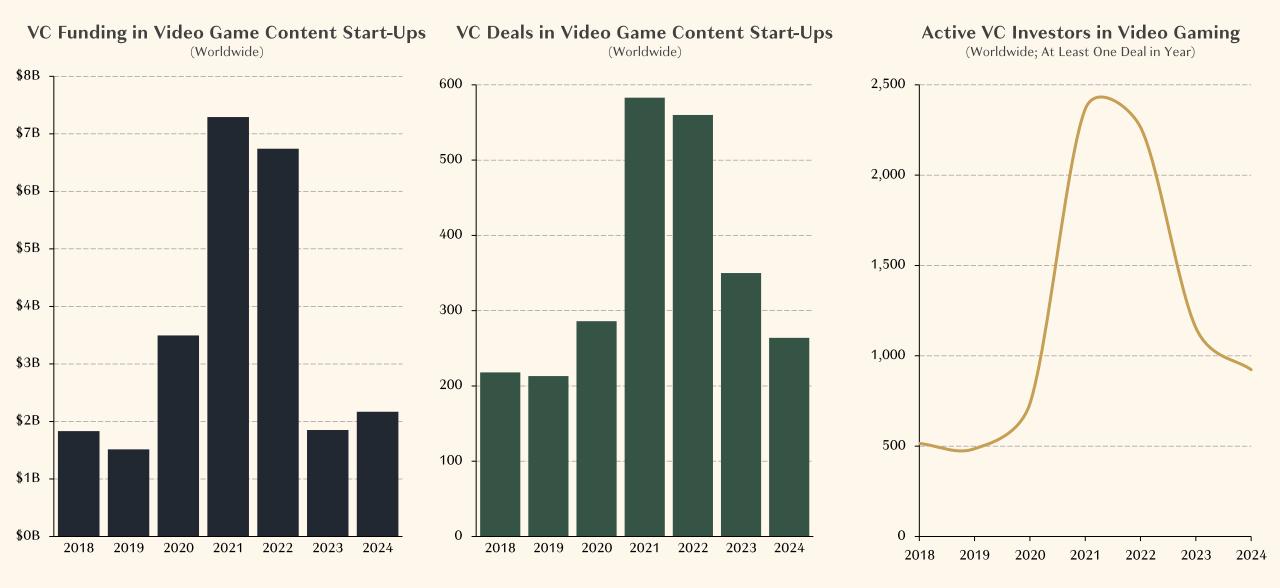
The game was announced in 2022 as part of a larger partnership between EA and Lucasfilm

Battlefield Mobile Canceled To Better Deliver On "Vision" For The Franchise

XDefiant Is Being Shut Down, Developer Closed

...And why venture capitalists have retreated to 2018–2019 investment levels, even though worldwide spend is up 34% or \$51B





...Why PlayStation, a platform with 100MM MAU and \$30B in revenue, has seen revenues grow 67% since 2019 but profits fall by 6% (and to a 7% income margin)







PlayStation Operating Income Margin

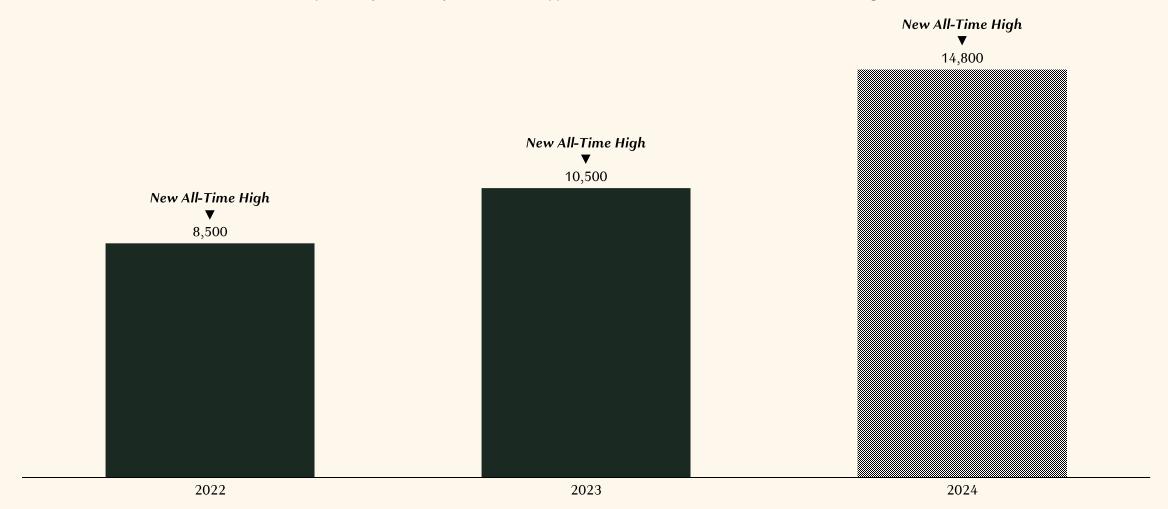


...And employees suffered three straight years of record layoffs — 35,000 total before counting unreported layoffs and those without specified headcount



Annual Gross Reported Layoffs in the Video Game Industry

(Excludes Unreported Layoffs and Layoffs Where the Approximate Headcount Is Not Known; Not Net of Hiring)



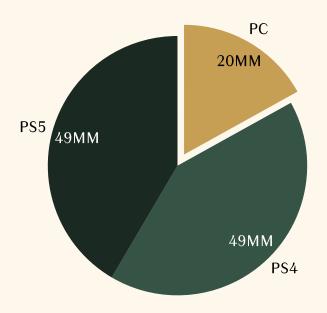
...Prompting nearly every platform and publisher to start "aggressively" pursuing customers on every channel

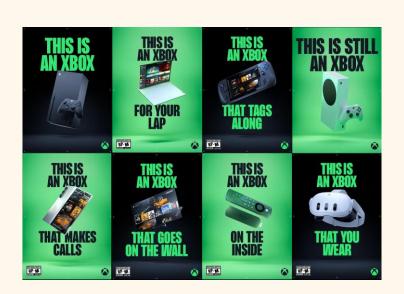


2024 PlayStation Network MAUs
(April 2024)

2024 Xbox Platform Strategy

2024 Square Enix Content Strategy





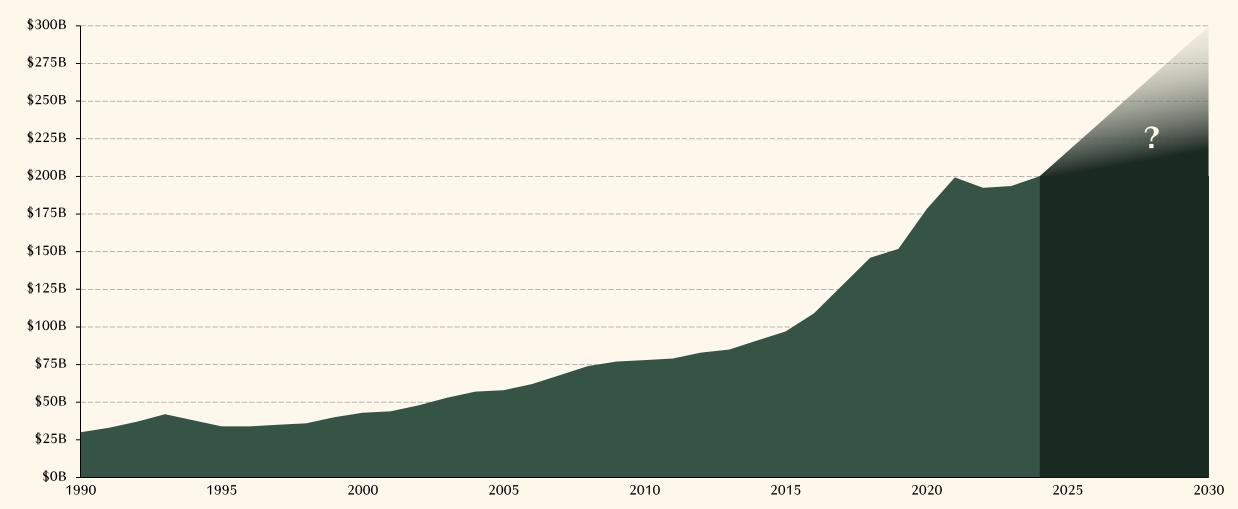


But how can the video game industry return to growth, rather than just fight over the same players, hours, and spend (and at ever higher costs)?



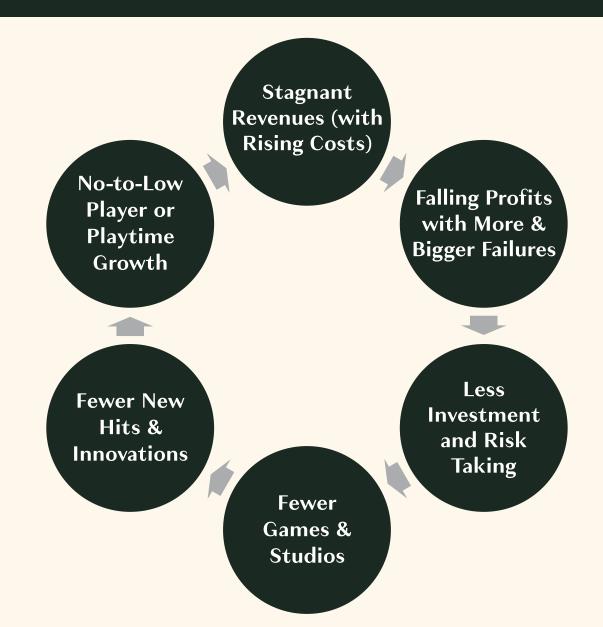
Worldwide Consumer Spending on Video Game Content

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



Without new growth engines, the video gaming market is stuck in a vicious cycle





Source: Epyllion analysis



A Rough Three Years and the End of the 2011–2021 Growth Wave

The Mobile Marketplace in 2025

A (Brief) Review of AR/VR Forecasts and Disappointments

How Much (and Where) Console/PC Has Grown

The Relevance of China (and Other Emerging Markets)

The Hostility of the Modern Console/PC Content Marketplace

How Player, Playtime, and Player Spend Might Return to Growth

First, it's important to recognize that while low growth is a challenge for everyone — especially the largest players — new studios and franchises are emerging









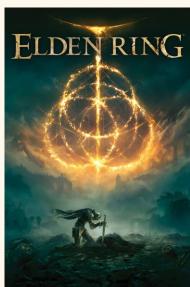












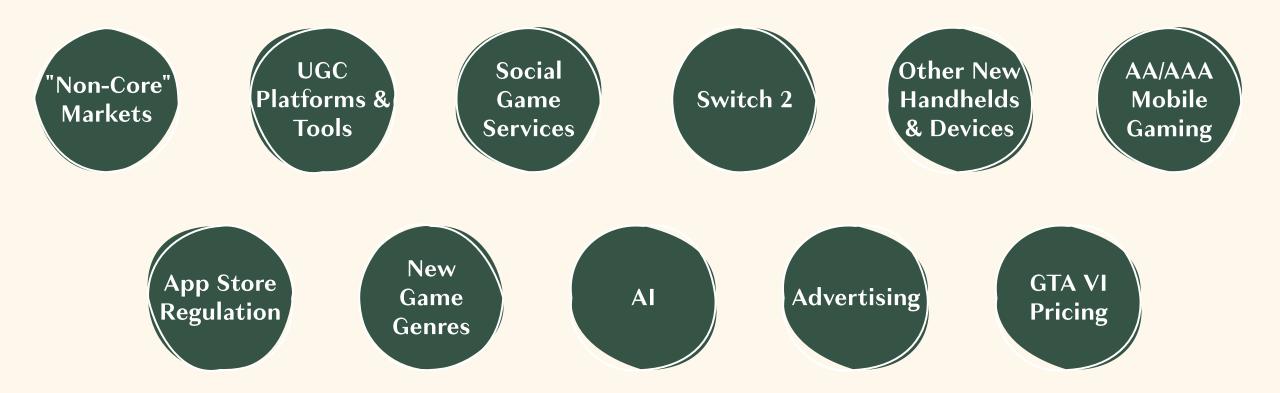






Second, there are a few potential "Growth Engines" that are argued and in sight^{1,2}





Reviewing Potential New "Growth Engines" 1























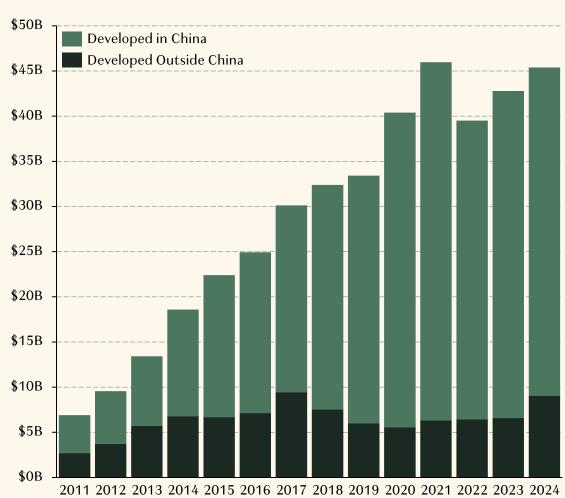
GTA VI Pricing

As was the case in China, the global maturation of local/regional content studios is likely to (substantially) accelerate spending growth in those same markets



China Spend on Video Game Content by Country of Origin

(USD; Console + PC + Mobile + VR + Web; Excludes Hardware, Excludes Web3/NFT)



Consumer Spending on Video Game Content

(USD; Console + PC + Mobile + VR + Web; Excludes Hardware, Web3/NFT)

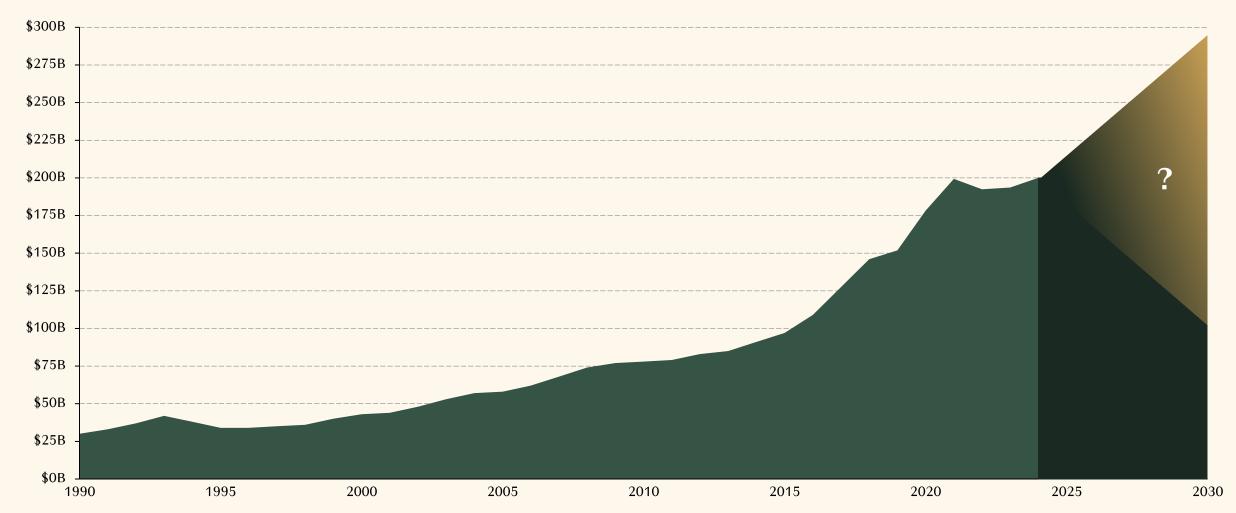


But with growing national support, plus far (far) lower production costs, emerging market developers may take most of future growth — and more of current spend



Worldwide Consumer Spending on Video Game Content

(Nominal Prices; Arcade + Console + PC + Mobile + VR + Web; Excludes Hardware & Accessories; Excludes Web3/NFT)



Reviewing Potential New "Growth Engines" 1























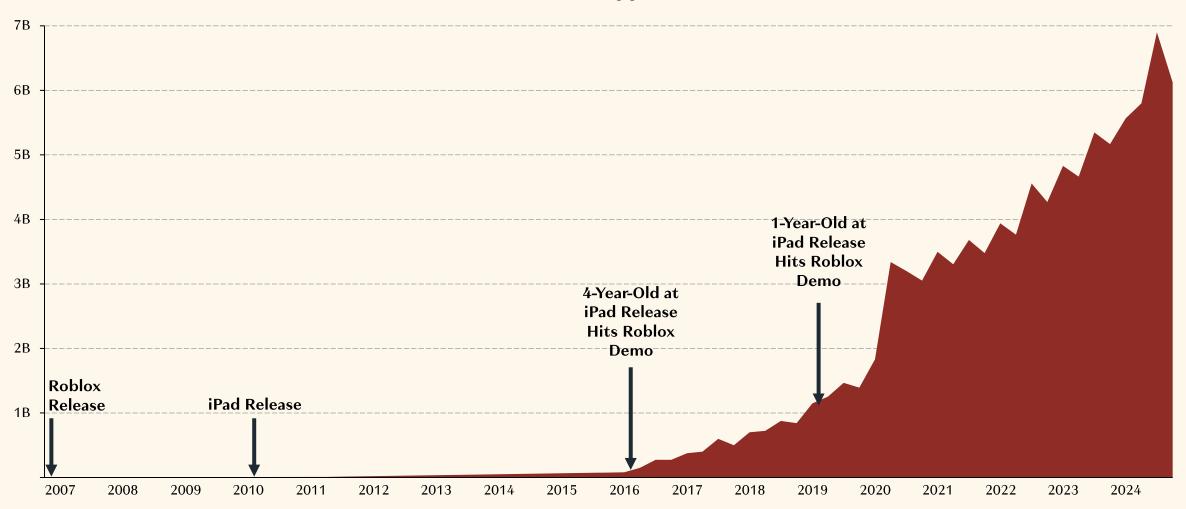
GTA VI Pricing

Although video gaming faces declining players and playtime, Roblox's growth is accelerating — benefiting from 140MM kids turning each of 8, 9, 10, etc., annually



Roblox Avg. Monthly Hours of Engagement

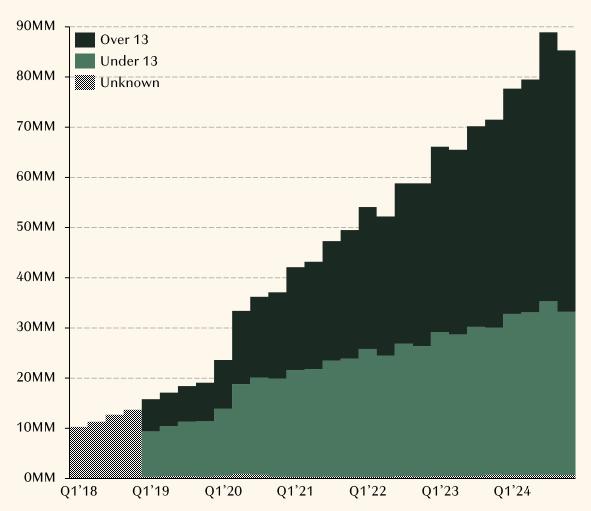
(Launch to Date; Excludes Off-Platform Engagement such as YouTube and Twitch)



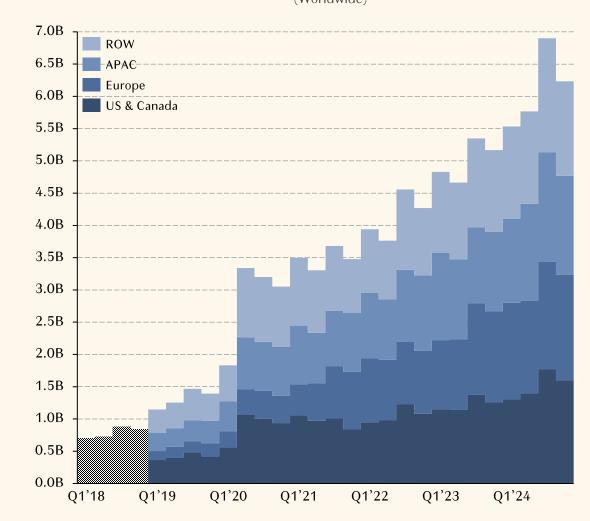
Yet Roblox's growth is also heavily diversified. Over 60% of users are now 13+ and playtime (and growth) is split roughly evenly across all major regions



Roblox Average DAUs by Age by Quarter (Worldwide)



Roblox Avg. Monthly Hours by Region (Worldwide)

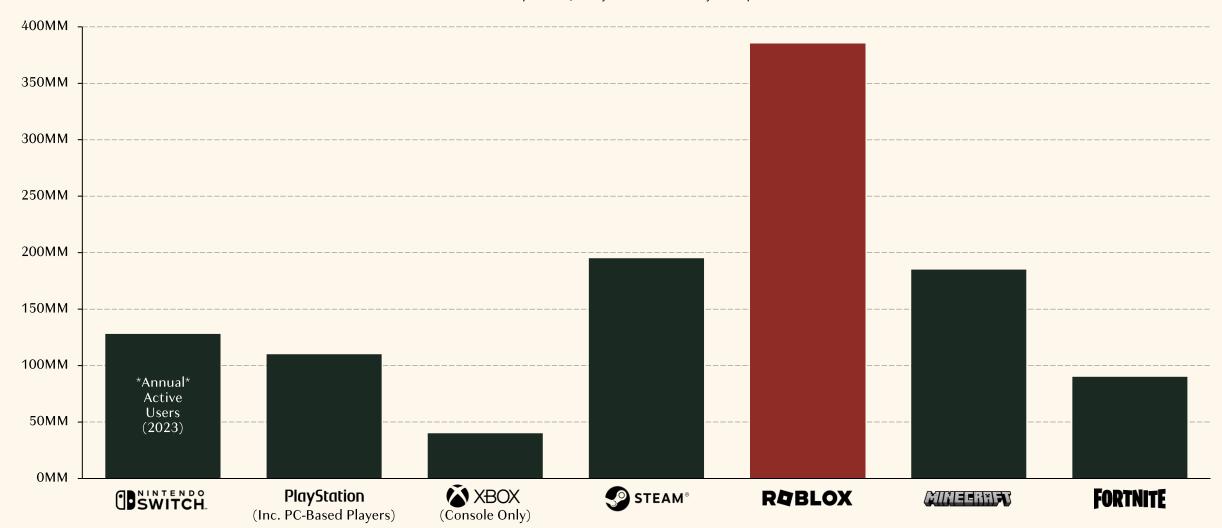


With 350–400 million monthly active users, Roblox already rivals the size of the entire AAA ecosystem and towers over core competitors



Reported and Estimated Monthly Active Users in 2024

(Sums Are Not Deduplicated; Many Users Use or Play Multiple Platforms and Titles)

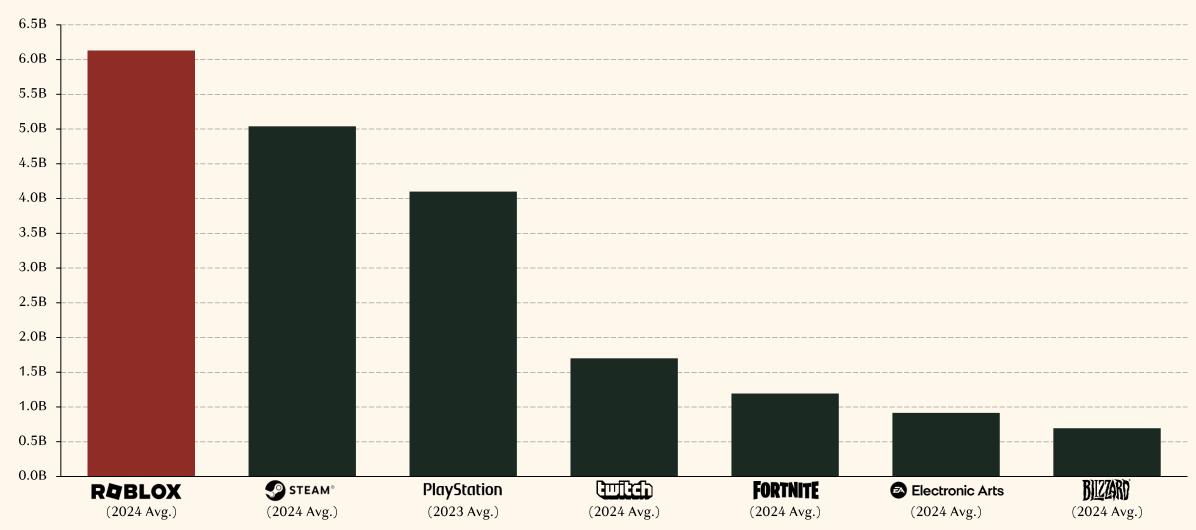


And though children game less than adults, Roblox now has more hours of direct monthly engagement than every gaming-specific console or software platform



Monthly Hours of Engagement

(Worldwide; Excludes Off-Platform Engagement Such as Watching PlayStation or Fortnite Streams on YouTube, Twitch, TikTok, etc.)

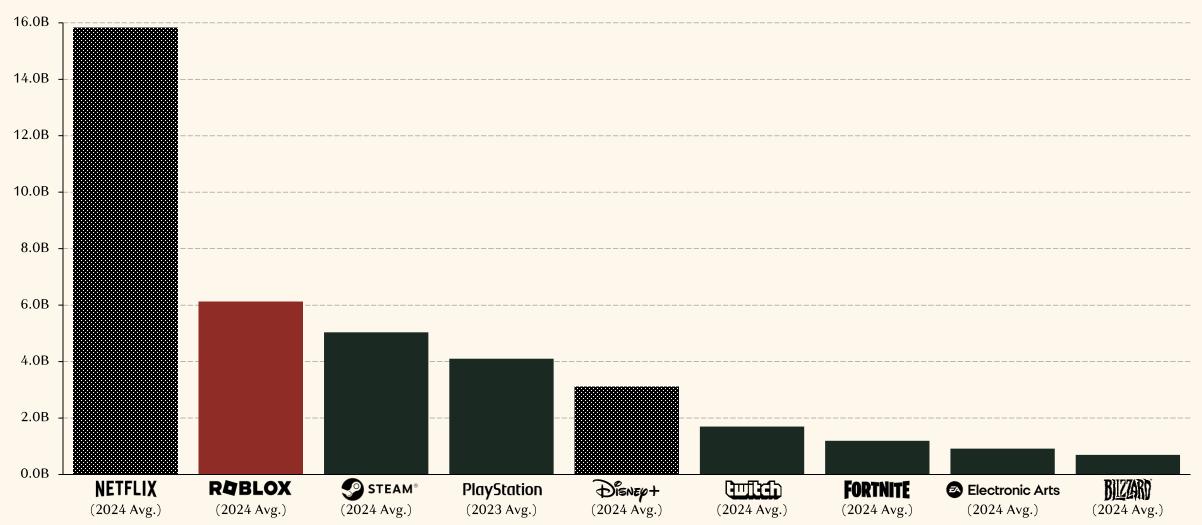


In fact, Roblox, with half the users of Netflix and about as many as Disney+, has about half the usage of Netflix and twice that of Disney+



Monthly Hours of Engagement

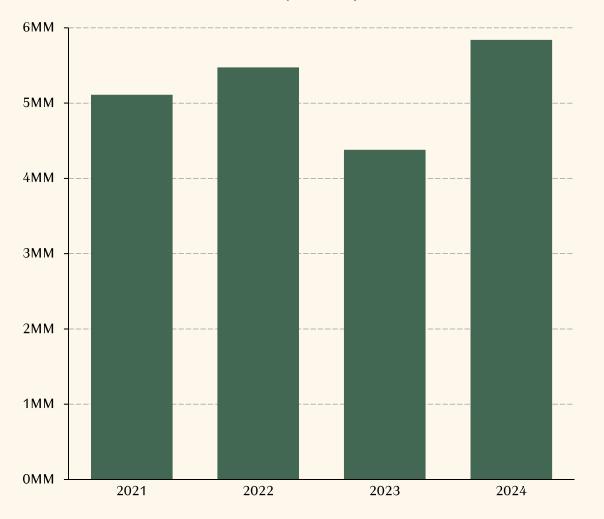
(Worldwide; Excludes Off-Platform Engagement Such as Watching PlayStation or Fortnite Streams on YouTube, Twitch, TikTok, etc.)



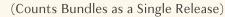
But Roblox doesn't focus on "game-like" objectives (win, kill, shoot, defeat, score, beat) but non-game-like ones (share, create, express, identify, feel, show)

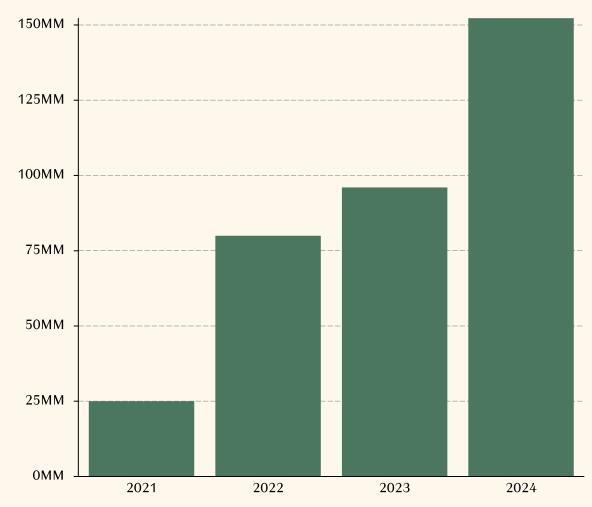






Roblox UGC Cosmetics, Assets or Bundles Made per Year



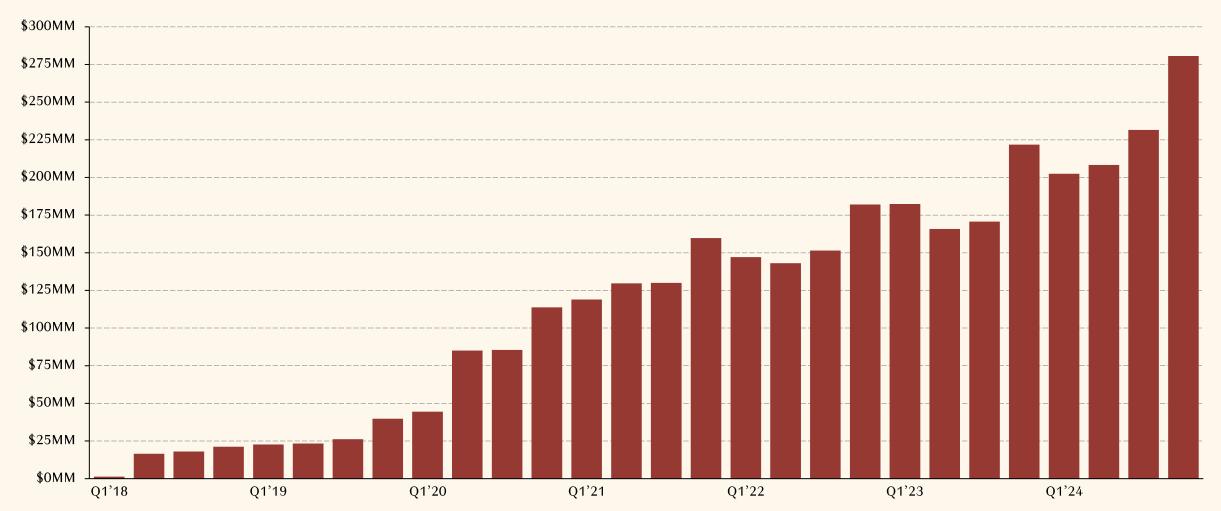


Moreover, Roblox's UGC economy is piping, with over \$3.25B in payouts to UGC developers since 2006 — and annual run-rate payments now exceed \$1B



Roblox Quarterly Developer Payments

(Worldwide)

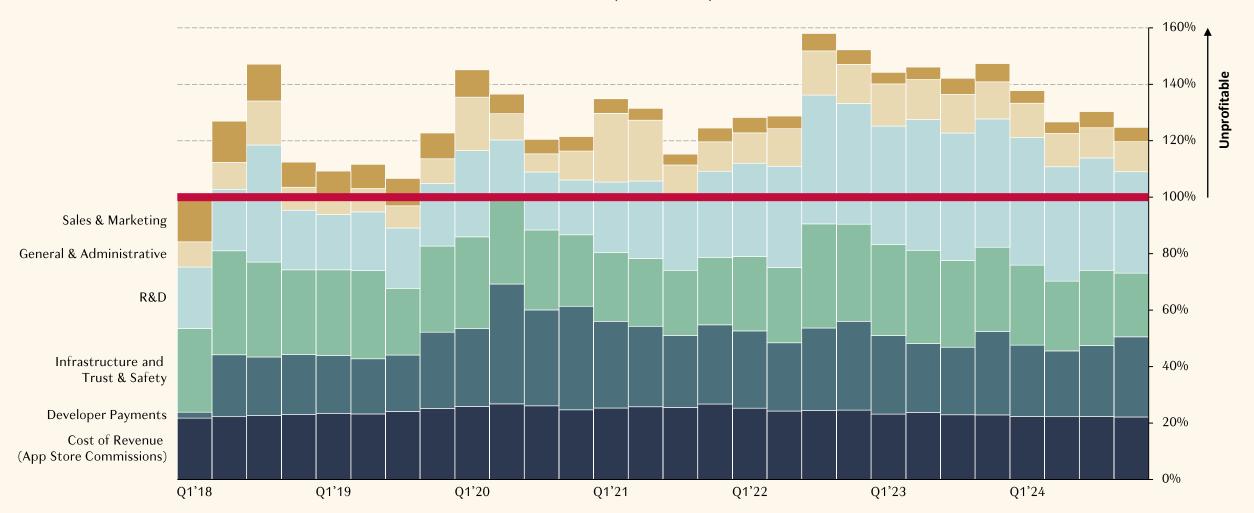


Yet Roblox also loses roughly \$30 for every \$100 a player spends. After App Store and developer payments, only \$52 is left for the remaining \$82 in costs



Roblox Costs as a Percentage of Revenue

(Based on GAAP)

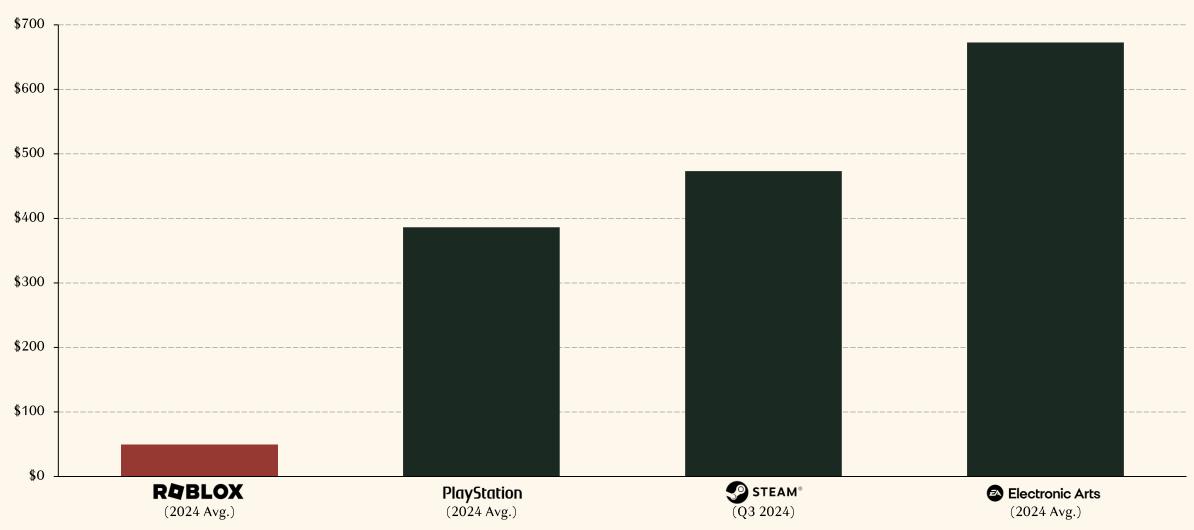


One problem is spend: Roblox generates a fraction of the revenue per hour of rival platforms and publishers (partly due to its sizable pre-teen/teen playerbase)



Content Revenue per Thousand Hours of Player Engagement

(Worldwide; Excludes Off-Platform Engagement Such as Watching PlayStation or Fortnite Streams on YouTube, Twitch, TikTok, etc.)



Another challenge is the tech/tools platform required for such scale. Roblox now spends \$1.5B annually (40% of revenue) just on R&D (a 16x increase vs. 2019)



Roblox Quarterly R&D Expense and R&D Expense as TTM Share of Revenue

(Based on GAAP)



Roblox's engine and data centers now enable surprisingly high-fidelity games (thus far, developers and users seem mostly uninterested in such experiences)



Maximillian's FRONTLINES (2020)

(As of January 2025, Frontlines had over 120,000,000 lifetime plays)

10 SOMETHE LETT CAUG COST THAT

Watch: https://x.com/JoshLu/status/1633506752082894848 or https://tinyurl.com/StateofVideoGaming2025-Roblox

Maximillian's FRONTLINES VERSUS (Forthcoming)

(As of January 2025, Frontlines had over 120,000,000 lifetime plays)



Watch: https://www.youtube.com/watch?v=rCplruoX0WA& or https://tinyurl.com/robloxfrontlinesversus

Roblox's R&D also supports numerous (mostly non-gaming) platform efforts. Few platforms ever reach 400MM MAU — and when they do, opportunities only grow...

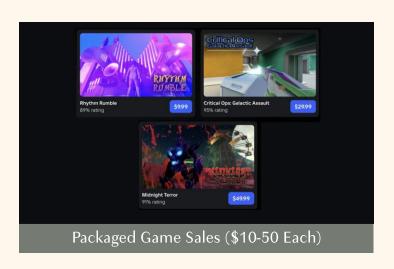












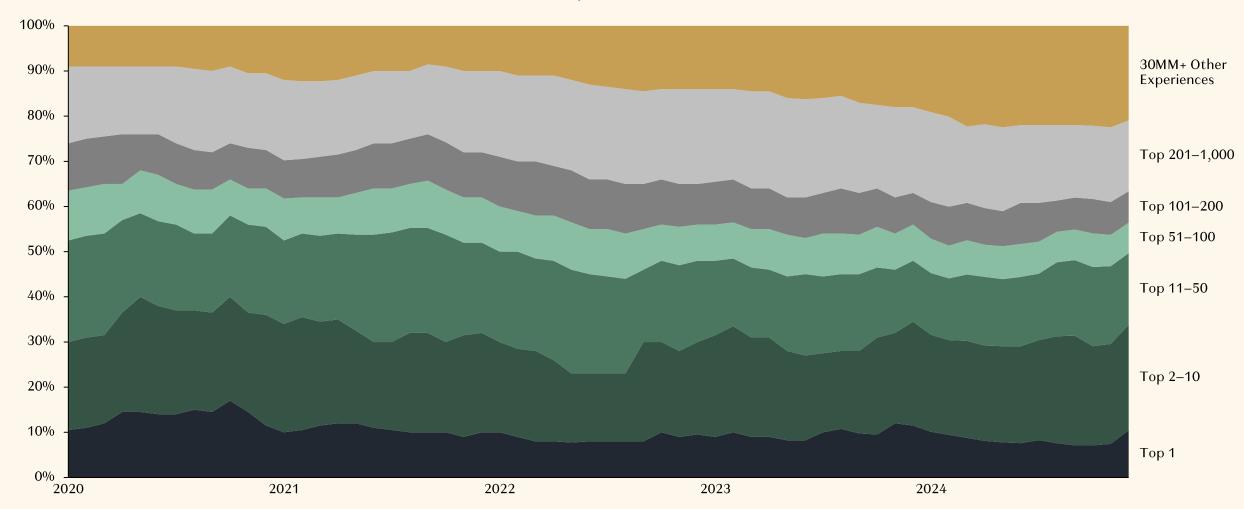


Roblox has its own discoverability challenges, too. The most-played experience is 10% of playtime, while the top 10 are 30%, and top 50 of 30MM+ (!) are over half



Distribution of Engagement Across All Roblox Experiences

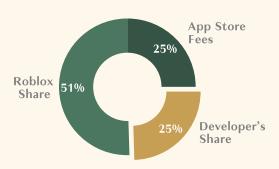
(Monthly-Based Ranks)



Moreover, Roblox's benefits — while great — come with large financial, technological, and strategic implications for developers



Economic & Business Model Constraints



Though Roblox's take rates cover many of a developer's operating expenses (e.g. servers, customer service, engine and tools), while also providing developers access to its enormous social graph and userbase, developers receive only ~25% of the revenues they generate versus 70% on mobile/console and up to 100% on PC.

Roblox also controls what business models, prices, and products a developer can deploy — and how

Platform-Only Players



Roblox has more users than any rival AAA ecosystem — or several of them combined. However, a Roblox developer cannot own, access, contact, or even "share" these players with Roblox as they might when distributing their titles on mobile, console, or PC

Moreover, a Roblox developer's playerbase is partly limited to the players already on Roblox as would-be players cannot "directly" download a Roblox game

Platform Tech, Pipeline, & Priorities



Roblox's \$1.5B in annual R&D affords most developers capabilities far beyond what they might develop, let alone quickly — and sometimes beyond what's available through any third-party technology/tools provider

At the same time, Roblox developers are dependent upon Roblox's technical preferences, including which systems, conventions, and bets the company does and doesn't make, as well as which technologies Roblox prioritizes, deprioritizes, delivers on time and at expectation, etc.

Strategic Platform Dependency



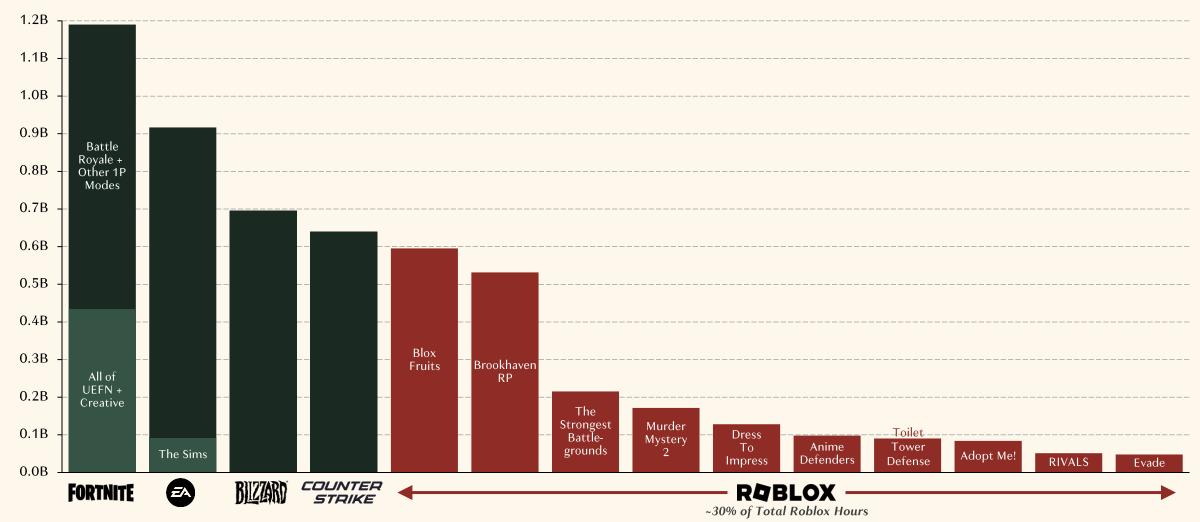
As is the case whenever a developer uses a closed platform managed by a for profit entity, the developer is subject to policy-related and/or commercial changes at Roblox. These may include the platform's approach to monetization and discovery, content and/or moderation rules, payments/royalties and other compensation structures, and so on.

...Still, the (growing) scale of the top Roblox titles is extraordinary — and they're supported by a fraction of the developers as similarly popular games & publishers



2024 Average Monthly Hours of Engagement, Select Standalone Games/Publishers vs. Top 10 Roblox Titles

(Worldwide; Excludes Off-Platform Engagement Such as Watching PlayStation or Fortnite Streams on YouTube, Twitch, TikTok, etc.)



Like Roblox, usage and creation of UGC mods has substantially outpaced overall video gaming spend and time — all the while enriching gameplay (and publishers)



Annual Mod Downloads on Nexus Mods

(Worldwide; Includes Updates; PC Only)

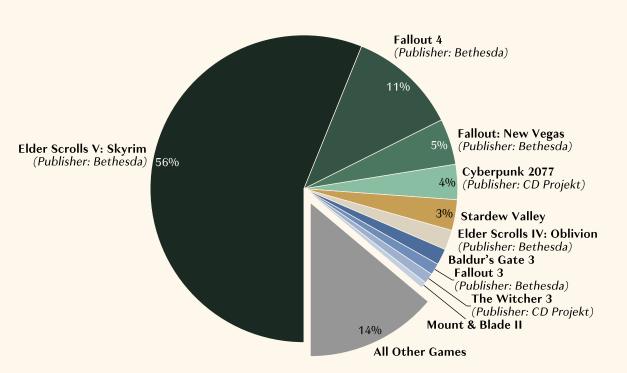


Unsurprisingly, UGC modding is often hyper-concentrated to top titles — a reflection of which genres are suitable, Metcalfe's Law, and publisher policies



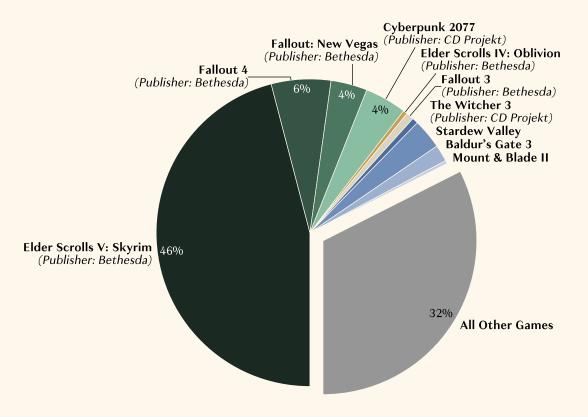
Share of Nexus Mods' Life-to-Date 15B Mod Downloads

(Worldwide; Includes Updates; PC Only)



Share of 2025 Downloads on Nexus Mods

(Worldwide; Includes Updates; Nexus Mods PC Only)

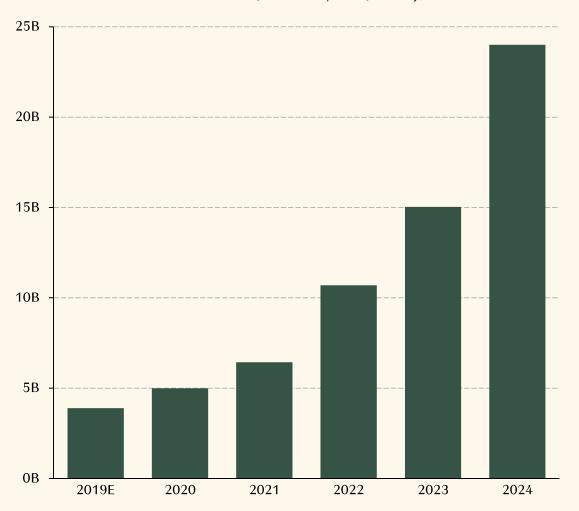


CurseForge has seen its annual mod downloads increase by more than 6x to 24B — primarily in support of the best-selling game in history, UGC platform Minecraft



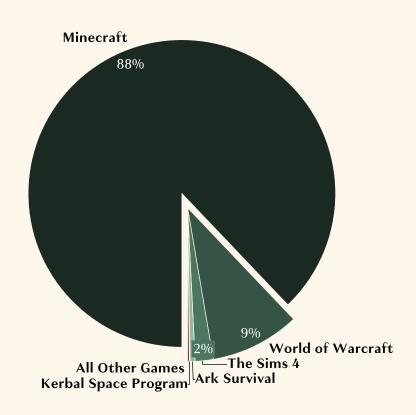
Annual Mod Downloads on CurseForge

(Worldwide; Includes Updates; PC Only)



Share of CurseForge's Life-to-Date 79.5B Mod Downloads

(Worldwide; Includes Updates; PC Only)



Mod.io, too, has seen its annual mod downloads surge to over half a billion per year, supporting an average of 15MM MAUs by the end of 2024



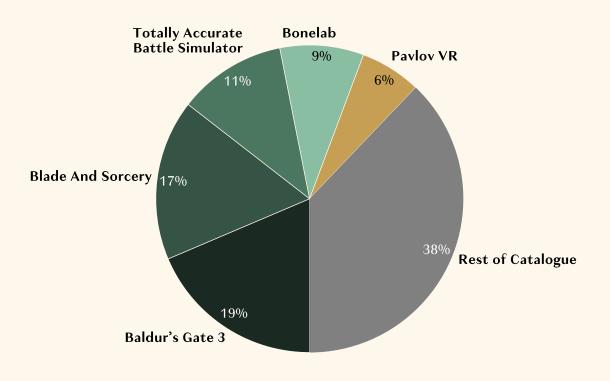
Annual Mod Downloads from Mod.io

(Worldwide; Includes Updates; PC Only)



Share of Mod.io's 550MM Mod Downloads in 2024

(Worldwide; Includes Updates; PC Only)



Through real-time game assist (or challenge) mods for non-competitive games, WeMod is driving hundreds of millions of hours of diverse catalogue engagement



#1 Title #2-5

#6-10

#11-50

#51-100

#101-2,500

11%

4%

24%

12%

47%

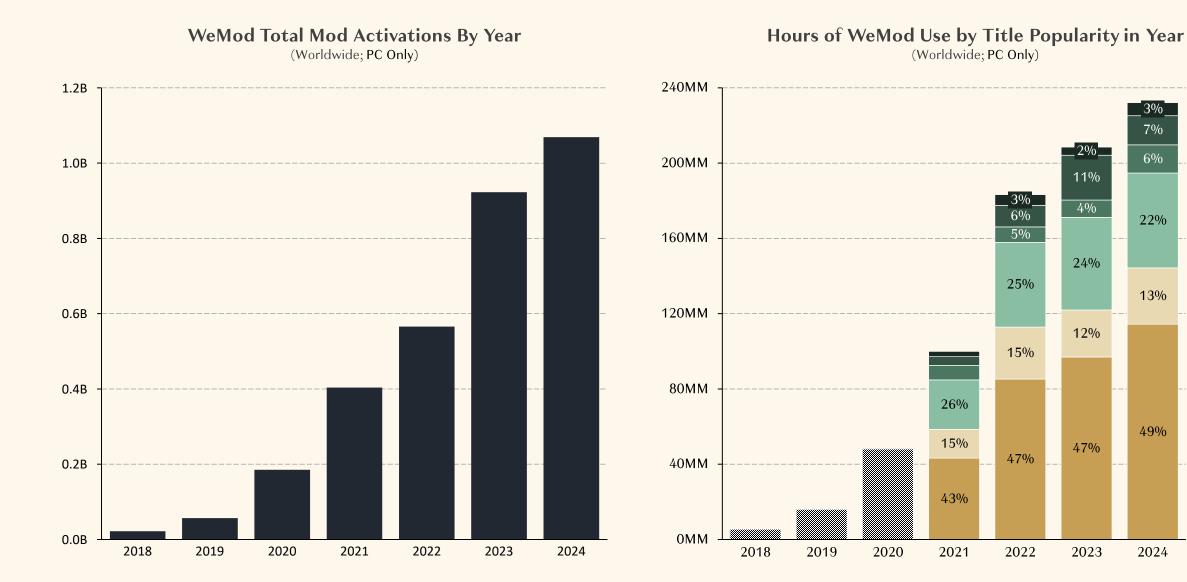
2023

22%

13%

49%

2024



Reviewing Potential New "Growth Engines" 1























GTA VI Pricing

As video game players and playtime stagnated, social gaming services continued to grow both. At Discord, MAU and DAU are up ~20% vs mid-2021



Discord Monthly And Daily Active Users by Quarter End (Worldwide)

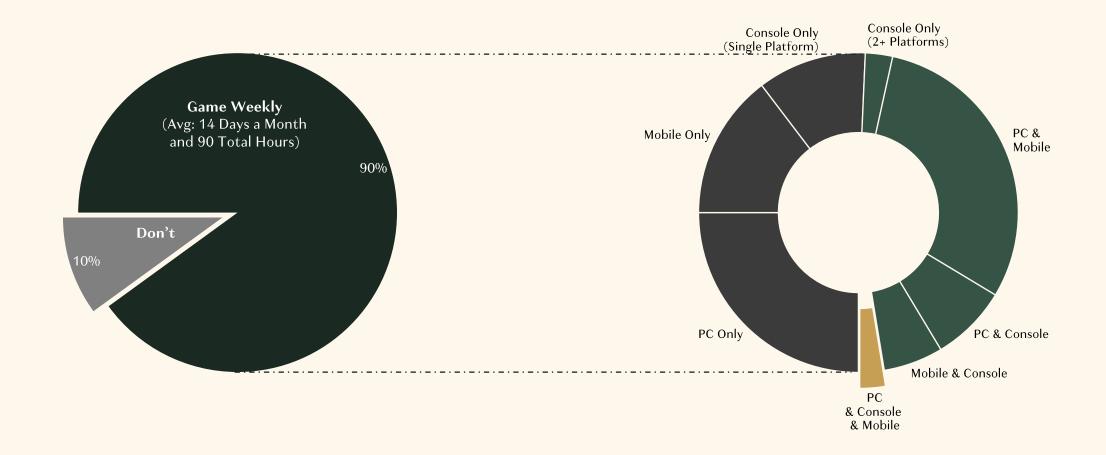


Though broadly considered a communications platform, Discord is hyper-indexed to gamers — especially high-engagement, social, and multi-platform gamers



Discord WAU by Gaming Activity

Discord Video Gaming WAU by Platforms Used in Week (Worldwide)



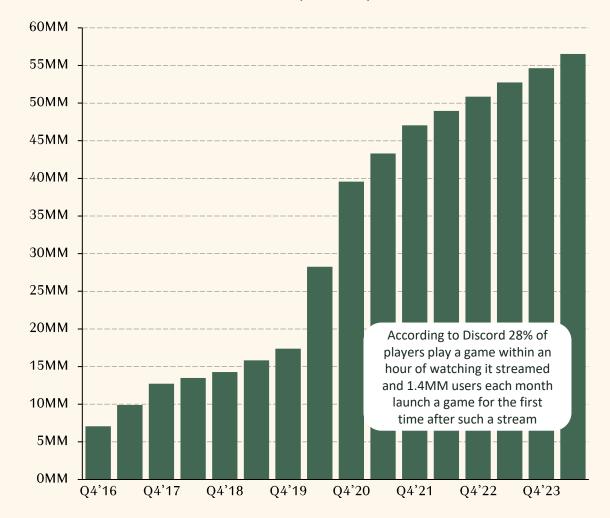
One in five Discord users (or 40MM total) use the app to stream gameplay to their friends each month — and just under one in three watches monthly



Avg. Discord Users Who Stream Monthly to Friends (Worldwide)



Avg. Discord Users Watching Friend/Server Stream in Month (Worldwide)

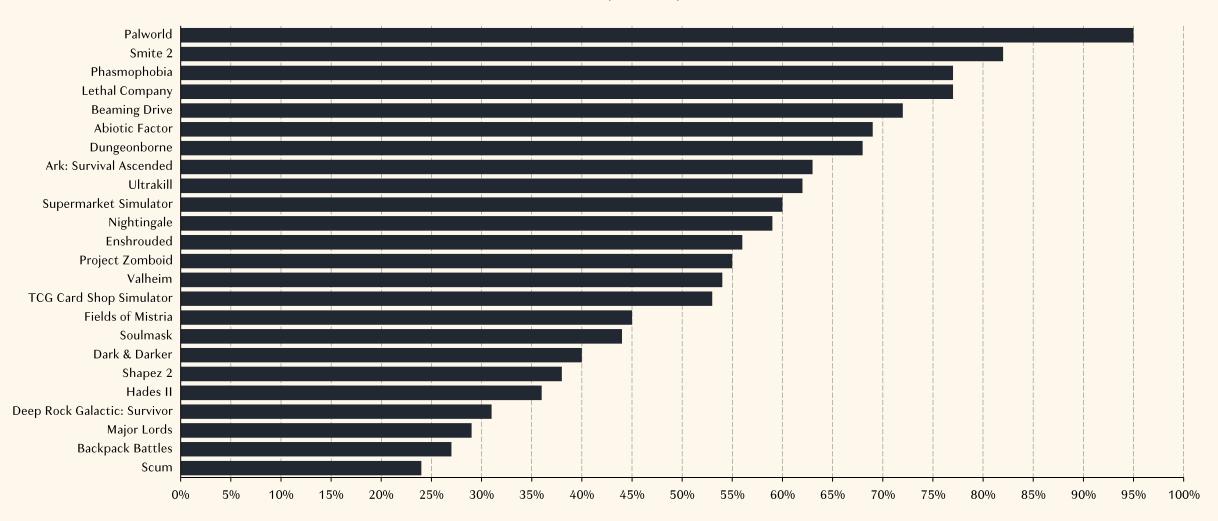


Discord's group-based communications, organization, and social sharing results in disproportionate game discovery behavior — Reed's Law at work



Discord Users Playing Steam Early Access Titles As Share of Total Observed Players

(Worldwide, PC Only, Q4 30-Day Lookback)

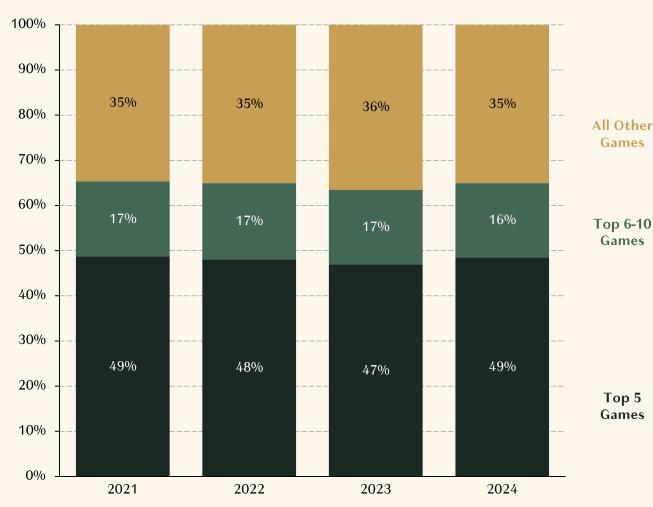


Unsurprisingly, Discord users have far greater gameplay diversification than typical gamers. Surprisingly, time has *diversified* as users scaled – not reverted to the mean

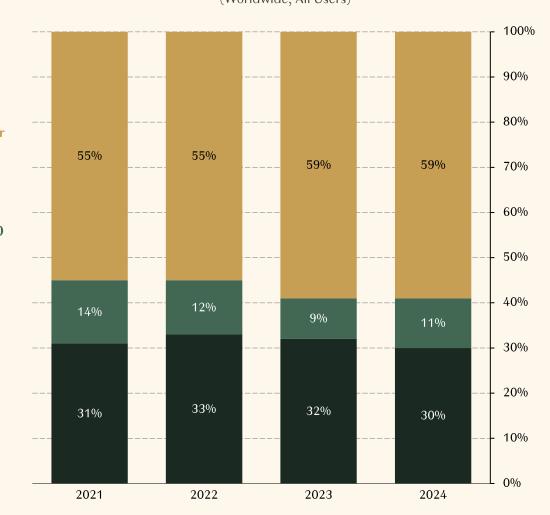




(Worldwide; Users 18+; 37 Markets Total and Excludes India and China)



Discord Distribution of Total PC Playtime by Rank in Year (Worldwide; All Users)



Discord's scale and influence over game discovery, "squad formation," and cross-platform comms has even led PlayStation & Xbox to integrate Discord natively



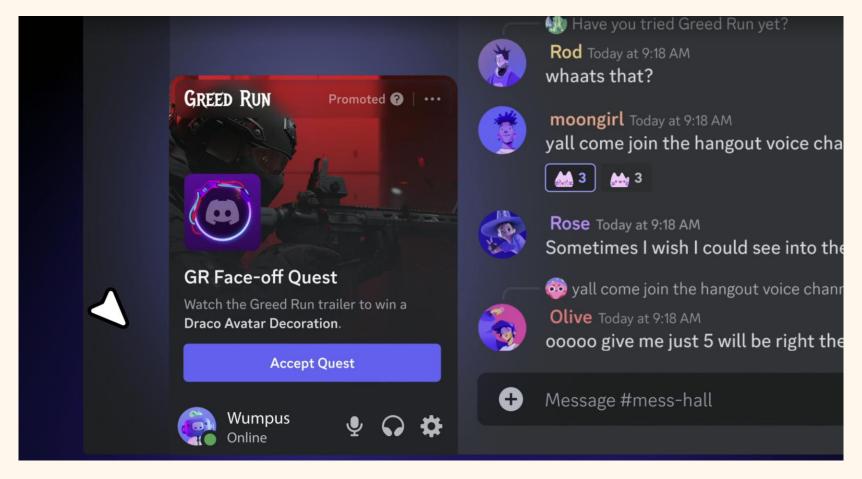




Discord's new ad product, Quests, is (naturally) commercial in nature — but it monetizes by (and rewards users for) game-discovery, sharing, and engagement



Discord Quests Overview Video



WATCH: https://youtu.be/k0jPVvT4n0c and https://youtu.be/RWLXsSMDSrk

Reviewing Potential New "Growth Engines" 1









Switch 2



AA/AAA Mobile Gaming









GTA VI Pricing

Nintendo's own games dominated Switch content sales in part because many of the top multiplatform games aren't on the device. Why? Many can't even run on it!

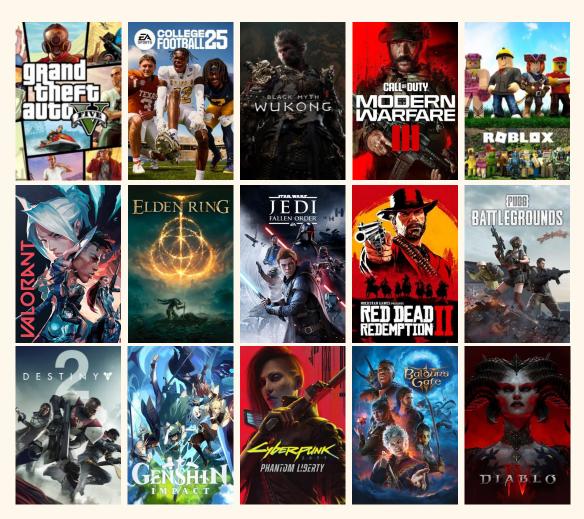


1st-Party Share of Total Switch Content Revenues(By Fiscal Year)



Notable Multiplatform Hits not on Nintendo Switch

(As of December 15, 2024)



And while many hits are available on the Switch, the enormous performance drop tends to drive players who can play on another device to play on another device





Part of the Switch's success stems from the same reason its 3rd-party support was so modest — it launched with a 3-year-old, mid-range, and underclocked GPU



Switch, 2017–
(Confirmed)



Modified 2017 Tegra X1 (Model T210)

- Two Clusters (256 CUDA Cores + 256 Shader Cores)
- GPU 700-900MHz
- 64-bit Memory Interface
- 25.6 GBps Bandwidth
- No ray tracing capability
- No DL/DLSS AI rendering

Lower Device Cost (GPU, Battery, Display)

Increase Sales

(Easier to afford, buy one per child, replace when broken or upgrade, etc.)

Light and Small (Smaller fan, heat sink, and battery needed)

Easy to Travel With and Use Handheld (Drives value proposition, new use case scenarios)

Low-Powered (GPU, Battery, Display)

Long Battery life

(2.5–7 hours by title and brightness, enabling actual portable use)

Though Switch 2's GPU is also expected to be "underweight" in 2025, it should adequately support most modern games — thus making them all "portable"



Switch, 2017– (Confirmed)



Modified 2017 Tegra X1 (Model T210)

- Two Clusters (256 CUDA Cores + 256 Shader Cores)
- GPU 700-900MHz
- 64-bit Memory Interface
- 25.6 GBps Bandwidth
- No ray tracing capability
- No DL/DLSS AI rendering

Switch 2, 2025– (Rumored)



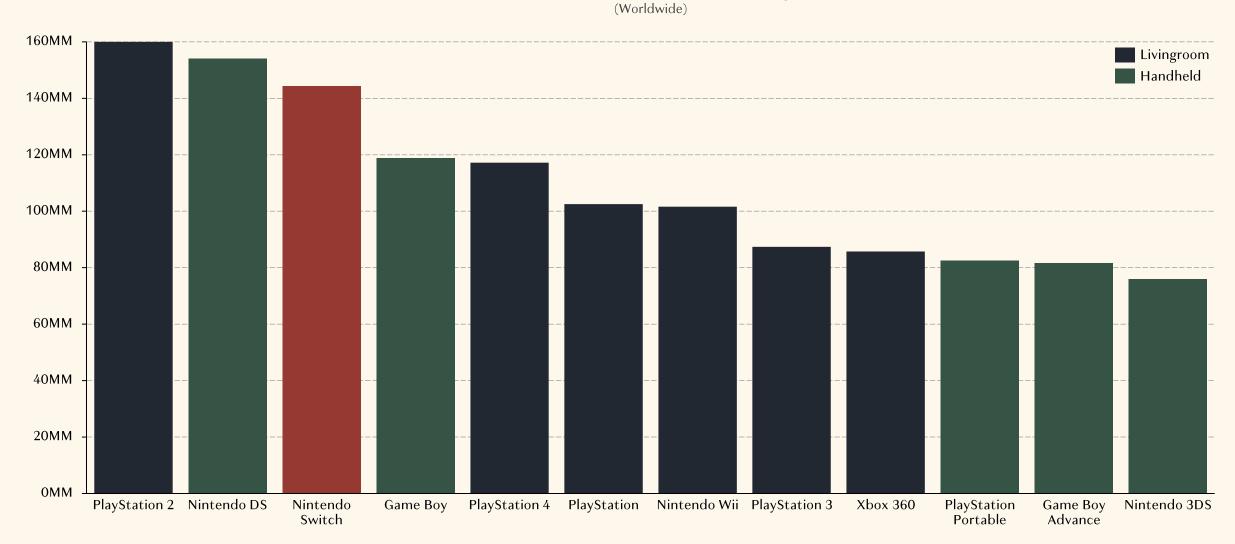
Modified 2022/23 Tegra Orin (Model T239)

- One Cluster (1,536 CUDA Cores + 256 Shader Cores)
- GPU 1.5-1.6 GHz
- 128-bit Memory Interface
- 102 GBps Bandwidth
- 2nd Gen ray tracing
- 3rd Gen DL/DLSS AI rendering

And as the Switch is the #2 livingroom console ever, the sole growth driver in most markets, and also fully portable, a more 3rd-party capable Switch 2 is a Big Deal



Lifetime Unit Sales for the 12 Best-Selling Consoles



Reviewing Potential New "Growth Engines" 1























GTA VI Pricing

The success of Switch and Steam Deck, advances in mobile GPUs, plus livingroom console stagnation have made handhelds a renewed area of opportunity and focus



Published 09:50 23 Oct 2024 GMT+1

Steam Deck 2 officially confirmed by Valve



Sony Working on Handheld Console for PS5 Games to Rival Switch

■ Nintendo's Switch has dominated mobile console space for years



Xbox confirms that it's working on a handheld — here's what we know

Is Xbox working on a Steam Deck competitor?



Sony's new PlayStation Portal update lets you stream PS5 games from the cloud /

PlayStation Plus Premium subscribers can beta test Cloud Streaming for portable gaming that isn't tied to their PS5.

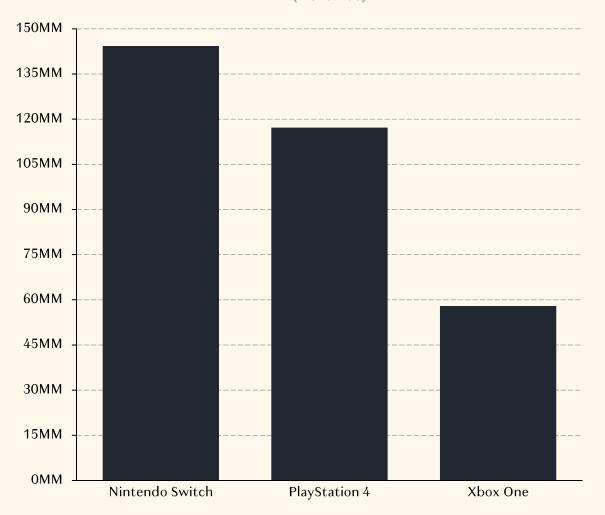




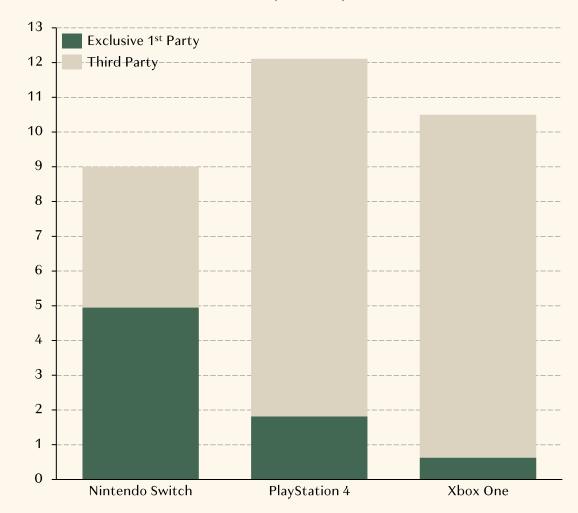
But Switch wasn't a success just due to form factor. Users bought it for *Nintendo* games—an average of 5 per device vs. 1.5–2 Sony/Microsoft 1P titles on PS/Xbox



Gen 8 Console Units Sold
(Worldwide)



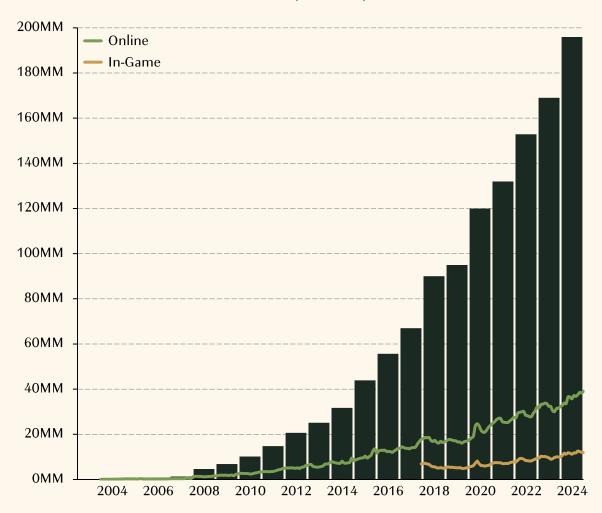
Gen 8 Software Units Shipped per Hardware Sale (Worldwide)



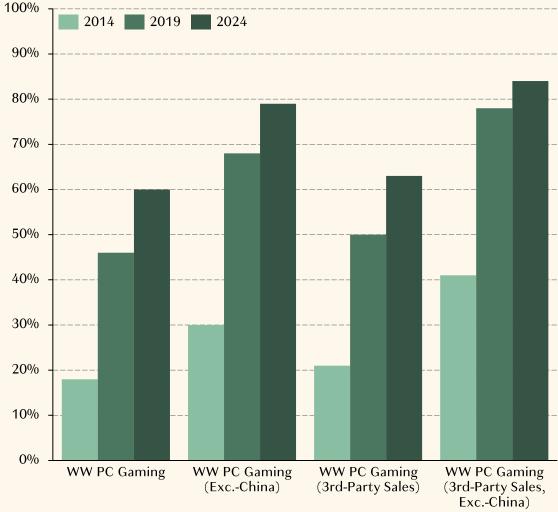
Valve is another unique handheld beneficiary, as Steam boasts PC's largest social graph, game library, and sales platform — by far — with share accelerating



Estimated Steam MAUs and Peak CCUs by Month (Worldwide)



Steam Share of Total Game Sales by Market Category (Worldwide)

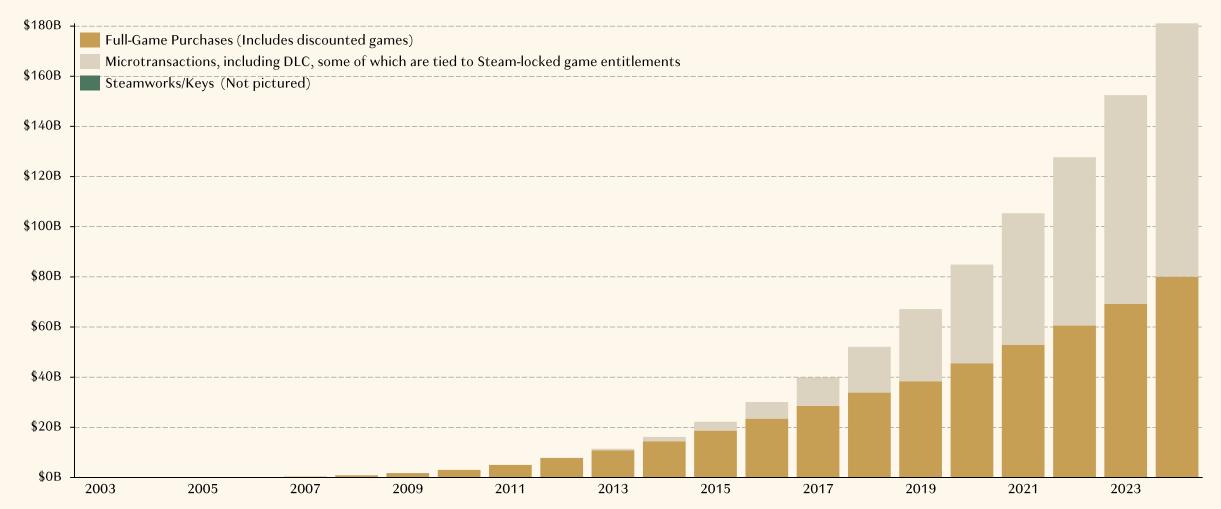


Steam-based handhelds give players access to \$80B+ in game entitlements locked to Steam (plus Steamworks/Keys), and its full player and achievements graph



Estimated Cumulative Player Spend on Steam

(USD; Nominal Prices)



The potency of Steam's lock-in explains Epic Games Store's decision to give away dozens of games each year — with hundreds of millions of copies claimed annually

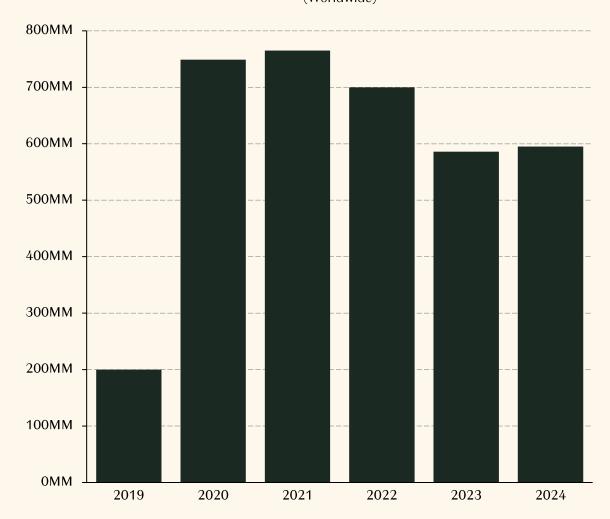


Games Given Away for Free by Epic Games Store

(Released in at Least One Market)

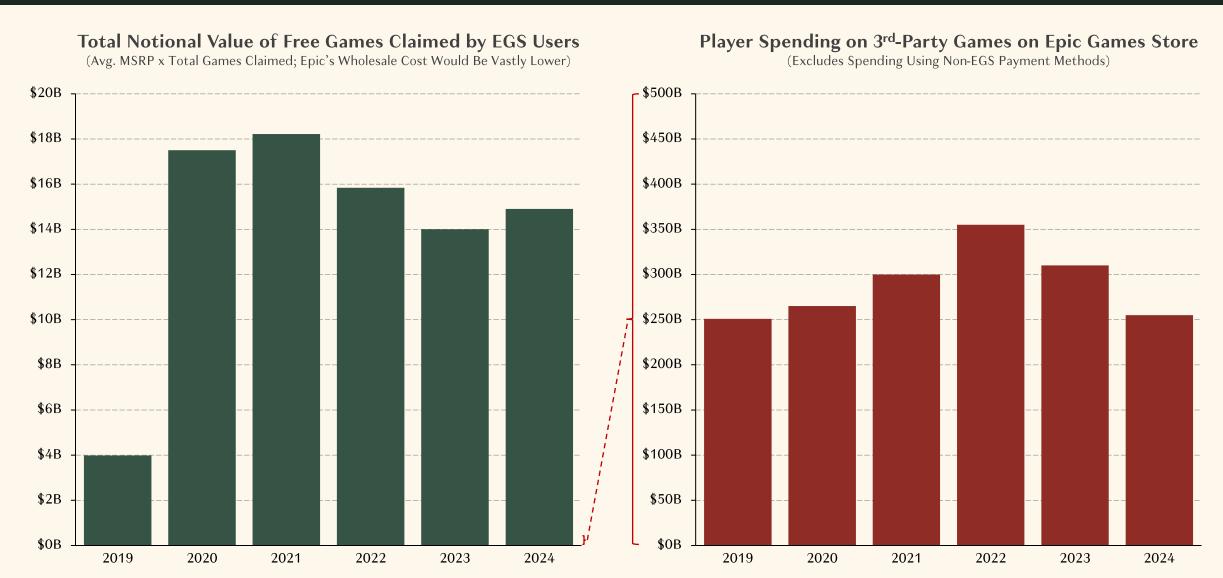


Free Game Copies Claimed by Epic Games Store Users (Worldwide)



The notional value of claimed games on EGS is now \$85B, but player spend hasn't budged. 3rd-party titles grossed only \$250MM in 2024, flat vs EGS' debut in 2019





Valve is also set to disrupt livingroom consoles — bringing not just its entitlements to the TV, but also its vast social graph and PC-functionality/social integrations

And

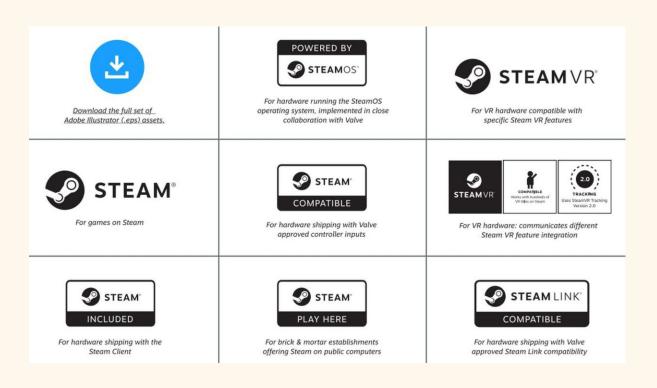
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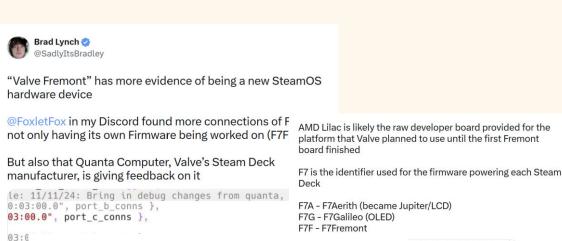
that

EPYLLION

New Branding Guidelines for Hardware Running the SteamOS in "close collaboration with Valve" and/or Shipping with "Valve approved controller inputs"



Code-based Evidence of a Steam Console/Platform



All references to Fremont ensure checks for a full-size HDMI Type-A port you'd see on TV-focused consoles and other desktop computers that don't have a dedicated GPU with its own HDMI ports



t struct cec_dmi_match ch_table[] = { AMD Lilac */ AMD", "Lilac", .0", port_b_conns }, DEM F7F */ OEM", "F7F", .0", port_b_conns }, Google Fizz */ Google", "Fizz", .0", port_b_conns }, Google Brask */ Google", "Taranza", .0", port_db_conns }, Google Dexi */ Google", "Dexi", .0", port_db_conns }, AMD Lilac */ AMD", "Lilac", .0", port_c_conns },

Reviewing Potential New "Growth Engines" 1







Social Game Services



Other New Handhelds & Devices







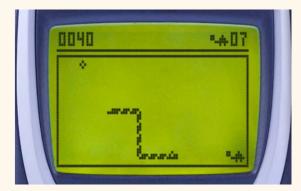




GTA VI Pricing

There is a sense of an "unfulfilled promise" that mobile gaming should have onboarded millions to higher fidelity (or AA/AAA) gaming





















...But mobile *did* grow the high-fidelity gaming audience. "Mid-Core" titles are 12% of downloads across 3B mobile gamers, but over 50% of revenues

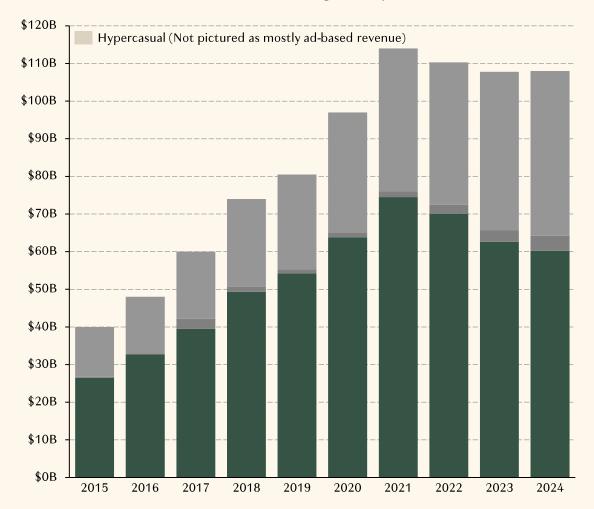


Annual Mobile Game Downloads by Type (Worldwide)



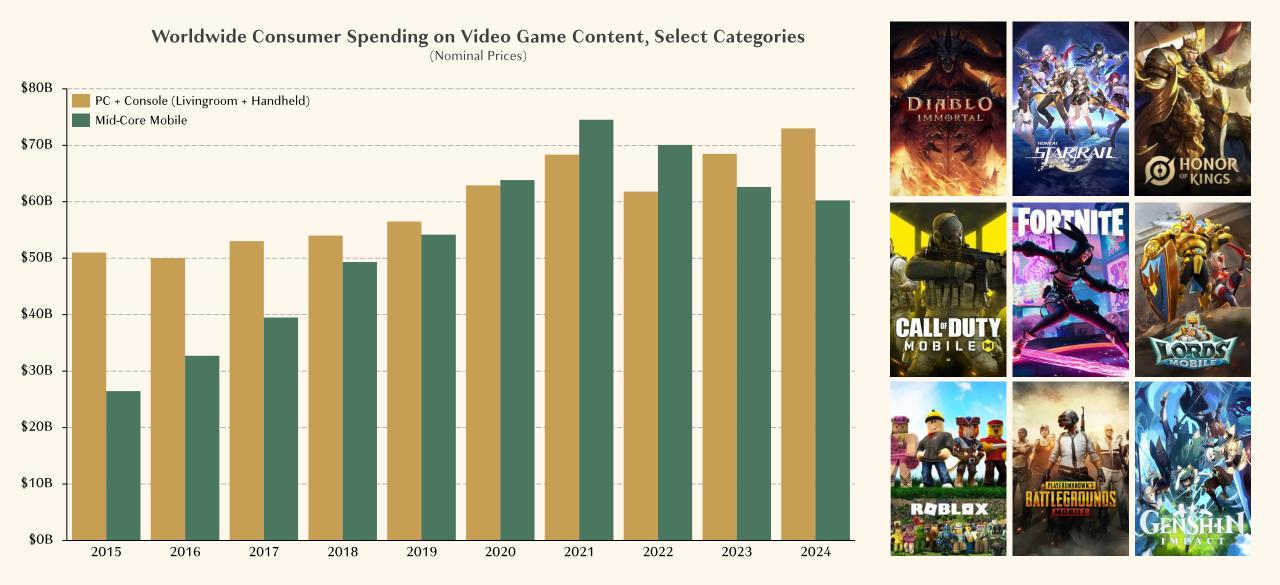
Worldwide Mobile Gaming Revenues

(Select Categories Only)



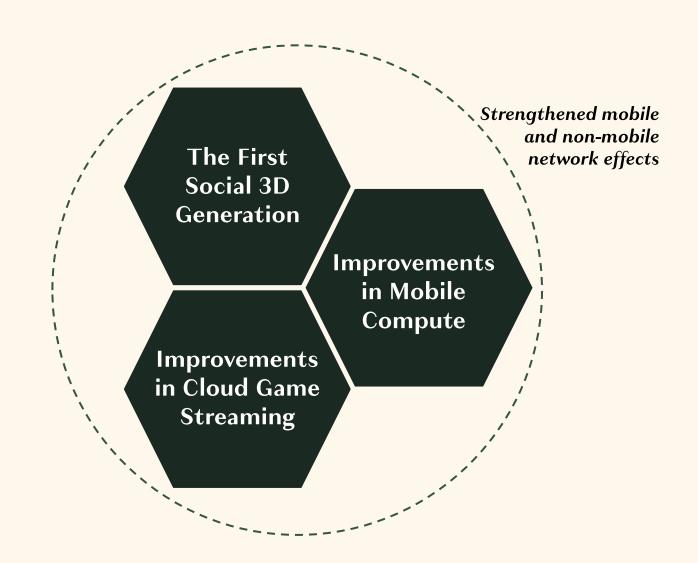
Indeed, annual spend on mid-core (including some de facto *hardcore*) mobile games once passed, and is still not far from total spend on Console/PC content





Though downloads and revenue for mid-core/hardcore mobile titles have stalled and shrunk in recent years, there are four potential drivers of future growth



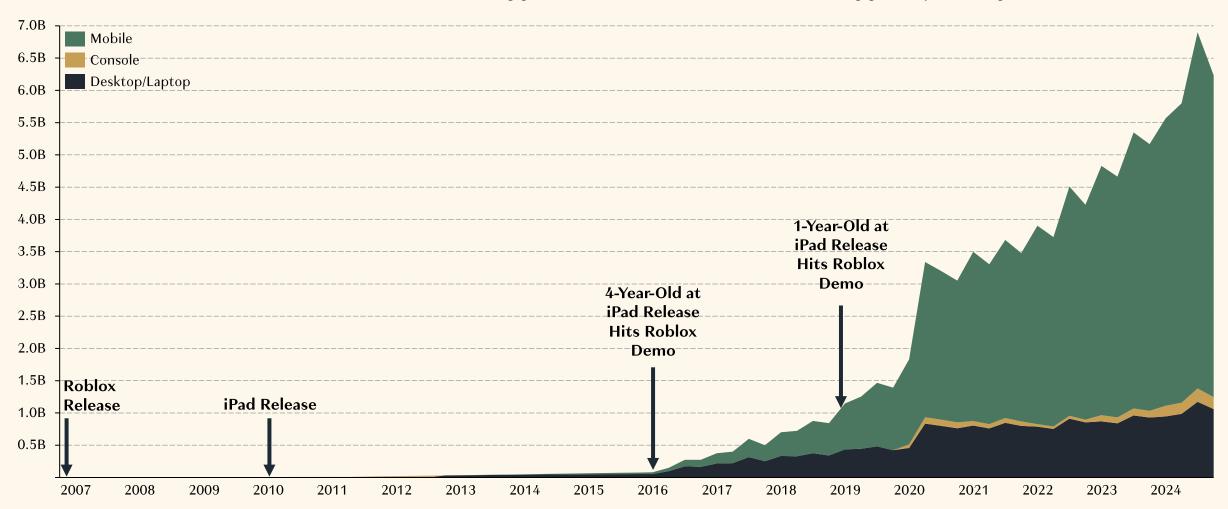


While prior mobile gaming growth relied mostly on non-gamer adults adopting casual mobile titles, generations now grow up *native* to 3D gameplay and *on mobile*



Roblox Avg. Monthly Hours of Engagement

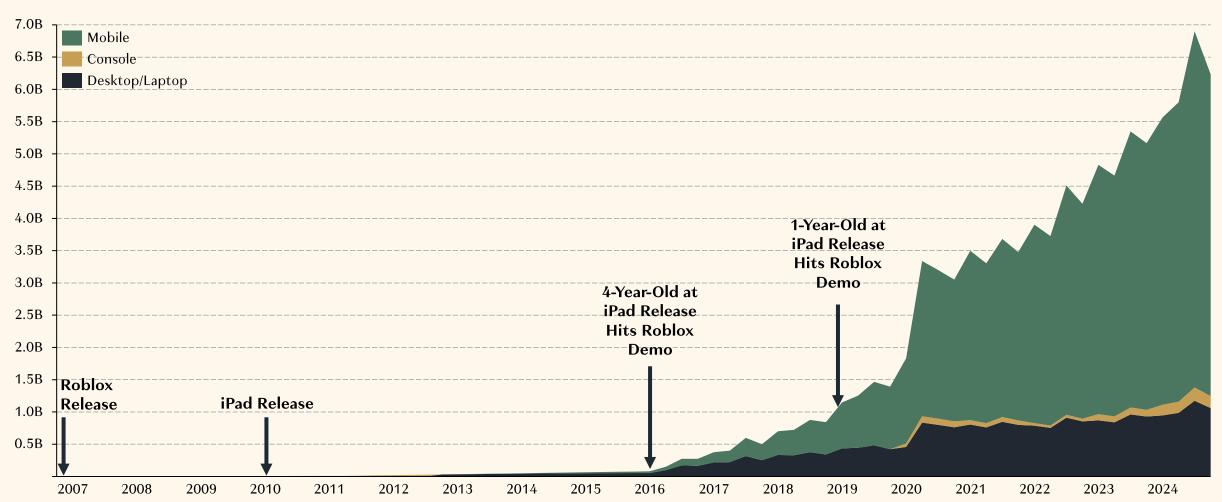
(Launch to Date; Excludes Off-Platform Engagement such as YouTube and Twitch; Mobile Share of Engagement by Year Average)



But for a generation that grew up playing 3D free-to-play titles on a hand-me-down iPad, spending \$500 on a gaming-only console just to be able to play... is absurd

Roblox Avg. Monthly Hours of Engagement

(Launch to Date; Excludes Off-Platform Engagement such as YouTube and Twitch; Mobile Share of Engagement by Year Average)



Today, ~40 million people own a mobile device capable of running games with midgrade Gen 8 console specs. By 2030, a billion people will have such a device



Assassin's Creed Mirage (2023) on Top of Line 2023 iPhone

Resident Evil: Village (2021) on Top of Line 2023 iPhone





Meanwhile, cloud gaming continues to scale as latency and broadband improve, PC stores connect their entitlements, and regulators open up mobile devices



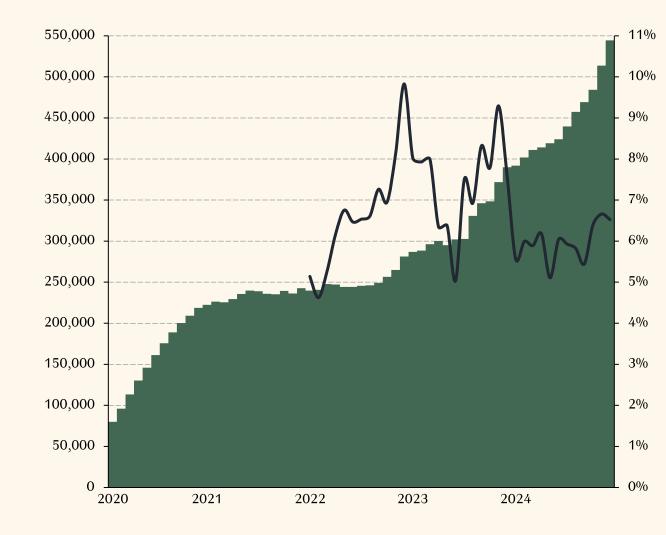
GeForce Now U.S. Paid Subscriptions & Monthly Churn



"I think [cloud gaming] is years away from being a mainstream way people play. And I mean years, like years and years.... Let's take Netflix... It's 20 years old at this point, so it took two decades for us to get to the point where shows like *House of Cards* and *Game of Thrones* are some of the biggest shows in the planet and mainly watched via streaming. I think game streaming will get there faster than 20 years, but it's not going to be two years. This is a technological change...

I'm not trying to say go sell your consoles today and switch over to streaming. The experience just isn't the same as playing on your console... we'll have a global service that can reach everybody and the infrastructure to reach any customer with a consistent and high-quality internet service, but that's going to take time."

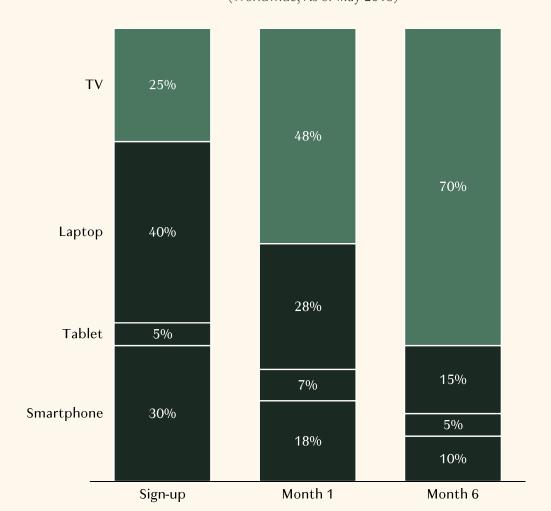
- Phil Spencer, Microsoft Gaming CEO, in 2019



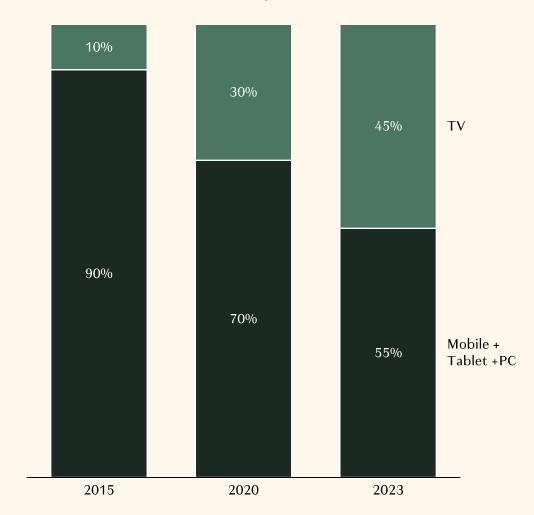
And as users embrace new forms of consumption, their engagement tends to migrate to the "best possible screen"







YouTube's Share of Total Watch Time By Device Type
(US Only)

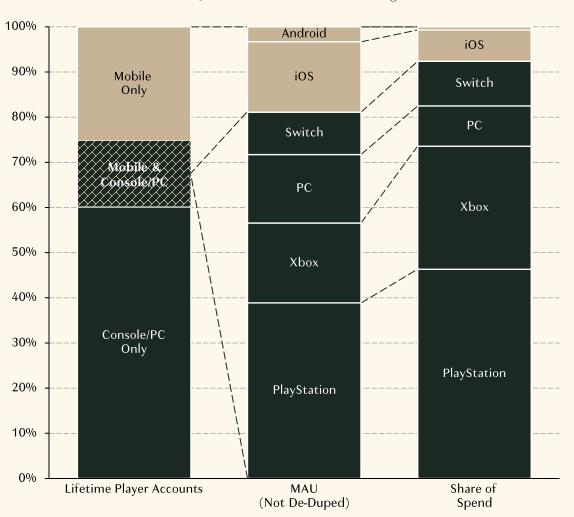


And though there tend to be high creative, technical, and financial costs to adapt Console/PC-centric titles to mobile — and for seemingly low ARPU and retention...

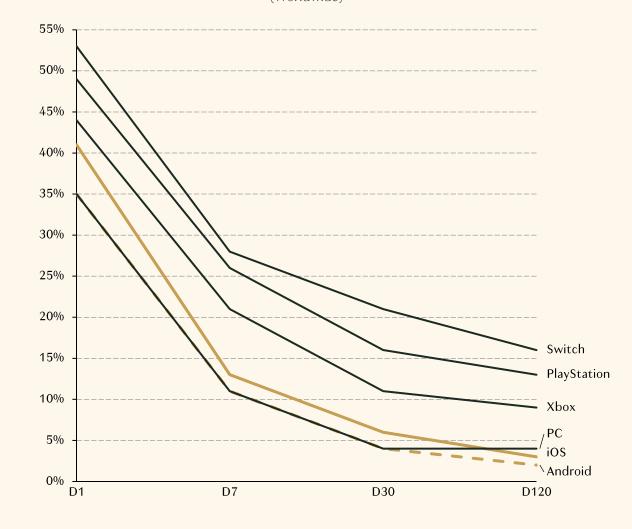


Fortnite Users & Spend

(Worldwide; From iOS Launch in 2018 through Ban in 2020)



Fortnite Player Retention by Platform And Day (Worldwide)

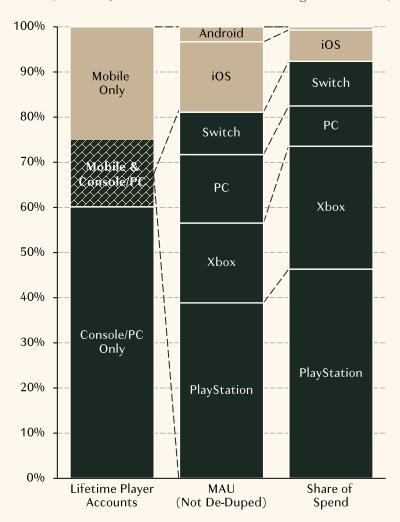


...focusing on the direct share of unique users + spend is too narrow, especially for multiplayer titles. Reed's Law: network value grows exponentially with users

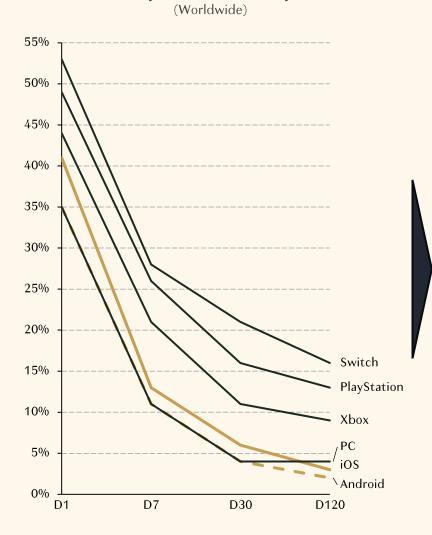


Fortnite Users & Spend

(Worldide; From iOS Launch in 2018 through Ban in 2020)



Fortnite Player Retention by Platform



~10% of Fortnite players played more through mobile, which should increase their propensity to buy Battle Passes and cosmetics

18% more total users should mean that the other 84% are likely to play more (driving Battle Pass and cosmetic sales) and receive more value from purchases (driving Battle Passes and cosmetics)

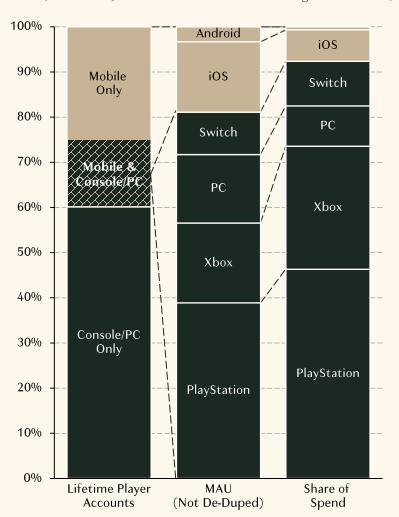
100% have additional reasons to playthis battle royale, rather than an alternative

In other words, mobile may have been a small share of Fortnite revenues — but this is partly because it so substantially grew non-mobile revenues, too

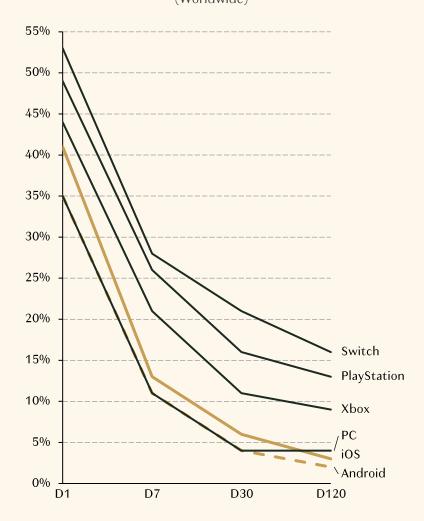




(Worldiwde; From iOS Launch in 2018 through Ban in 2020)



Fortnite Player Retention by Platform (Worldwide)



Highest-Grossing Games in 12 Months

(Worldwide, Order of Peak Year on Record)



Reviewing Potential New "Growth Engines" 1























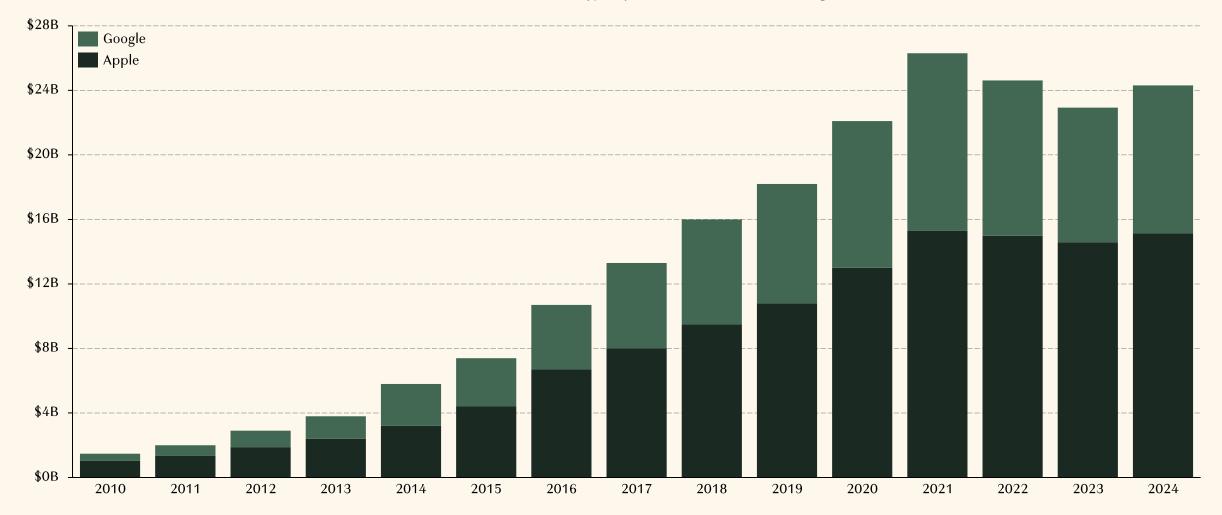
GTA VI Pricing

Recall that while mobile gaming spend has stalled and discovery/supply shriveled, app store profits exceed those of all (non-China) publishers/platforms in total



Total Worldwide App Store Revenue from Video Game Commissions

(Nominal Prices; Revenue Typically Estimated at 75-85% Profit Margins)



Opening up iOS/Android's app platforms could revive install growth, improve gamemaker margins, and renew innovations in over half the video game market



Improved/New Discovery & Competition to Drive Downloads





The proliferation of new app stores — especially those focused on mobile gaming — should lead to improvements in game discovery and acquisition costs

These new stores should lead to increases in discovery surface area and provide gamemakers with access to more tailored game audiences (and shelter from competition with non-gaming substitutes). Moreover, these platforms will have a much stronger incentive to drive installs (especially *new installs*) rather than serve their hardware and/or OS ecosystem.

10-20% Higher Net Revenue Margins



With greater competition between stores, as well as freer rules for direct in-app payment processing, many developers hope that their effective share of gross revenues might climb from 70% to 80–90%

It's likely that the biggest games and publishers see the greatest margin growth, and gains will vary by country and platform, and come with some new costs, too. However, all improvements will help fund more game investments (development and marketing), plus experimentation and risk-taking

Greater Business Model & Technological Flexibility & Experimentation



Many would-be video game business models and/or technologies are literally or practically prohibited on the major mobile app stores. This includes game subscriptions, cloud gaming, WebGL/OpenGL-based titles, and NFTs/Web3

However one feels about the viability, let alone significance of these theories, the inability for new ideas to be fully tested (and in failure, learned from) is stifling — and fundamentally problematic for a stagnant and/or declining category. Worse still is the plausibility that some of these prohibitions are motivate by the desire to maintain store revenues and margins

After years of false progress, there's evidence that iOS/Android's app platforms might soon start to open up



Accelerating Regulatory Action

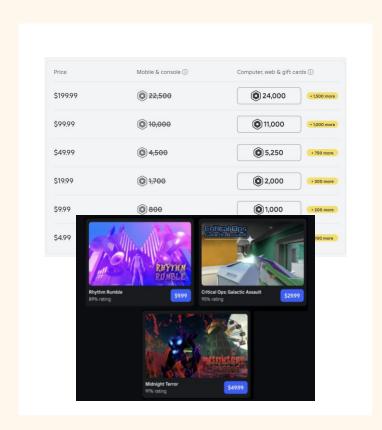
Google must crack open Android for third-party stores, rules Epic judge / Google must give rival third-party app stores access to the full catalog of Google Play apps - and distribute third-party stores. By Sean Hollister, a senior editor and founding member of The Verge who covers gadgets, games, and toys. He spent 15 years editing the likes of CNET, Gizmodo, and Engadget. Oct 7, 2024, 2:48 PM EDT 243 Comments (243 New) **Apple to Face First EU Fine Under Bloc's Digital Markets Act** ■ Fine will target Apple for anticompetitive App Store practices ■EU move follows earlier €1.8 billion fine in Spotify case November 5, 2024 at 3:45 PM EST Updated on November 5, 2024 at 4:05 PM EST ☐ Save X Translate ∨ ☐ Listen 2:44 Apple Inc. is set to face the first-ever fine under the European Union's new digital antitrust rules for Big Tech, representing an escalation of a clash with regulators over the dominance of its hugely profitable App Store. Watchdogs are readying the penalty after the iPhone maker failed to allow app developers to steer users to cheaper deals and offers outside of the App Store, according to people familiar with the case,

who spoke on condition of anonymity

High-Profile App Stores Are Launching

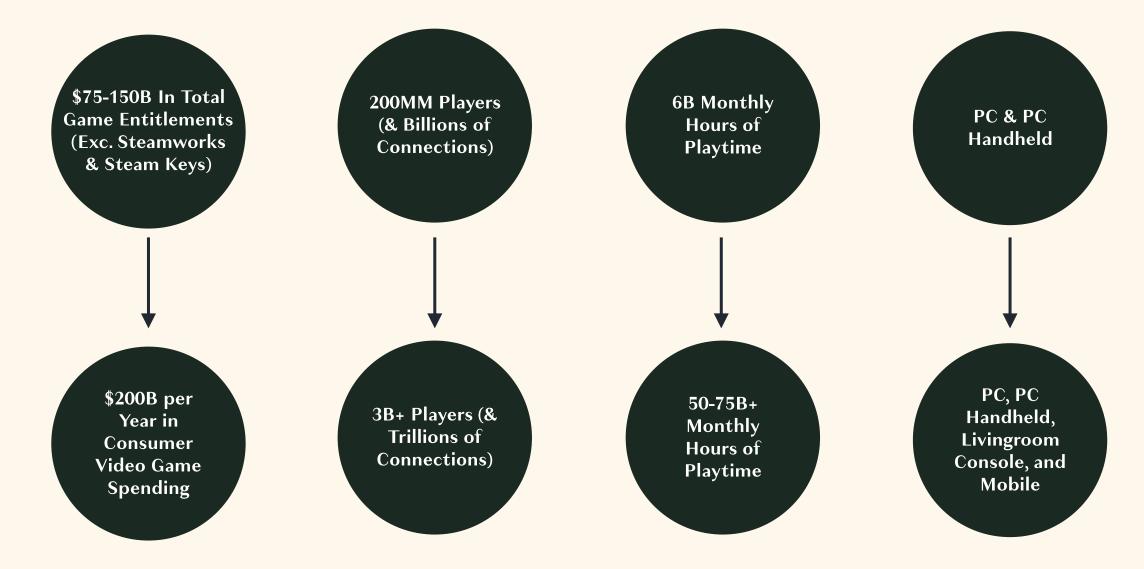


Roblox Now Offers 7–25% More Robux for Non-Mobile Purchases; Limits Game Buys to PC/Web



And as mobile opens, Steam has the opportunity to extend its entitlements and social platform to every device and nearly every game, user, hour, and achievement





Notes Source: Epyllion analysis

Reviewing Potential New "Growth Engines" 1























GTA VI Pricing

Over only a few years, indie-developed mods spawned the largest AAA game genre in history — one adapted (and/or created) by the very largest gamemakers globally



2022

Development of the Battle Royale Genre

(Select Examples)





2014





2012



HIZI KING KILL

2016





2018

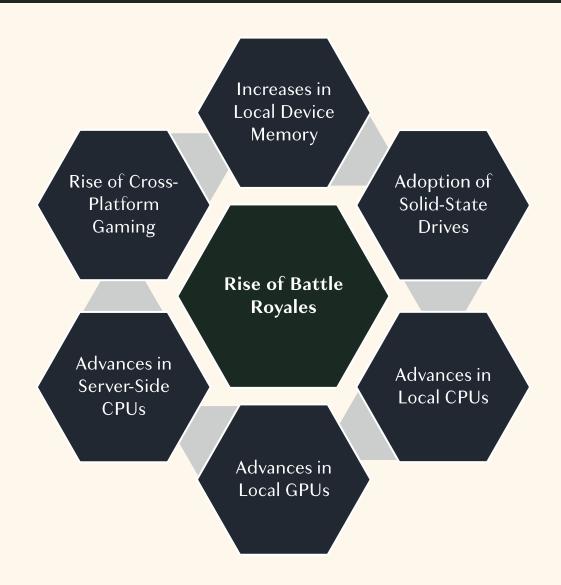


CALLEDUTY

2020

Yet battle royales were not a new idea. Rather, they were newly possible ideas as a result of various technological advances



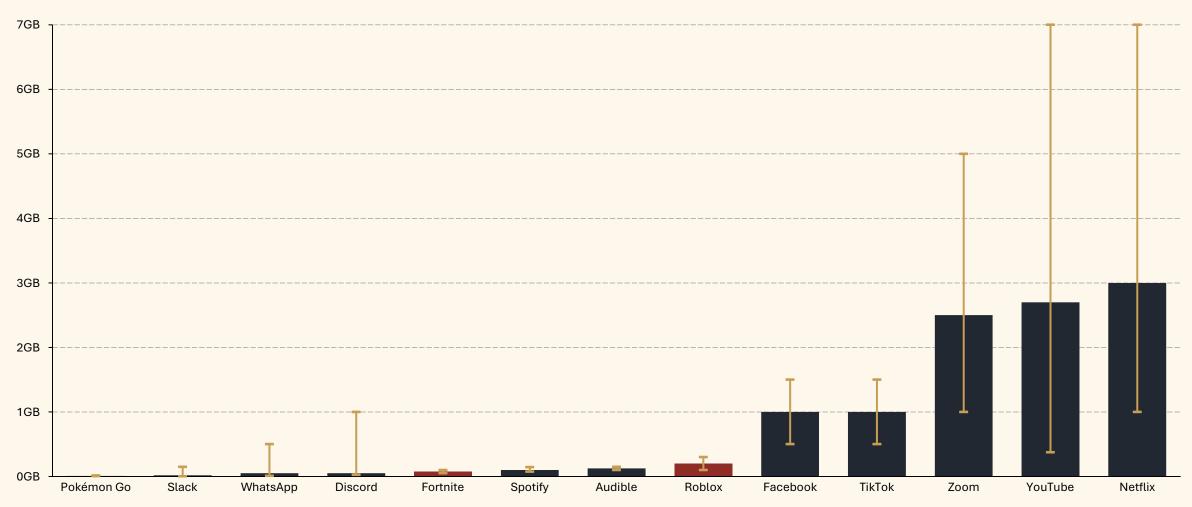


For all their sophistication, most of today's top games use less data than "legacy" apps like Facebook, and a 100th the data of top video calling and streaming apps



Data Usage per Hour, Regular Use

(Ranges Span Different Use Cases, Resolutions, Bitrates, etc.)



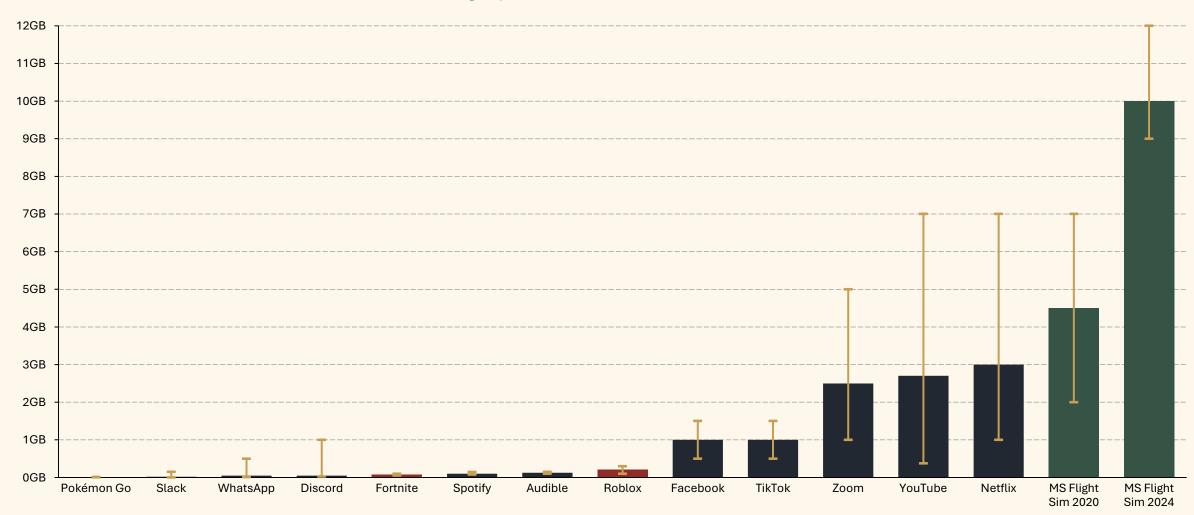
Source: Epyllion analysis

Some new video games are cloud streaming 5–12 GB of data per hour, not as a rendering solution (à la Stadia) but for traditional local processing/rendering



Data Usage per Hour, Regular Use

(Ranges Span Different Use Cases, Resolutions, Bitrates, etc.)



Microsoft Flight Sim 2020 runs a 500,000,000 km² and 2 petabyte (2 million GBs) map reproducing nearly all of our world (3T unique trees, 1.5B buildings, etc.)







WATCH: https://www.youtube.com/watch?v=DVNIyjo2Q44 or https://tinyurl.com/StateofVideoGaming2025-MSFS

Flight Sim's 2024 update uses up to 5x the hourly data, enabling a 4,000x increase in environmental detail (e.g. lift is affected by heat density of 6,400 surfaces)

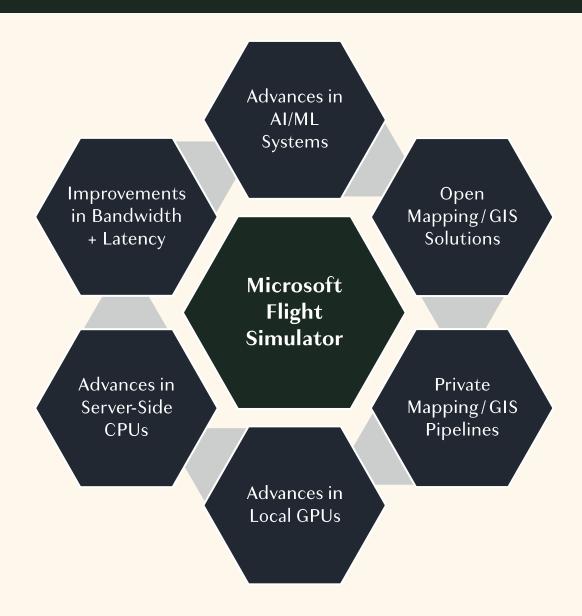






Microsoft Flight Simulator is possible due to a vast number of solutions across Microsoft (Azure, Bing Maps) and beyond (telecoms, GIS pipelines, etc.)





In 2024, the U.S. Federal Aviation Administration announced helicopter pilots could receive credit toward their pilot ratings on Loft Dynamics VR systems

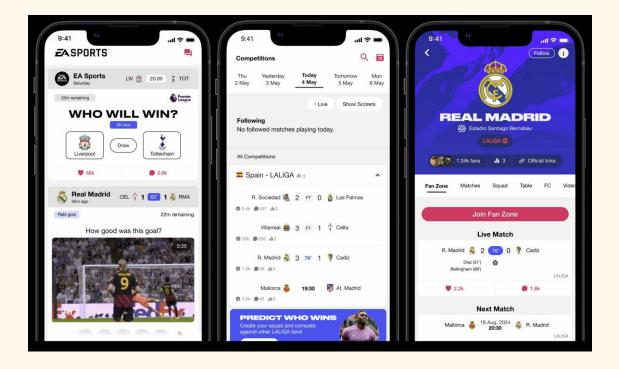




Even the "biggest" games in the world are working on new ways to expand their reach and role — in some cases, by going beyond the "game"



EA Sports' New App: Includes "real world" team and match data, including schedules, video highlights, fantasy sports, and live community/fan clubs (might sports betting soon arrive?)



EA Sports' Highlighter: Promises new functionality whereby users can replay "real" matches, but real-time and in-engine, affording any angle, change, substitution, etc.



WATCH: https://www.youtube.com/watch?v=hsvX8NMGUxl&t=7079s or https://tinyurl.com/StateofVideoGaming2025-EA

It's possible to identify some technical catalysts for new genres, but not how far they must mature, their cross-dependencies (inc. with AI), or what they'll make



Mass Concurrency



Fortnite has 100 players per server because Epic "couldn't make 200 players work on a server." Though this is probably a slight simplification and exaggeration, there are still significant constraints to how many users can be in a shared simulation at once – constraints that shape fidelity, functionality, map size, genre, and gameplay mechanic. As this barrier is overcome, what might the new "battle royale" be? And how might it introduce new monetization models, cultural events, or players to video games?

High-Bandwidth Data Streaming



The fidelity, diversity, and "live" aspect of any game world today is currently limited by the fact that nearly all of that world is "predownloaded" and limited information is sent to the user as they play (e.g., positional data, select items or game data). Our very sense of what a world is, looks like, can do, etc., will change and grow

Higher-Persistence Game Worlds



Due to limitations in CPU/GPU power, hard drives, as well as bandwidth and latency, most video games have low levels of persistence. Most enemies defeated, conversations had, objects destroyed or created or changed, and other gameworld events are "forgotten" by the gameworld. As such, it's as though they never even happened – meaning the gameworld was never truly "living," either. What happens when a world "never forgets?" What is an MMO in a world that remembers, if not everything, most things?

Cloud Native Games



Cloud-native games are generally expected to focus on mass concurrency and high persistence (and, of course, they require high levels of bandwidth). Even so, there's a hope that games that are built for cloud streaming, rather than built for traditional rendering and then cloud streamed, might produce particularly unique, new gaming experiences.

(Pictured: Hideo Kojima's forthcoming cloud-native Xbox title, OD, which Kojima claims will be a "new form of media" altogether)

Reviewing Potential New "Growth Engines" 1























GTA VI Pricing

To some, Generative AI may be a "Holy Grail" that helps halt cost escalation and reduces "minimum viable scale," and also grows players and per-player spend





- Bring games to market faster (i.e. less delay to market trends);
- Lower cost of development and support (enabling viability at lower sales or userbases)
- More iteration (improving quality)

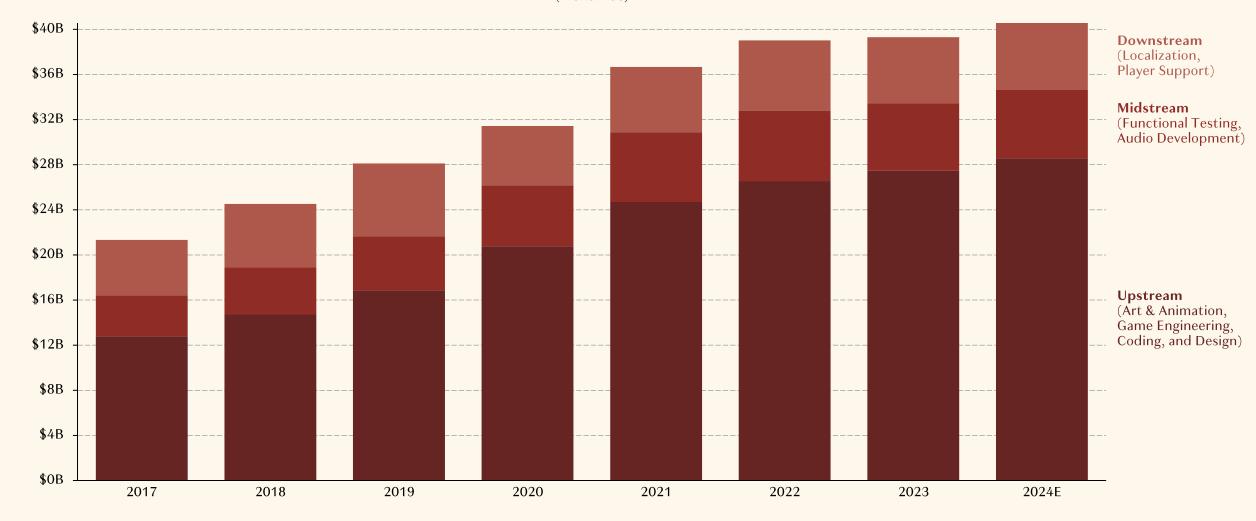
- Higher volumes of GAAS content (improving retention and engagement)
- Greater personalization (driving sense of immersion)
- Expanded UGC functionality and ease-ofuse (improving engagement, quality, and developer economics)

- More time
- More content
- More items
- Better games
- Richer player experiences
- Larger and stronger UGC ecosystem

Reminder: industry-wide content development spend has surged 90% since 2017 — 1.6x the rate of consumer spend growth, and 2.1x that of Console/PC spend



Total Video Game Content Development Spend (Worldwide)



For many, the "big opportunity" in Generative AI is not production savings or efficiency — at least not directly. Instead, it's altogether new genres/experiences



In April 2023, researchers at Google and Stanford <u>published a paper</u> summarizing a two-day simulation designed to test the believability of virtual agents powered by (circa February 2023) large language models

Specifically, the researchers assembled a town equipped with houses and dormitories, colleges and offices, grocery stores and bars, and populated with 25 autonomous agents powered by large language models modified "to store a complete record of the agent's experiences using natural language, synthesize those memories over time into higher-level reflections, and retrieve them dynamically to plan behavior."

During the simulation, characters organically formed routines, while also establishing friendships, sharing information learned, and developing professional interests.

After researchers prompted one NPC to host a Valentine's Day party, the NPC opted to invite her friends to the party, roping in customers at the café where she worked, too, and asked her closest friend to help them with decorating. The friend then did so and revealed that she had a crush on another NPC, whom the NPC then also invited to the party. At the party's scheduled 5 p.m. start, all five NPCs arrived on time, having rearranged their days to accommodate the event—including the crush, "Klaus."

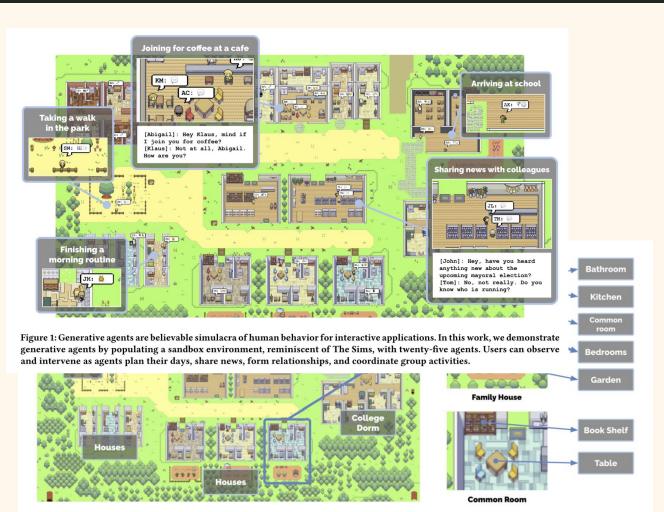


Figure 2: The Smallville sandbox world, with areas labeled. The root node describes the entire world, children describe areas (e.g., houses, cafe, stores), and leaf nodes describe objects (e.g., table, bookshelf). Agents remember a subgraph that reflects the parts of the world they have seen, maintaining the state of those parts as they observed them.

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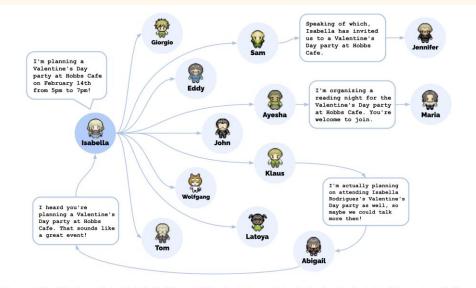


Figure 9: The diffusion path for Isabella Rodriguez's Valentine's Day party invitation involved a total of 12 agents, aside from Isabella, who heard about the party at Hobbs Cafe by the end of the simulation.

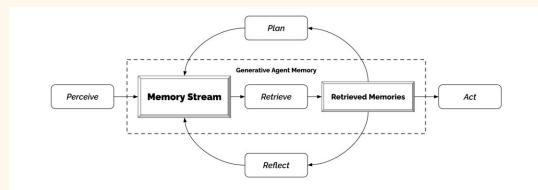


Figure 5: Our generative agent architecture. Agents perceive their environment, and all perceptions are saved in a comprehensive record of the agent's experiences called the memory stream. Based on their perceptions, the architecture retrieves relevant memories and uses those retrieved actions to determine an action. These retrieved memories are also used to form longer-term plans and create higher-level reflections, both of which are entered into the memory stream for future use.

Some of these experiences are technically viable without Generative AI, but their operation would far outstrip economic viability. And may be less "believable," too



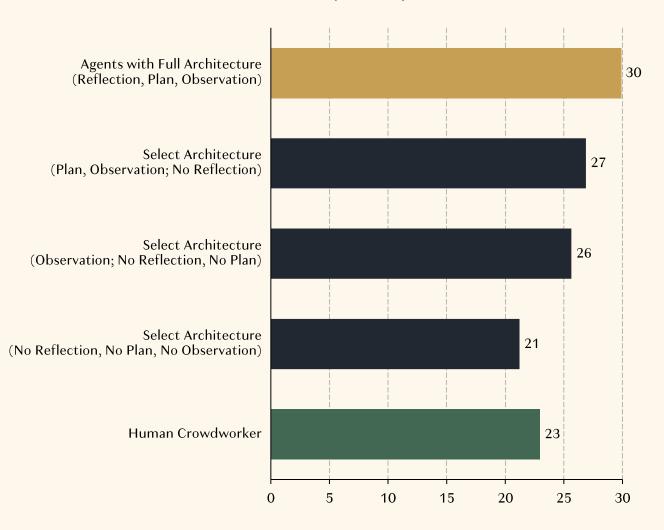
After the simulation concluded, each behavior of each agent was reviewed and evaluated for believability using common behavioral models (e.g., TrueSkill, Microsoft Xbox Live's skill-based matchmaking

Each agent was also "interviewed" for "self-knowledge" (details on their life), "memory" (such as whom they met and what happened during the simulation), "plans" (what they will do and when), "reactions" (what they would do in case of a fire or upon seeing a friend on the street), and "reflections" (what inspires them or what they would buy for another agent's birthday).

system) and variance tests (Kruskal-Wallis).

Independent human "crowdworkers" were also hired and asked to watch each agent's two-day experience and then role-play as these agents while answering the same questions. The Stanford/Google researchers found that the LLM agents consistently outperformed their human role-players and exceeded the believability benchmark

TrueSkill Ranking in the Google/Stanford Experience (Worldwide)



Far more controversially, some believe Generative AI world models might come to replace much of a game engine — and in doing so, create unbound virtual worlds



Google's Genie 2 Large-Scale Foundational World Model

Generate a playable world on a spaceship

WATCH: https://tinyurl.com/StateofVideoGaming2025-Genie2

Reviewing Potential New "Growth Engines" 1



















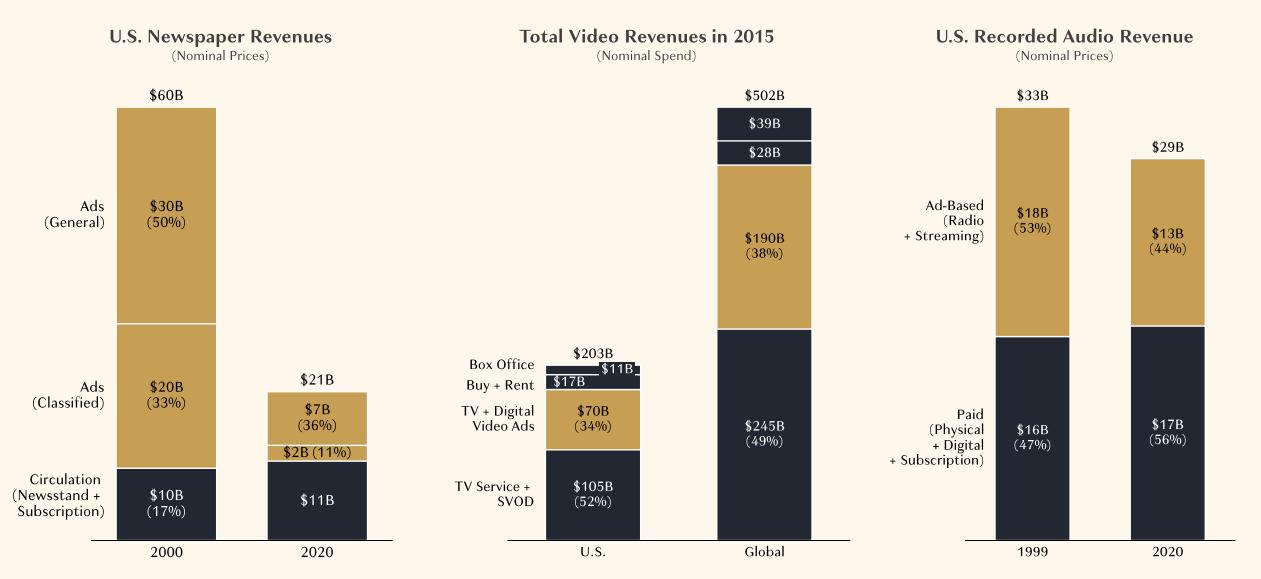




GTA VI Pricing

For most media categories, advertising will constitute 40–50% of total revenues — contributing just under a dollar for every dollar a consumer spends



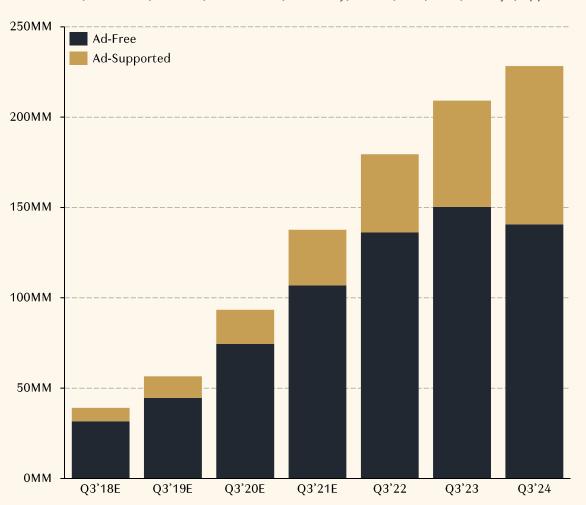


And as the digital video market matured, growth shifted to ad-supported models that had lower monthly bills yet generated *higher* net ARPU for services



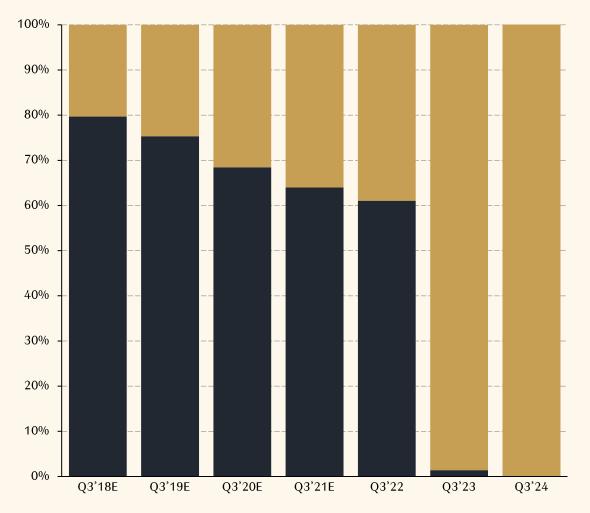
U.S. Premium SVOD Subscribers

(Starz, Showtime, Peacock, Paramount+, Discovery, Netflix, Max, Hulu, Disney+, Apple TV+)



U.S. Premium SVOD - Share of Net Ads

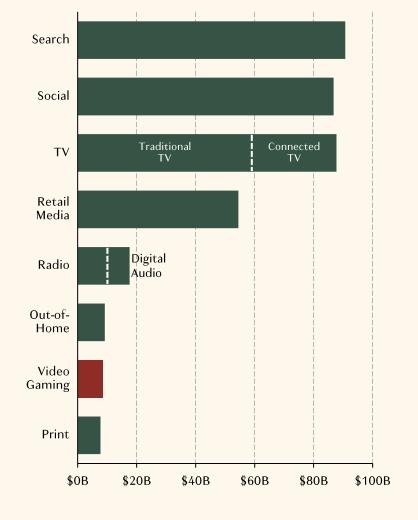
(Starz, Showtime, Peacock, Paramount+, Discovery, Netflix, Max, Hulu, Disney+, Apple TV+)



In the U.S., video games get less ad spend than outdoor and radio (and barely beat print!), hold 12.6% of digital media time but only 2.8% of digital media ad spend

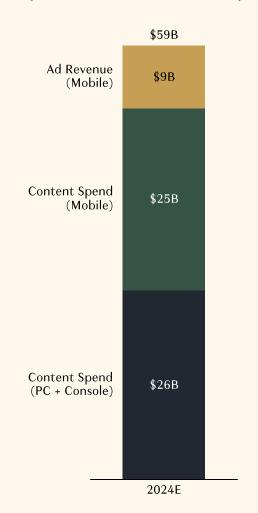






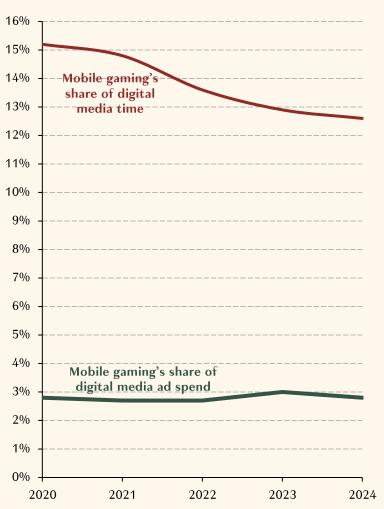
U.S. Content-Related Video Game Revenue

(Excludes hardware and accessories)



Mobile Gaming's Share of Time & Ads

(Roku Channel + Tubi + Pluto TV)

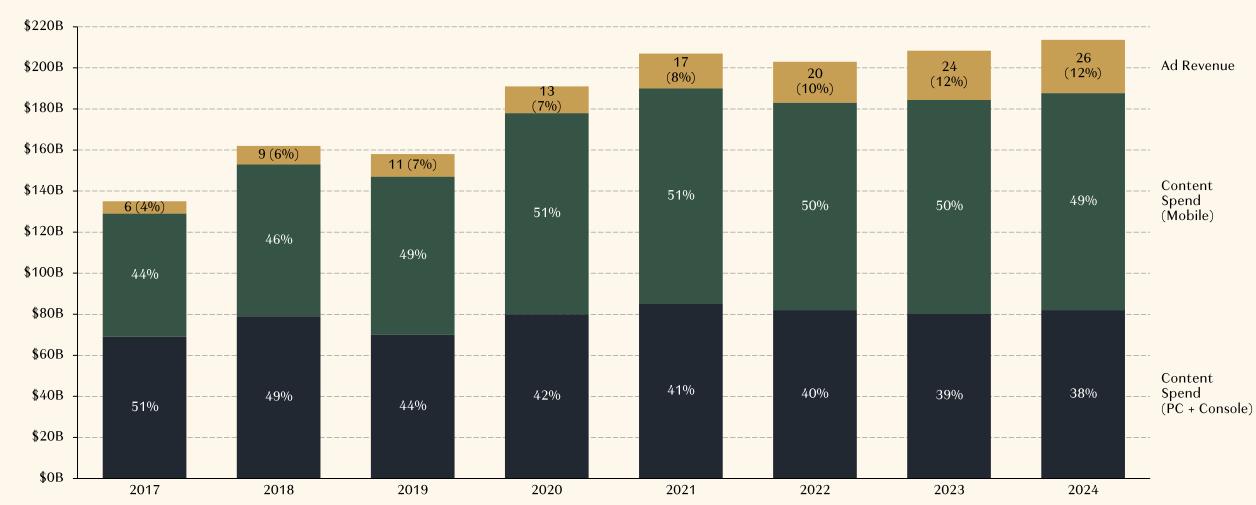


And as consumer spend fell \$2.3B v. 2021, related ad revenue grew \$9B, from 8% to 12% of total revenues (but nearly all is *on* mobile games to *promote* mobile games)



Worldwide Consumer Spend and Advertising Revenue on Video Games

(Nominal Prices)



Video games face many problems to scaling advertising — enough for its potential revenues to have been overlooked during the last 15 years of hyper growth



Ad Unit Problem

The size, dimension, resolution, placement, etc., of actual and potential inventory is highly variable, as are publisher needs/wants

Standard View Problem

Ads are seen at irregular cadences, from variable positions and contexts, leading to inconsistent quality of exposures, recall, etc.

Call-To-Action + Measurement Problem

Live and interactive, let alone multiplayer content, is not conducive to viewers clicking through to a website or completing a transaction/action

Limited
History of Ads
Problem

Most mediums have always had ads. Gaming has not. Audience expectations and tolerance are thus fundamentally unique, as is buyer readiness Programmatic Network Requirement

To generate substantial revenues, the industry must offer programmatic solutions, rather than just custom implementations

High Minimum Viable Scale

To attract substantial advertiser interest, the industry needs to offer a substantial scale of audience, impressions, and formats

But as real game prices and engagement fall, while costs and failure rates surge, advertising has become a key area of focus for the biggest platforms/publishers



Ad Unit Problem Standard View Problem Call-To-Action
+ Measurement
Problem

Limited
History of Ads
Problem

Programmatic Network Requirement High Minimum Viable Scale



FTC filings show MICROSOFT expects its gaming ad revenue to grow from \$100MM in 2022 to \$1.4B by 2030, powered in part by its \$1 Xandr acquisition and Game Pass service, PC-based Game Store/Launcher and Game Bar overlay



With a centralized stack supporting 400MM MAUs, 7B hours, and 15MM disparate experiences, and also negative profit margins, ROBLOX has the scale, control, and incentives to build an ad network



looking at how do we do very thoughtful

implementations inside of our [games]"

Reviewing Potential New "Growth Engines" 1





















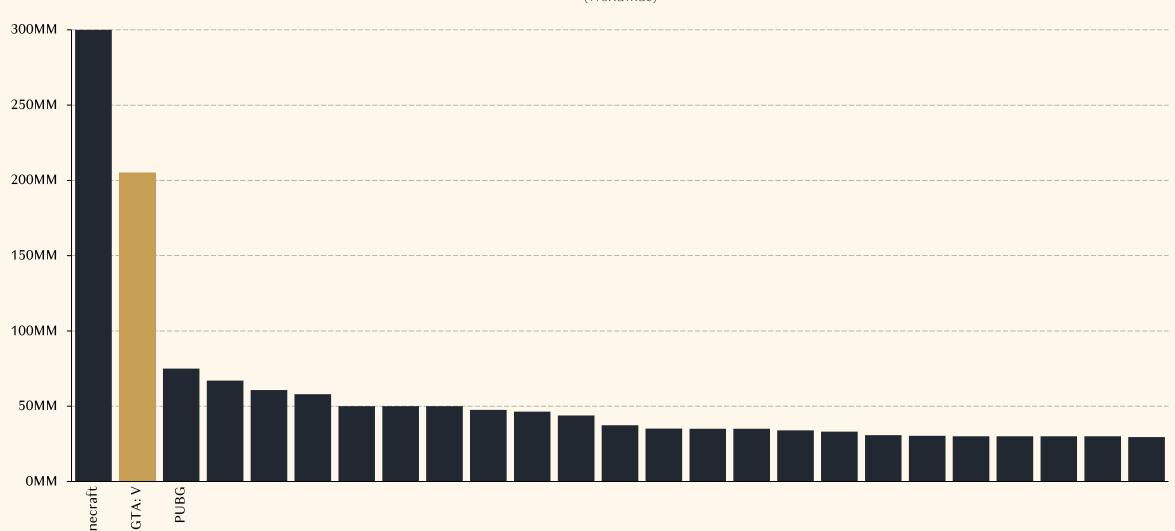


GTA VI Pricing

In 2025, GTA VI's impact on industry playtime and spend will be mixed as it launches console-only and (severely) cannibalizes hours/spend on other titles



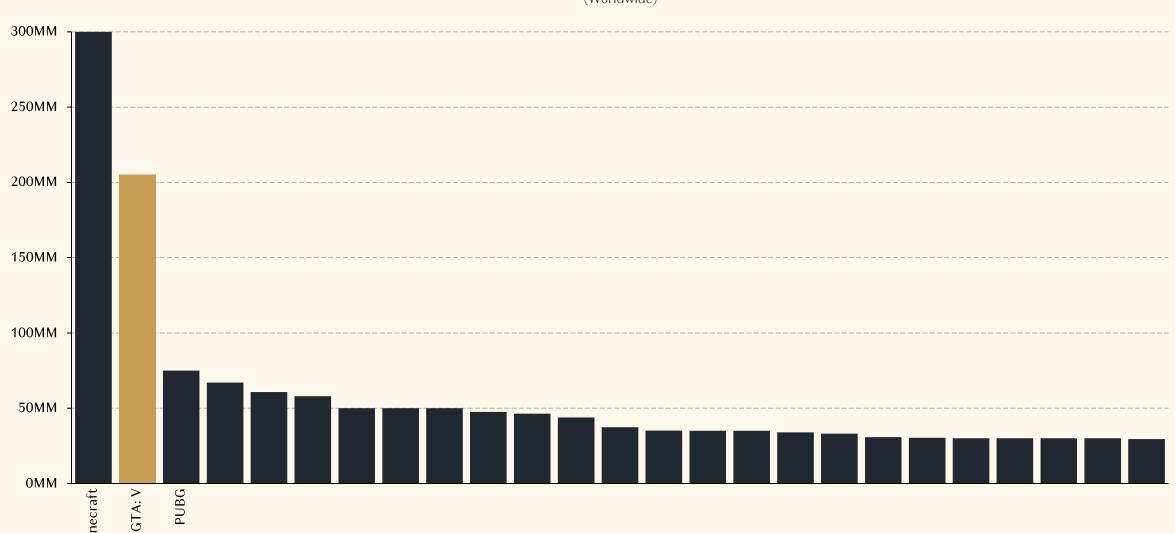




...But some gamemakers hope GTA VI will be priced at \$80-100, breaking the \$70 barrier and helping \$50 titles to move up to \$60, \$60 to do \$70, \$70 to \$80, etc.



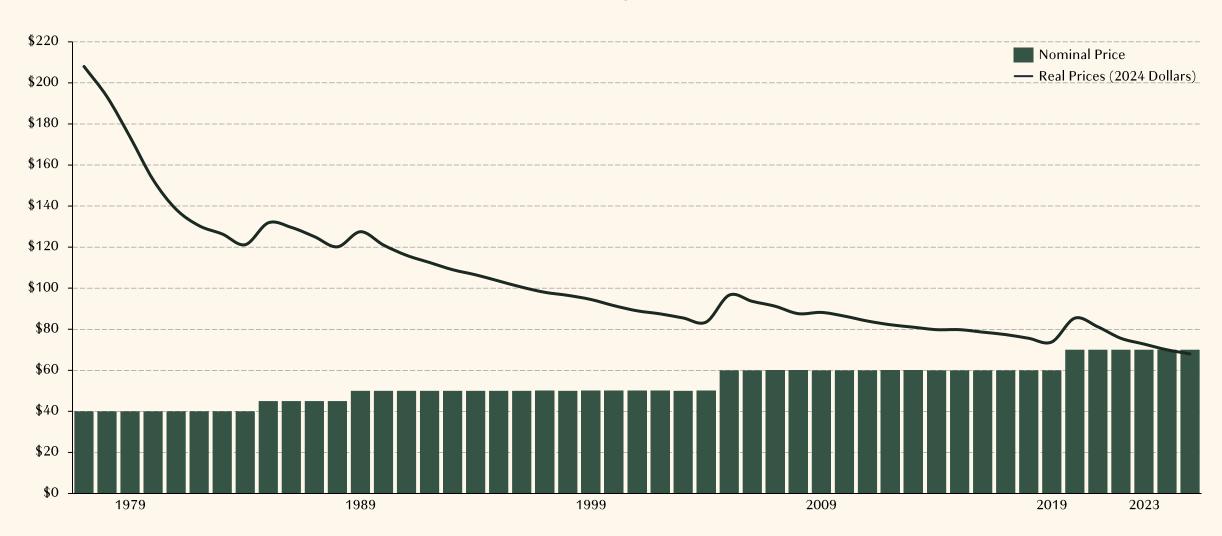




Recall that game prices have *never* been lower in real terms than they are today — a tough problem to start and worsened by stalled player growth and rising costs



Standard U.S. Prices for Packaged Video Games, Initial Release

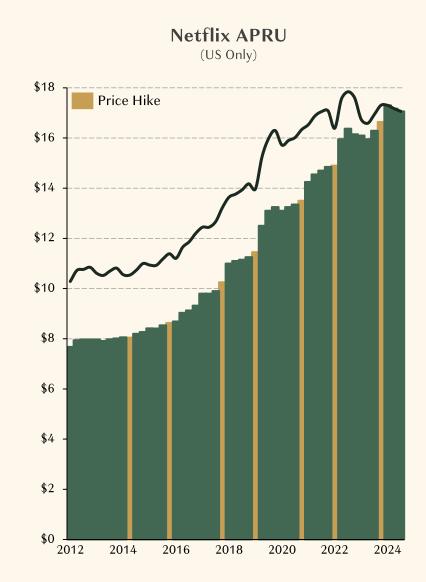


No other major leisure forms have seen their products become worth *less* nearly every single year for decades — and this hurts developers of every size and budget





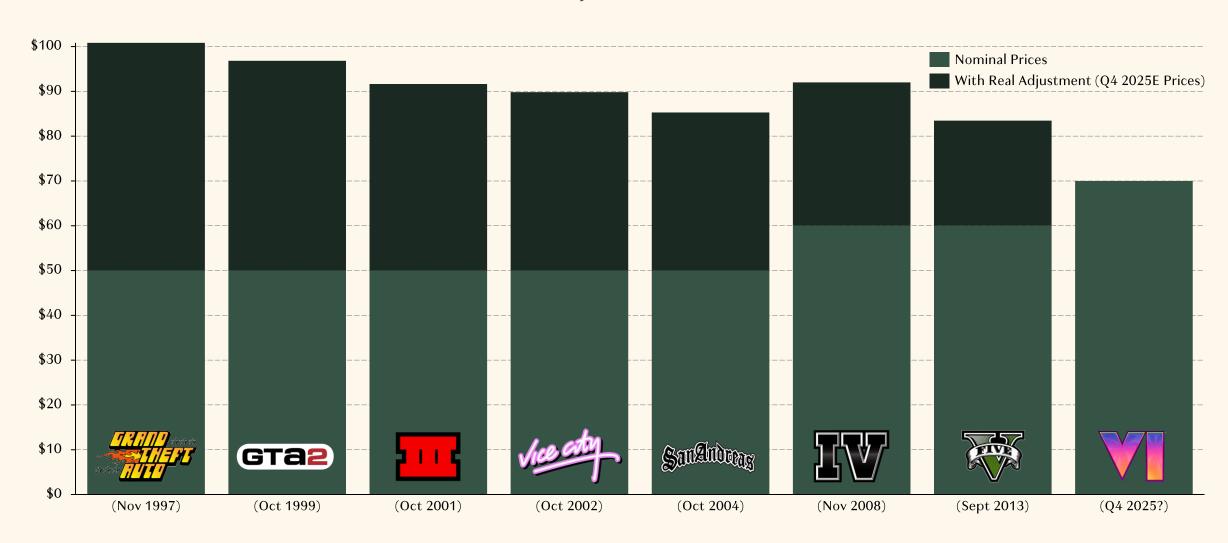




In real terms, a \$70 GTA VI would be the *cheapest-ever* GTA — 30% less than its original 2D entries, and 16-24% less than GTA IV and GTA V. \$91 would be *average*



Nominal and Real U.S. Prices for Major Grand Theft Auto Entries at Time of Release



Summarizing Potential New "Growth Engines" 1



Maturation of local developers/content should accelerate local spending growth

> 'Non-Core" **Markets**

Still surging and onboarding millions to video gaming, while also diversifying into new experiences/formats

> **UGC** Platforms & Tools

Continue to grow in scale, engagement, and functionality, while driving ever-greater game discovery

> Social Game Services

Have the potential to massively expand the addressable playtime time for AA/AAA titles, especially those by 3rd-party developers

Other New Switch 2 **Handhelds** & Devices

Advances in local processors and cloud gaming may (finally) bring hundreds of millions of new players to "PC/Console" games

> AA/AAA Mobile Gaming

App Store Regulation

Though overdue, app stores are beginning to open up – which might drive billions back to developers, and enable new game technologies, business models, and discovery platforms

New Game Genres

As gaming (and nongaming) technology improves, the "next" battle royale may soon emerge

AI

May help solve decades of cost growth, while also improving operating economics, and creating new genres

Advertising

Can bring tens of billions in (much needed) new revenue without driving up consumer pricing, spending, or hours

GTA VI Pricing

> Could re-establish packaged video game prices after decades of deflation (despite rampant cost growth)

Notes: 1 Ordered logically, rather than in order of monetary value, significance, timing, etc.;

²This isn't to say I believe in each one, let alone to the degree sometimes argued, but I do think each is worth arguing



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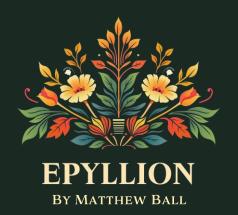












The State of Video Gaming in 2025

January 2025 Last Updated: 7 May 2025